Curriculum Committee
Meeting Minutes
November 10, 2015
3:30pm-5:00pm
Jackson Hall 14

Debbie Hill    Martha Joyce    David Farrington    Karen Carroll
Roger Kennedy    Georgann Willis    Lena Green    Kristi Hurt (Sec)
Elizabeth Bastian    Tamra Loosli    Ken Carloni    Dee Winn
Clay Baumgartner    Joel King    Mariah Beck    Mary Stinnett

Approval of minutes from last meeting:

Business to be reviewed by Curriculum Committee:

New Courses:
To Be Presented By: Lena Green
- BI 101B
To Be Presented By: Ken Carloni
- NR 141
- NR 261
To Be Presented By: Dee Winn
- MTH 265
To Be Presented By: Clay Baumgartner
- CIV 290
- GIS 203
- GIS 280
- OST 290
- SOILS 206
- SUR 209
- WQT 280
To Be Presented By: Joel King
- Emergency Medical Services Rescue
- Fire Behavior and Combustion
- Hazardous Materials Chemistry
- Legal Aspects
- Occupational Health Safety
- Principles of Emergency Services
- Principles of Fire and Emergency Service Administration

New Program

Course Revisions:
To Be Presented By: Mariah Beck
- MTH 105
To Be Presented By: Ken Carloni
- BOT 204
- NR 230
- NR 240

To Be Presented By: Clay Baumgartner
- CIV 214
- ENGR 112
- GIS 234
- GIS 235
- SUR 162
- SUR 163
- WQT 227
- WQT 228
- WQT 260
- WQT 261
- WQT 290

To Be Presented By: Roger Kennedy
- EMS 175

To Be Presented By: Joel King
- Deletion of CH, GS, PH
- FRP 123
- FRP 163
- FRP 230
- FRP 240
- FRP 280
- FRP 121 A
- FRP 121 B
- Delete CIS 120 as requirement for AAS Paramedicine
- Delete WR 122 as requirement for AAS Paramedicine
- FRP 101
- FRP 122
- FRP 202
- FRP 111
- FRP 212
- FRP 213
- FRP 230

To Be Presented By: Mary Stinnett
- MTH 211

Program Revisions:
To Be Presented By: Ken Carloni
- NR-LM

To Be Presented By: Roger Kennedy
- AAS in Paramedicine
To Be Presented By: Joel King
  • Fire Science

Informational Items:
Ken Carloni: Inclusions to AAOT Tables

Next Curriculum Committee Scheduled for November 17th, 2015
Curriculum Committee
Meeting Minutes
October 13, 2015
3:30pm-5:00pm
Jackson Hall 15

Elizabeth Bastian  Martha Joyce  David Farrington  Karen Carroll
Roger Kennedy  Tamra Loosli  Georgann Willis  Kristi Hurt (Sec)

Business to be reviewed by Curriculum Committee:

New Courses:

New Program

Course Revisions:
To Be Presented By: Tamra Samson
- BI 222  Does not need to be included in IC packet, should have been part of RN program revision

To Be Presented By: Sandra Angeli- Gade
- HS 144  Okay to submit to IC  M/S/A
- HS 107  Need to resubmit changes as new course request. David assigned course # HS 108. Need to update any programs that contain HS 107 and retire HS 107 from catalog  M/S/A
- To Be Presented By: Cheryl Yoder
- Martial Arts A, B, C  Okay to submit to IC  M/S/A

Program Revisions:
To Be Presented By: Martha Joyce
- Marketing AAS  Okay to submit to IC, may consider approving additional elective choices  M/S/A

To Be Presented By: Tamra Samson
- Registered Nursing Program  Move BI 222 from program to “pre-req”. Needs catalog change.
  Submit to IC with changes  M/S/A
- Practical Nursing Program  Remove CHEM from “pre-reqs”, change MTH 065 to MTH 095, decrease total program credits from 51 to 47
  Submit to IC with changes  M/S/A

Next Curriculum Committee Scheduled for November 10th, 2015
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**

**Name of New Course Contact:** Yelena Green, M.S.  
**Contact Title:** Associate Professor  
**Department:** Science  
**Supervisor:** Jason Aase  
**Program:** Natural Resources

**New Course Information**

**Date, Year, and Term of Proposed Implementation:** 06.1026  
**Course Title:** General Biology  
**Course Number:** BI 101 B  
**Number of Credits:** 4  
**Activity Code:**

- _X_100 - Lower Division Collegiate  
- _210 - CTE Preparatory  
- _211 - Stand-alone (Independent) CTE Preparatory  
- _220 - CTE Supplemental  
- _230 - CTE Apprenticeship  
- _310 - English as a Second Language  
- _320 - Adult Basic Education  
- _330 - General Education Development Test Preparation  
- _340 - Adult High School Diploma, High School Completion  
- _350 - Post-Secondary Remedial, Reading or Writing  
- _351 - Post-Secondary Remedial, Math  
- _352 - Post-Secondary Remedial, Electives  
- _360 - ACE – Unknown  
- _361 - ACE - Health and Fitness  
- _362 - ACE – Safety  
- _363 - ACE – Workforce  
- _510 - Non-Reimbursable – Unknown  
- _511 - Non-Reimbursable - Hobby and Recreation  
- _512 - Non-Reimbursable - Other/Administrative

**Course Type**

*If your course is a combination of the below options, please define it in ‘other’*

- _Lecture (11 hrs/credit)  
- _Lab (30 hrs/credit)*
__Lecture/Lab (20 hrs/credit)

_x_Other:

**Number of Hours:** 6 hrs. lecture, 6 hrs. lab/wk; 66 hrs/term

*See 'course type' above for guidance*

**Co- and Pre-Required Information**

_Please define any co- or pre-requisite information._

**Co- and Pre-Required Enforcement**

_Please choose an enforcement option for the information listed above._

__Registration Enforced__

__Instructor Enforced__

__Combination or Other Enforcement__

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**

A-F, audit

**Load Factor:**

5.1 ILCs

**Award Information:**

_Please select all that apply._

__AA__
__AS__
__AAS__
__Below 100-Level__
__X_Elective__
__Certificate__
__X_AAOT__

*If you selected 'AAOT' above, please select the area of distribution below.*

__Arts and Letters__
__Mathematics__
__X_Science or Computer Science__
__Social Science__
__Speech/Oral Communication__
__Writing__
__Cultural Literacy__
**UCC New Course Approval**

**CTE and Lower Division Collegiate Proposals Only**

Approved by Advisory Committee?  N/A

Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
_X_Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

**Required Course Information**

*Please list all programs for which this course will be required*

**New Course Justification**

**Student Need for Course (Please describe)**

This is a stand-alone course for students requiring a science course to complete their AA or AAOT degrees. BI 101 B delivers study materials in the form of hybrid classes (lectures and exams are online, laboratories are face-to-face), offering advantage to working students and those with limited ability to visit college campus.

**Course Impacts (Select all that apply)**

_X_Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

**Course Impact Description**

*For any of the course impacts listed above, please describe.*

This course will be taught by an adjunct Instructor in summer (5 weeks).

**Replacement Course For:**

N/A


**Additional Process Items**

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fillable versions of these forms can be found at [http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces)

- _X_ Course Outline - required
- ___ Start-Up Budget (if needed)
- ___ Advisory Committee Minutes (if needed)
Course Title: General Biology
Developed By: Yelena Green, M.S.
Development Date: 10/28/15
Revision Date:
Review Date:

COURSE DESCRIPTION:

This course will provide basic information about principles of evolution, natural selection and speciation, origin of life, diversity of life, classification and diversity of groups of organisms including viruses, bacteria, protists, fungi, plants and animals; principles of ecology, including populations, communities, ecosystems, and the biosphere, and animal behavior. BI 101 B delivers abovementioned study in the form of hybrid classes, offering advantage to working students and those with limited ability to visit college campus.

COURSE OUTCOMES:

Upon completion of BI 101 B, students will be able to:

- Describe the scientific process and understand how it is used to develop theories
- Demonstrate knowledge of evolution, biodiversity and ecology covered in the course.
- Describe the components of an ecosystem and the flow of energy through it.
- Describe physical adaptations of animals and their adaptive significance.
- Use laboratory microscopes and other equipment to collect and analyze data.
• Demonstrate respectful and cooperative behavior in class and laboratory.

REQUIRED TEXT/MATERIALS:


COURSE OUTLINE:

Week:
1. Scientific Method; Evidence and Processes of Evolution
2. Origin and Evolution of Life; Viruses, Bacteria, and Protists
3. Plants, Fungi, Invertebrates, and Chordates
4. Populations, Community Interactions, and Ecosystems
5. The Biosphere; Human Impact on Environment
Basic Information
Name of New Course: Tree and Shrub Identification
Contact: Ken Carloni, Ph.D.
Contact Title: Dept. Chair
Department: Science
Supervisor: Ken Carloni, Ph.D.
Program: Natural Resources

New Course Information
Date, Year, and Term of Proposed Implementation: 2016 Spring Term
Course Title: Tree and Shrub Identification
Course Number: NR 141
Number of Credits: 3
Activity Code:
   _X_100 - Lower Division Collegiate
   _210 - CTE Preparatory
   _211 - Stand-alone (Independent) CTE Preparatory
   _220 - CTE Supplemental
   _230 - CTE Apprenticeship
   _310 - English as a Second Language
   _320 - Adult Basic Education
   _330 - General Education Development Test Preparation
   _340 - Adult High School Diploma, High School Completion
   _350 - Post-Secondary Remedial, Reading or Writing
   _351 - Post-Secondary Remedial, Math
   _352 - Post-Secondary Remedial, Electives
   _360 - ACE – Unknown
   _361 - ACE - Health and Fitness
   _362 - ACE - Safety
   _363 - ACE – Workforce
   _510 - Non-Reimbursable – Unknown
   _511 - Non-Reimbursable - Hobby and Recreation
   _512 - Non-Reimbursable - Other/Administrative

Course Type
   _11_ Lecture (11 hrs/credit)
   _Lab (30 hrs/credit)
   _40_ Lecture/Lab (20 hrs/credit)
   _X_Other:
Number of Hours:
11 hrs. lecture, 44 hrs. lecture/lab per term

Co- and Pre-Requisite Information
Recommended:

Co- and Pre-Requisite Enforcement
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

Catalog Course Description – Identification of the principal forest trees of North America, emphasizing trees and shrubs of SW Oregon and N California. Introduction to the forested regions of the world, and to the structure and function of woody plants. This is a hybrid course -- during spring term, students must either attend the NR 241 face-to-face lectures or enroll in the online NR 141 course. A six-day field tour of Southwestern Oregon and Northern California will follow in early summer. The use of cameras and field notebooks for documenting tree and shrub identification, location and habitat will be emphasized. The field tour will highlight the use of botanical keys to identify native woody plants while touring through regional plant communities. The tour will leave from the UCC campus, and will likely include stops in the Siskiyou Mountains, Smith River, Redwood State and National Parks, Trinidad State Beach, the Trinity River, the Mt. Hood/McCloud River area, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of botanical interest before returning to UCC. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails, and to camp at improved campsites each night. This is an extended spring term course and grades will be awarded after the tour during the following summer term. A fee is required to cover transportation, food and camping.

Grading Option: A-F, or audit

Load Factor: 5.1 ILCs

Award Information:
__AA
_X_AS
__AAS
__Below 100-Level
_X_Elective
__Certificate
_X_AAOT

If you selected ‘AAOT’ above, please select the area of distribution below.
__Arts and Letters
__Mathematics
_X_Science or Computer Science
__Social Science
UCC New Course Approval

__Speech/Oral Communication
__Writing
__Cultural Literacy

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
This course articulates with FES 141 in the College of Forestry at Oregon State University.

Required Course Information
Associate of Science in Natural Resources, Forest Engineering

New Course Justification
Required for Forest Engineering AS degree, lab science for AAOT.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
This course will be taught by an adjunct and will require 3.1 ILCs of pay beyond the Science Dept.’s current personnel costs. A lab fee is included to cover equipment and materials. This will save Forest Engineering students one credit.

Additional Process Items
__X__ Course Outline - (see also below)
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)

Course Outcomes

Students who successfully complete this course will be able to:
1. Identify economically and culturally important native tree and shrub species found in the United States, and describe the forested biomes of the world.
2. Explain the general anatomy and physiology of woody plant species.
3. Use botanical keys to identify dominant trees and shrubs of SW Oregon and N California.
4. Use camera and field notebook for documenting woody plant identification, location and habitat will be emphasized.
Course Outline

- Woody plant families and important genera
- Using dichotomous keys
- Structure and function of woody plants
- Ecological functions of woody plant species in their habitats
- Role of woody plants in forest succession
- Documenting trees and shrubs in the field
- Forested biomes of the world with emphasis on SW Oregon and N California
Course Title: **Tree and Shrub Identification**
Developed By: Ken Carloni, Ph.D.
Development Date: Nov. 2015
Revision Date:
Review Date:

**COURSE DESCRIPTION:**

Identification of the principal forest trees of North America, emphasizing trees and shrubs of SW Oregon and N California. Introduction to the forested regions of the world, and to the structure and function of woody plants. This is a hybrid course -- during spring term, students must either attend the NR 241 face-to-face lectures or enroll in the online NR 141 course. A six-day field tour of Southwestern Oregon and Northern California will follow in early summer. The use of cameras and field notebooks for documenting tree and shrub identification, location and habitat will be emphasized. The field tour will highlight the use of botanical keys to identify native woody plants while touring through regional plant communities. The tour will leave from the UCC campus, and will likely include stops in the Siskiyou Mountains, Smith River, Redwood State and National Parks, Trinidad State Beach, the Trinity River, the Mt. Hood/McCloud River area, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of botanical interest before returning to UCC. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails, and to camp at improved campsites each night. This is an extended spring term course and grades will be awarded after the tour during the following summer term. A fee is required to cover transportation, food and camping.
Course Outcomes

Students who successfully complete this course will be able to:

1. Identify economically and culturally important native tree and shrub species found in the United States, and describe the forested biomes of the world.
2. Explain the general anatomy and physiology of woody plant species.
3. Use botanical keys to identify dominant trees and shrubs of SW Oregon and N California.
4. Use camera and field notebook for documenting woody plant identification, location and habitat will be emphasized.

Course Outline

- Woody plant families and important genera
- Using dichotomous keys
- Structure and function of woody plants
- Ecological functions of woody plant species in their habitats
- Role of woody plants in forest succession
- Documenting trees and shrubs in the field
- Forested biomes of the world with emphasis on SW Oregon and N California
Basic Information
Name of New Course: Recreation Resource Management
Contact: Ken Carloni, Ph.D.
Contact Title: Dept. Chair
Department: Science
Supervisor: Ken Carloni, Ph.D.
Program: Natural Resources

New Course Information
Date, Year, and Term of Proposed Implementation: 2016 Spring Term
Course Title: Tree and Shrub Identification
Course Number: NR 261
Number of Credits: 4
Activity Code:
  _X_100 - Lower Division Collegiate
  _210 - CTE Preparatory
  _211 - Stand-alone (Independent) CTE Preparatory
  _220 - CTE Supplemental
  _230 - CTE Apprenticeship
  _310 - English as a Second Language
  _320 - Adult Basic Education
  _330 - General Education Development Test Preparation
  _340 - Adult High School Diploma, High School Completion
  _350 - Post-Secondary Remedial, Reading or Writing
  _351 - Post-Secondary Remedial, Math
  _352 - Post-Secondary Remedial, Electives
  _360 - ACE - Unknown
  _361 - ACE - Health and Fitness
  _362 - ACE - Safety
  _363 - ACE - Workforce
  _510 - Non-Reimbursable - Unknown
  _511 - Non-Reimbursable - Hobby and Recreation
  _512 - Non-Reimbursable - Other/Administrative

Course Type
  _44_Lecture (11 hrs/credit)
  _Lab (30 hrs/credit)
  _Lecture/Lab (20 hrs/credit)
  _Other:
Number of Hours:
44 hrs. lecture, 44 hrs. per term

Co- and Pre-Requisite Information
Recommended:

Co- and Pre-Requisite Enforcement
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

Catalog Course Description – Overview of recreation resource management including study of land and water resources used for outdoor recreation. The planning and management of natural and cultural resources for long-term resource productivity, with a focus on rural and wildlife areas of the forest, range and coast.

Grading Option: A-F, or audit

Load Factor: 4 ILCs

Award Information:
__AA
_X_AS
__AAS
__Below 100-Level
_X_Elective
__Certificate
__X_AAOT

If you selected ‘AAOT’ above, please select the area of distribution below.
__Arts and Letters
__Mathematics
_X_Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
This course aligns with FES 251 in the College of Forestry at Oregon State University.
Required Course Information
Associate of Science in Natural Resources

New Course Justification
Required for AS degree in Forest Engineering, Forest Management, Forest Operations. Third year course for BS in NR at OSU.

Course Impacts (Select all that apply)
_X_ Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
This course will require 4 ILCs of pay beyond the Science Dept.’s current personnel costs.

Additional Process Items
_X_ Course Outline - (see also below)
__Start-Up Budget (if needed)
__Advisory Committee Minutes (if needed)

Course Outcomes
Students who successfully complete this course will be able to:

1. define recreation and recount trends and historical events that shaped the field of recreation management;

2. list agencies and interest groups involved in natural resource based recreation, and describe their roles in the provision and management of recreation in outdoor settings;

3. describe and provide examples of positive and negative social (i.e., recreationists, communities) and ecological (i.e., biophysical, environmental) impacts associated with natural resource based recreation;

4. explain and provide applications of theories, concepts / constructs, and tools related to natural resource based recreation and its management (e.g., satisfaction, carrying capacity, norms, specialization, conflict, recreation opportunity spectrum, limits of acceptable change, indirect and direct management tactics); and

5. think critically about issues related to outdoor recreation and its management, and share opinions and experiences with others to strengthen understanding and comprehension.
Course Outline

- Current issues and overview of recreation impacts and management
- Land ethic, history, and visionaries
- Agencies in recreation management
- Ecological impacts of recreation and Leave-No-Trace
- Demographics and specialization of recreationists
- Satisfaction, motivations, experience-based management, and “Recreation Opportunity Spectrum”
- Carrying capacity, crowding, norms, and planning frameworks
- Recreation conflict, displacement, and substitutability
- Indirect and direct practices and principles of recreation management
Course No: NR 261
Course Credit: 4
Lecture Hrs/wk: 4
Lab Hrs/Wk:
Lecture/Lab Hrs/Wk:
Practicum Hrs/Wk:
Clock Hours: 44
Length of Course: 11 wks.
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 4 ILCs
Activity Code: 100
CIPS: 260101

Course Title: Recreation Resource Management
Developed By: Ken Carloni, Ph.D.
Development Date: Nov. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:
Overview of recreation resource management including study of land and water resources used for outdoor recreation. The planning and management of natural and cultural resources for long-term resource productivity, with a focus on rural and wildlife areas of the forest, range and coast.

COURSE OUTCOMES:
Students who successfully complete this course will be able to:

1. define recreation and recount trends and historical events that shaped the field of recreation management;
2. list agencies and interest groups involved in natural resource based recreation, and describe their roles in the provision and management of recreation in outdoor settings;
3. describe and provide examples of positive and negative social (i.e., recreationists, communities) and ecological (i.e., biophysical, environmental) impacts associated with natural resource based recreation;
4. explain and provide applications of theories, concepts / constructs, and tools related to natural resource based recreation and its management (e.g., satisfaction, carrying capacity, norms, specialization, conflict, recreation opportunity spectrum, limits of acceptable change, indirect and direct management tactics); and
5. think critically about issues related to outdoor recreation and its management, and share opinions and experiences with others to strengthen understanding and comprehension.
COURSE OUTLINE

- Current issues and overview of recreation impacts and management
- Land ethic, history, and visionaries
- Agencies in recreation management
- Ecological impacts of recreation and Leave-No-Trace
- Demographics and specialization of recreationists
- Satisfaction, motivations, experience-based management, and “Recreation Opportunity Spectrum”
- Carrying capacity, crowding, norms, and planning frameworks
- Recreation conflict, displacement, and substitutability
- Indirect and direct practices and principles of recreation management
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**
- **Name of New Course Contact:** Dee Winn
- **Contact Title:** Math Dept Chair
- **Department:** Mathematics
- **Supervisor:** Jason Aase
- **Program:** Arts and Sciences

**New Course Information**
- **Date, Year, and Term of Proposed Implementation:** 2016
- **Course Title:** Statistics for Scientists and Engineers
- **Course Number:** MTH 265
- **Number of Credits:** 4
- **Activity Code:**
  - _x_100 - Lower Division Collegiate
  - _210 - CTE Preparatory
  - _211 - Stand-alone (Independent) CTE Preparatory
  - _220 - CTE Supplemental
  - _230 - CTE Apprenticeship
  - _310 - English as a Second Language
  - _320 - Adult Basic Education
  - _330 - General Education Development Test Preparation
  - _340 - Adult High School Diploma, High School Completion
  - _350 - Post-Secondary Remedial, Reading or Writing
  - _351 - Post-Secondary Remedial, Math
  - _352 - Post-Secondary Remedial, Electives
  - _360 - ACE – Unknown
  - _361 - ACE - Health and Fitness
  - _362 - ACE – Safety
  - _363 - ACE – Workforce
  - _510 - Non-Reimbursable – Unknown
  - _511 - Non-Reimbursable - Hobby and Recreation
  - _512 - Non-Reimbursable - Other/Administrative

**Course Type**
*(If your course is a combination of the below options, please define it in ‘other’)*

- _x_ Lecture (11 hrs/credit)
- _Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
__Other:

**Number of Hours: 44**

*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**

*Please define any co- or pre-requisite information.*

Pre-req MTH 252

**Co- and Pre-Requisite Enforcement**

*Please choose an enforcement option for the information listed above.*

__x__ Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**
S

**Load Factor:**
4.0

**Award Information:**

*Please select all that apply.*

__AA
__AS
__AAS
__Below 100-Level
__Elective
__Certificate
__x__ AAOT

*If you selected 'AAOT' above, please select the area of distribution below.*

__Arts and Letters
__x__ Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
UCC New Course Approval

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?  NA
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
Computers and Engineering
and possibly Science

New Course Justification
Student Need for Course (Please describe)
OSU has quit accepting our current statistics course (243) for entrance into their Engineering School. However, they do accept MTH265 from other schools, namely LBCC. The main difference is that MTH265 uses Calculus to go deeper into Statistics and Probability Theory.

Course Impacts (Select all that apply)
__Max cost is $70,000/45*4=$6,222.22 Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.
Only the cost of paying a full-time instructor to teach the class once per year.
Replacement Course For:
MTH243 for that specific set of students. MTH243 will continue to be offered.
**Additional Process Items**

*Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at [http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces)*

- [x] Course Outline - required
- [ ] Start-Up Budget (if needed)
- [ ] Advisory Committee Minutes (if needed)
Course No: MTH 265  
Course Credit: 4  
Lecture Hrs/wk: 4  
Lab Hrs/Wk: 0  
Lecture/Lab Hrs/Wk: 0  
Practicum Hrs/Wk: 0  
Clock Hours: 44  
Length of Course 11 weeks  
Banner enforced Prerequisite: MTH 252 with a C or better  
Instructor enforced Prerequisite:  
Co-Requisite:  
Load Factor: 4.0  
Activity Code: 100 Lower Division Collegiate  
CIPS: 270101  

Course Title: Statistics for Engineers and Scientists  
Developed By: Dee Winn  
Development Date: 11/3/2015  
Revision Date:  
Review Date:  

COURSE DESCRIPTION: This course covers probability and inferential statistics applied to scientific and engineering problems. Includes random variables, expectation, sampling, estimation, hypothesis testing, regression, correlation and analysis of variance. This course satisfies the OSU requirement of ST 314 for engineering programs.  

COURSE OUTCOMES:  
- Calculate probabilities and interpret their meaning.  
- Calculate expected values of discrete random variables, including means and variances and interpret their meaning.  
- Calculate expected values of continuous random variables, including means and variances and interpret their meaning.  
- Calculate marginal and conditional probabilities continuous random variable and interpret their meanings.  
- Calculate means and variances of sample of random variables, both discrete and continuous and interpret their meaning.  
- Calculate the appropriate confidence intervals for single sample and multiple samples point estimators.  
- Be able to identify and perform the appropriate hypothesis test for single sample and multiple sample point estimators.
ENGINEERING PROGRAM SUBMITTALS
Curriculum Committee/Instructional Council
11/03/2015

Courses:

Course Revisions

1. CIV 214 (update curriculum and change course name/number to align with OSU)
2. ENGR 112 (course name change)
3. GIS 234 (update curriculum and change course name/number to align with OIT/OSU)
4. GIS 235 (update curriculum and change course name/number to align with OIT/OSU)
5. SUR 162 (reduce credit hours to align with OIT transfer)
6. SUR 163 (reduce credit hours to align with OIT transfer)
7. WQT 227 (revise math pre-req)
8. WQT 228 (revise math pre-req)
9. WQT 260 (revise math pre-req)
10. WQT 261 (revise math pre-req)
11. WQT 290 (change from CWE to occupation skills training)

New Courses

1. CIV 290 (new occupational skills training course for engineering technology)
2. GIS 203 (new course at OIT for Surveying and Geomatic Program)
3. GIS 280 (new cooperative occupational skills training for engineering technology)
4. OST 290 (general occupation skills training course)
5. SOILS 206 (split existing NR 205 into 2 courses, SOILS 205 lecture and SOILS 206 lab)
6. SUR 209 (new course for Forestry Program)
7. WQT 280 (new cooperative skills training course for engineering technology)

Degrees/Certificates

Revisions

1. AAS, Civil and Surveying Technology, a) Base, b) Applied Surveying Option, and c) Applied Water Quality Option (creates base with net reduction in credit hours, creates options with occupational skills training).
2. Engineering and Drafting Technician Completion Certificate (update curriculum to match AAS)
3. Drafting Pathways Certificate (replace DRF 116 with elective)
4. Water Quality Pathways (delete math requirement)
5. AS Surveying & Geomatics (update to align with revisions at OIT for articulation)

New

1. Forest Engineering
2. Forest Management
3. Forest Operations
4. GIS Pathways
5. Occupational Skills Training Completion Certificate
6. Water Quality Operations Pathways
## COURSE REVISIONS

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<thead>
<tr>
<th>Revised Course #</th>
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| Net Credit Hour Change | 0 |

## NEW COURSES

### New

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| Net Credit Hour Change | 9 |

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| Credit Hour Reduction | -13 |

## NET CHANGE IN PROGRAM CREDIT HOURS

-4

### NOTE:

1. CWE & OST credits vary. Instructor ILCs at 0.25 per student per quarter
2. SOIL 205 Soil Science lecture will be instructed through Science Department
Courses:

**Course Revisions**

1. CIV 214 (update curriculum and change course name/number to align with transfer requirements for CEM program at OSU)
2. ENGR 112 (course name change)
3. GIS 234 (update curriculum and change course name/number to align with OIT/OSU)
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11. WQT 290 (change from CWE to occupation skills training)

Net Credit Hour Changes - Zero
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: 11-03-2015
Contact Title: Department Chair
Department: Engineering and CIS
Course Number: CIV 214
Course Title: CAD – Civil3D and Virtual Design

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: March 2016, Spring Quarter

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Modified course name/number and outcomes to better align with OSU CCE 203 Introduction to Virtual Design and Construction, for course transfer equivalency.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
No impacts
List current information and proposed changes

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Additional Documentation

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- [x] Course Outline - required
- Other:
Course No:   CIV214
Course Credit:   3
Lecture Hrs/wk:   2
Lab Hrs/Wk:   2
Lecture/Lab Hrs/Wk:   
Practicum Hrs/Wk:   
Clock Hours:  44
Length of Course:   11 wks
Banner enforced Prerequisite:   
Instructor enforced Prerequisite:   
Co-Requisite:   
Load Factor:  3.4
Activity Code:  100
CIPS:  260101

Course Title: CAD – Civil3D and Virtual Design
Developed By: Clay Baumgartner, PE
Development Date: 10/11/15
Revision Date:   
Review Date:   

COURSE DESCRIPTION:

This course uses the Autodesk Civil 3D program to produce virtual design and drawings for civil engineering projects. Drafting practices are used to prepare site plans, layout building sites, and develop construction drawings of infrastructure. Design and building information models are used for making estimates of quantities and cost, and for determination of constructability problems.

COURSE OUTCOMES:

1. Understand the evolution of computer aided design, and the combination of three-dimensional design tools with ability to provide 2D construction drawings, estimates of quantity and cost, and determination of constructability problems
2. Develop a working knowledge of Civil3D, including basic use of points, surfaces, alignments, profiles and profile views, assemblies and subassemblies, basic corridors, pipe networks, grading, basic styles, estimating quantities, estimating cost, and identifying potential conflicts/constructability issues.
3. Understand the importance of company standards for file name convention, layer management, styles, and plotted drawings.
4. Develop a basic understanding of work flow for civil design, and basic understanding of the importance of having a process to work with others during a project design and cost estimating.
5. Plot 2D drawings to a specified drafting standard. Understand how to create layouts, use layout templates, manage visibility and appearance of objects, create custom line types, and set plot settings for drawings.
6. Utilize Civil3D to develop materials takeoffs and cost estimates.
7. Understand the importance of “learning how to learn”, and awareness of learning resources that are available for Civil3D and other software tools.

REQUIRED TEXTBOOKS:
- AutoDesk Learning Resources
- Instructor Handouts

REQUIRED MATERIALS:
- Download student version of Civil3D on your personal computer (free download). Can use computers in labs during class and while on campus; to learn material will also need access to software off campus.

COURSE OUTLINE:

Week:
- Week One  Basics, and Label Styles and Object Styles
- Week Two  Points and Surfaces
- Week Three  Grading
- Week Four  Alignments and Profiles and Profile Views
- Week Five  Assemblies and Subassemblies and Basic Corridors
- Week Six  Pipe Networks
- Week Seven  Plan Production
- Week Eight  Estimates of Quantities, Costs and Constructability Problems
- Week Nine  Projects
- Week Ten  Projects
- Week Eleven  Final Project Due
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: ENGR 112
Course Title: Problem Solving and Technology

Course Revision Information

Type of change
X Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS and AS with Emphasis in Engineering

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

Change course title to better match transfer universities

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

X_ Course Outline - required
__ Other:
ENGR 112  Problem Solving and Technology
Course Outline

Course No: ENGR112
Course Credit: 3
Lecture Hrs/wk: 3
Lab Hrs/Wk: 
Lecture/Lab Hrs/Wk: 
Practicum Hrs/Wk: 
Clock Hours: 33
Length of Course: 11 wks
Banner enforced Prerequisite: 
Instructor enforced Prerequisite: 
Co-Requisite: 
Load Factor: 3
Activity Code: 100
CIPS: 260101

Course Title: Problem Solving and Technology
Developed By: Clay Baumgartner, PE
Development Date: 
Revision Date: 10/11/15
Review Date: 

REQUIRED TEXT AND SOFTWARE:
“MicroSoft Office 2010” (Available from UCC Bookstore, $18 for students)
“MatLab & Simulink Student Version R201x”, available at UCC Bookstore (Approximately
$99 for Student Version of MatLab 201x)

COURSE DESCRIPTION:
Systematic approaches to engineering problem solving using computers and technology. Logical analysis, flowcharting, input/output design, introductory computer programming are covered. Two distinct software applications will be utilized in this course, Microsoft EXCEL® and MathWorks MATLAB®.
COURSE TOPICS:

- Concepts and principles of computation.
- Computational language fundamentals
- Macros and script files
- Graphical displays (2D)
- Program modules: functions and algorithms
- Elementary decision structures
- Numerical analysis
- Symbolic manipulation

COURSE OUTCOMES:

1. Discuss concepts and principals of computations.
2. Demonstrate use of engineering software to solve applicable engineering problems.
3. Demonstrate knowledge of the basic capabilities of Excel.
4. Demonstrate knowledge of basic descriptive statistics to analyze and describe data – mean, median, mode, standard deviation, charts, graphs, and histograms.
5. Demonstrate the basic capabilities of MATLAB programming applications.
7. Translate a flowchart into a basic computer program.
8. Develop Graphic User Interfaces (GUI).

COURSE OUTLINE:

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**Basic Information**

**Name of Course Revision Contact:** Clay Baumgartner  
**Date:** September 20, 2015  
**Contact Title:** Chair, Engineering and CIS Department  
**Department:** Engineering and CIS  
**Course Number:** GIS 234  
**Course Title:** GIS I Introduction to GIS

**Course Revision Information**

**Type of change**  
X_ Revision  
__ Reactivation  
_ Deletion

**Date, Year, and Term of Proposed Revision:** September 2016, Fall 2016, 2016-17 Academic Year

**Parent Program:** Civil Engineering and Surveying Technology, AAS

**Course Revision Description and Justification**  
Please give as many details as possible about the revision, including justification for the change.

Change course title and credit hours to align with OSU and OIT courses for transfer equivalency.

**Course Revision Impacts - select all that apply**

__ Instructional costs (staff, materials, equipment, or facilities) required.  
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.  
__ Impact to other divisions in terms of classes and staffing  
_X_ Other:

**Description of Impact**  
*If your revision will have one of the impacts listed above, please describe...*

Course revision. The number of credit hours is being increased from 3 to 4. One ILC of additional instruction is being added; the cost will be offset by additional course revenue from extra credit hour. There will be staff time related to updating curriculum.
**List current information and proposed changes**

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**Additional Documentation**

Please check additional forms or documentation you have submitted to Curriculum Committee.

X_ Course Outline - required

__ Other:
Catalog Description:

This course is designed as an introduction to GIS and the spatial concepts it promotes. An understanding of digital geographic information and the intelligence behind it will be understood. ArcGIS is the software program used for spatial data input, analysis, and display.

Prerequisite:

None

Required Text:


Course Outcomes:

The material for this course will be presented in the following basic topic areas:

1. Recognize and use basic spatial and cartographic concepts (e.g. scale, projection, and coordinate systems), as well as statistical and surveying principles.
2. Demonstrate facility in the classification and analysis of geospatial data (e.g. satellite images, digital maps and their associated tabular datasets) and the ability to use geographic information science technology (software, data collection instruments and devices).

3. Develop and integrate spatial thinking and the capacity to create visualizations (e.g. images, maps, diagrams, charts, 3D views) of spatial phenomena, including those illustrating natural and human systems and their interactions.

4. Describe and interpret key concepts of geospatial science: Basic statistical principles; principles of computational geometry and location; principles of surveying.

5. Construct and compose the following tools and skills used by geospatial scientists, at multiple scales: Select, apply geospatial technologies; acquire data from imagery and online sources; use measurement units and mathematical notation.

6. Describe the foundational concepts of Geographic Information Systems and working with geospatial data.

7. Demonstrate proficiency in the basic functions of geospatial software (ArcGIS).

8. Employ a conceptual and working knowledge of coordinate systems and map projections to geospatial data.

9. Demonstrate basic proficiency in map creation and design principles, including thematic map display, map projections and cartographic design.

10. Carry out basic spatial data analysis and display the results in the form of maps and tables.

11. Demonstrate how to access different sources of data.

12. Demonstrate the process of creating and editing spatial data.

13. Discuss the fundamental concepts of data quality.

**COURSE OUTLINE**

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Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: GIS 235
Course Title: GIS II Data Analysis and Applications

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

Change course title and credit hours to align with OSU and OIT courses for transfer equivalency.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
X_ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...

Course revision. The engineering program is replacing DRF 116 with this course. The number of credit hours is being increased from 3 to 4. One ILC of additional instruction is being added; the cost will be offset by additional course revenue from extra credit hour. There will be staff time related to updating curriculum.
List current information and proposed changes

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Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

X_ Course Outline - required

__ Other:
GIS 235
GIS II Analysis and Applications
Department of Engineering, CIS, and CS
Umpqua Community College
Spring 2016

Course No: GIS 235
Course Credit: 4
Lecture Hrs/wk: 3
Lab Hrs/Wk: 2
Lecture/Lab Hrs/Wk: 
Practicum Hrs/Wk: 
Clock Hours: 55
Length of Course: 11 wks
Banner enforced Prerequisite: GIS 234
Instructor enforced Prerequisite: 
Co-Requisite: 
Load Factor: 4.4
Activity Code: 100
CIPS: 260101

Course Title: GIS II Analysis and Applications
Developed By: Clay Baumgartner, PE
Development Date: 
Revision Date: 10/17/15
Review Date: 

Catalog Description:
Applications-based course. Develop and conduct geospatial analyses using various spatial data structures, techniques and models. Students acquire, clean, integrate, manipulate, visualize and analyze geospatial data through laboratory work. Import feature and nonfeature data into a GIS. Data Conversion. Use of hand-held GPS/GIS units. Use and create web-based GIS applications and services.

Prerequisite:
GIS 234 GIS I Introduction to GIS

Required Text:
Map Use; Reading and Analysis, Kimerling et al, ESRI Academic Press, 7th Ed., 2013.
Course Outcomes:

The material for this course will be presented in the following basic topic areas:

1. Recognize and use basic spatial and cartographic concepts (e.g. scale, projection, and coordinate systems), as well as statistical and surveying principles.
2. Demonstrate facility in the classification and analysis of geospatial data (e.g. satellite images, digital maps and their associated tabular datasets) and the ability to use geographic information science technology (software, data collection instruments and devices).
3. Develop and integrate spatial thinking and the capacity to create visualizations (e.g. images, maps, diagrams, charts, 3D views) of spatial phenomena, including those illustrating natural and human systems and their interactions.
4. Describe and interpret key advanced concepts of geospatial science: advanced statistical concepts; autocorrelation; projections; scale; coordinate systems; ethics.
5. Construct and compose the following advanced tools and skills used by geospatial scientists, at multiple scales: conduct sampling; collect, measure data in the field; Import, export, validate data; classify data and imagery; conduct statistical analyses; create and publish visualizations; apply critical thinking and problem-solving skills; apply programming languages (e.g., Python, Java, R); demonstrate working knowledge of GIS hardware and software; create, update, and maintain GIS databases.
6. Demonstrate a conceptual and working knowledge of spatial analysis operations, including interpolation, transformation, spatial statistics and estimation of error and uncertainty.
7. Synthesize and integrate concepts of GIS theory and methodology, including data models, data structures, topology and spatial analysis.
8. Demonstrate a conceptual and working knowledge of spatial analysis operations, including interpolation, transformation, spatial statistics and estimation of error and uncertainty.
9. Demonstrate intermediate GIS software skills, particularly in ArcGIS, as well as intermediate scientific computing skills.
10. Demonstrate a conceptual and working knowledge of spatial analysis operations, including interpolation, transformation, spatial statistics and estimation of error and uncertainty.
11. Synthesize and integrate concepts of GIS theory and methodology, including data models, data structures, topology and spatial analysis.
12. Prepare and design appropriate GIS data models and organize GIS data.
13. Demonstrate use of ‘Recreational Grade’ (Garmin) for navigation and data collection
   a. Use of metadata forms
   b. Uploading data to a GPS
   c. Use of a data dictionary
14. Complete editing in the ArcMap Environment
15. Post data and web services using ArcGIS Online
16. Demonstrate use of ArcPad software

COURSE OUTLINE

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Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: SUR 162
Course Title: Plane Surveying II

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS and AS with Emphasis in Surveying and Geomatics

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

OIT has updated their GME 162. Reduce credit hours (lecture and lab) to align with OIT GME 162, the transfer equivalent.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
X_ Course Outline - required
__ Other:
SUR 162
Plane Surveying II
Umpqua Community College
Fall 2015

Course No: SUR 162
Course Credit: 4
Lecture Hrs/wk: 2
Lab Hrs/Wk: 6
Lecture/Lab Hrs/Wk:
Practicum Hrs/Wk:
Clock Hours: 88
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 6.2
Activity Code: 100
CIPS: 260101

Course Title: Plane Surveying II
Developed By: Clay Baumgartner, PE, FLS
Development Date:
Revision Date: 10/11/15
Review Date:

Catalog Description:
Digital theodolites and data collectors, instrument testing and observational error analysis. Theory of leveling. Solar observations and computations. E.D.M. use and calibration. Field labs including solar observations, traversing, leveling and horizontal curve layout. Introduction to COGO software.

Prerequisite:
SUR 161 and Math 112 or instructor consent.

Required Text:

Required Supplies:

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<td>HP33/HP35 Calculator</td>
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<td>Engineering computation paper</td>
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<td>5&quot; or larger Protractor</td>
<td>Vest or tool belt (optional)</td>
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<td>Engineer’s Scale (1’ long)</td>
<td>Appropriate Field Clothing</td>
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<td>Clipboard for field surveys</td>
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Learning Objectives:

Upon completion of this course students should have:
• Become proficient with field survey equipment including total stations, automatic levels, and data collectors.
• Solved Surveying problems in the field and in the classroom.
• Learned error theory and corrections in the field and classroom.

Course Outline

Week 1

I. Introduction, history & resources
   A. The Surveying Profession
      1. Professional Organizations
      2. Professional Licensing requirements
   B. Calculators, Excel, and other resources

II. Leveling: Chapters 4 & 5
   A. Theory & Methods
   B. Field Procedures & Computations
   C. Error Propagation and adjustments

Week 2

III. Measuring Distances: Chapter 6
   A. Methods for Measuring Distances
   B. Electronic Distance Measurement
   C. Error Propagation and adjustments

IV. Measuring Directions: Chapter 7
   A. Review of Azimuths and Bearings
   B. Magnetic Bearings & Computations

Week 3

V. Traversing & Traverse Computations: Chapters 9 & 10
   A. Observation of angles or directions
   B. Open and closed traverses
   C. Field Procedures
Week 4

VI. Computing Area: Chapter 11
   A. Area by Coordinates
   B. Area by Double Meridian Distances
   C. Area of Parcels with circular boundaries
   D. Partitioning of Lands

Week 5

VII. Topographic Mapping: Chapters 17 & 18
   A. Mapping Scales
   B. Data Collection methods
   C. Breaklines
   D. TIN & Contour Lines

Week 6

VIII. Photogrammetry: Chapter 27
   A. Vertical Photography
   B. Stereo Model
   C. Photo and Map Scale
   D. Flight Planning

Week 7

IX. Data Collection
   A. Field Notes
   B. Methodology
   C. Downloading Data
   D. Reading and editing Raw Field Data Files

X. GPS Basics: Chapter 13, 14 & 15
   A. Basic Theory, definitions, history, & sciences
   B. Setting up GPS units for static
   C. Static, and Real Time observations

Week 8

XI. Astronomic Observation: Appendix C
   A. Terminology & Definitions
   B. PZS Triangle
   C. Hour-Angle Method
   D. Field Procedures
   E. Polaris computations
Week 9

XII. Introduction to Least Squares: *Chapter 16*

XIII. Introduction to Matrices: *Appendix E*

Week 10

Review

Week 11

Final

**Lab Projects**

Lab No. 1: Differential Leveling I

Lab No. 2: Differential Leveling II

Lab No. 3: Profile Plotting & Stadia

Lab No. 4: Three Wire Leveling

Lab No. 5: Digital Leveling

Lab No. 6: Traversing

Lab No. 7: Topographic Survey - Traditional methods

Lab No. 8: Topographic Survey - Automated methods
   Data Collectors and Computer Applications

Lab No. 9: Determining Height of a remote object

Lab No. 10: Solar & Stellar Observations

Lab No. 11: GPS Surveying
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: SUR 163
Course Title: Route Surveying

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS and AS with Emphasis in Surveying and Geomatics

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

OIT has updated their GME 163. Reduce credit hours (lecture and lab) to align with OIT GME 163, the transfer equivalent. Change name to match OIT course.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
X_ Course Outline - required
__ Other:
SUR 163
Route Surveying
Department of Engineering, CIS, and CS
Umpqua Community College
Winter 2016

Course No: SUR 163
Course Credit: 4
Lecture Hrs/wk: 2
Lab Hrs/Wk: 6
Lecture/Lab Hrs/Wk: 88
Practicum Hrs/Wk:
Clock Hours: 88
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 6.2
Activity Code: 100
CIPS: 260101

Course Title: Route Surveying
Developed By: Clay Baumgartner, PE, FLS
Development Date:
Revision Date: 10/11/15
Review Date:

Catalog Description:
Digital theodolites and data collectors, instrument testing and observational error analysis. Theory of leveling. Solar observations and computations. E.D.M. use and calibration. Field labs including solar observations, traversing, leveling and horizontal curve layout. Introduction to COGO software.

Prerequisite:
SUR 162

Required Text:
“Surveying-Theory and Practice” James M. Anderson and Edward M. Mikhail
Course Outcomes:

1) Apply theory necessary to solve route survey problems. This will include elements of route selection, calculation of horizontal and vertical curves, and earthwork calculations.

2) Demonstrate hands on experience in road design and layout. The student will use Total Stations and Data collectors for the collection of topographic data in the field and Civil3D software for design of horizontal and vertical alignments.

Course Coverage:

This course has two components, a lecture section and a laboratory section. The lecture portion of the class will include problem sets and tests over material covered in class and in the readings. The objective of the lecture section is for you to learn the theory necessary to solve route survey problems. The lab portion of the class is designed to give you practical experience using what you have learned in class. In lab, you will use Civil3D design software and a total station for the construction of a section of road. This will include the construction of a topographic map, a centerline alignment, and a final plan and profile showing your centerline alignment. You will also use your topographic data for earthwork computations along your proposed route.

Course Content:

This course covers the following items identified in the NCEES Professional Land Surveying Candidate Handbook as potential exam content for the FS/PLS exams:

25. Perform angular and linear measurements
28. Recover horizontal and vertical control
29. Determine locations of man-made and natural features
30. Perform topographical surveys
31. Perform construction staking
32. Perform route and right-of-way surveys for roads, railroads, or utilities
33. Obtain data with a total station
35. Perform differential leveling
46. Compute coordinate values
47. Verify field notes for completeness and accuracy
50. Compute areas
53. Analyze sources of error
57. Compute volumes
73. Design horizontal alignment for roads
77. Design vertical alignment for roads
82. Establish benchmarks
89. Prepare topographic and contour maps
COURSE OUTLINE:

Week 1:
- Introduction to route surveying
- Review of traverse work and topographic mapping
- Elements of the horizontal curve
- Lab: Equipment review, traverse review, introduction to Carlson and field-to-finish methods

Week 2:
- Field-to-finish methods for data collection
- Deflection Angle Method
- Equal tangent vertical curves
- Lab: Topographic mapping for route design project (Benchmarks and Control)

Week 3:
- Unequal tangent vertical curves
- Vertical curve high, low, and fixed points
- Lab: Topographic mapping for route design project (Data collection along a corridor)

Week 4:
- Earthwork-Volume by end areas and slope staking
- Lab: Topographic mapping for route design project (Download data and generate topographic map)

Week 5:
- Earthwork corrections
- Distribution analysis
- Midterm 1
- Lab: Construct route alignment

Week 6:
- Volume by prismodial method
- Volume through transition areas
- Lab: Entering route alignment in a data collector and layout of alignment in field.

Week 7:
- Slope Staking
- Lab: Continue field layout of route alignment

Week 8:
- Slope Staking
- Reverse curve calculations
- Lab: Prepare final alignment map
Week 9:
- Midterm 2
- Thanksgiving
- Lab: Slope staking

Week 10:
- Compound curve calculations
- Final Review
- Lab: Slope staking cont.
- Final Project – Due date to be announced

Finals Week:
- Final exam – Time and place to be announced.

Some Final Notes:
1) This is an engineering course and neatness is of critical importance. **All work that is not typed must be done in neat, manuscript lettering on engineering grid paper using the standard engineering format. Work that is not legible or missing calculations will not be accepted.** When you start work in your chosen field others will be using your notes and must be able to read them!
2) The equipment we use in the surveying profession is expensive and delicate. Handle the equipment with care at all times. If you damage it, report it immediately so that others do not waste their time by using faulty equipment.
3) A grade of incomplete will only be issued by prior arrangement with the instructor. Please contact me as soon as you feel that there might be a problem!
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: August 25, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 227
Course Title: Wastewater Treatment

Course Revision Information

Type of change
X Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Prerequisite: Replace MTH 095 (Intermediate Algebra) with MTH 065 (Elementary Algebra) – Instructor Enforced
Co-Requisite: Delete co-requisite requirement for MTH 111 (College Algebra)
Justification: Level of math skills necessary for successful course completion is sufficiently addressed by MTH 065. Requiring MTH 095 and MTH 111 may act as impediments to prospective students who are actively employed in the field and are wishing to enhance their knowledge/skills or who are interested in exploring the topic as a possible career choice.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.
X_ Course Outline - required
__ Other:
Course Outline

Course No: WQT 227
Course Credit: 3
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk:
Practicum Hrs/Wk:
Clock Hours: 33
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 3
Activity Code: 100
CIPS: 260101

Course Title: Wastewater Treatment
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

PREREQUISITES: MTH 065 – Elementary Algebra – Instructor Enforced

TEXT:
“Operation of Wastewater Treatment Plants, A Field Study Training Program”, Volume I, 7th Edition, by California State University, Sacramento

COURSE DESCRIPTION: This course covers the fundamentals of wastewater treatment facilities, including operation and maintenance of facilities.

COURSE OUTCOMES:
1. Demonstrate knowledge of the importance of wastewater treatment and the protection of water quality
2. Recognize the roles and responsibilities of design engineer, the owner of treatment facilities, and the treatment plant operator
3. Identify the federal and state regulatory authorities responsible for wastewater treatment facilities in Oregon
4. Identify certification pathways for wastewater operators in Oregon
5. Demonstrate the basic concepts of centralized wastewater treatment – differentiate collection, treatment and disposal technologies
6. Demonstrate knowledge of preliminary treatment basics, including screening and grit removal
7. Demonstrate knowledge of primary treatment basics, including sedimentation and flotation
8. Demonstrate knowledge of secondary treatment including biological, chemical, and physical processes and solids handling
9. Demonstrate knowledge of disinfection
10. Demonstrate knowledge of effluent disposal and solids disposal
11. Analyze and solve operational problems
12. Employ basic mathematical computations relating to wastewater treatment process control
# Course Outline

**Course No.:** WQT 227  
**Course Title:** Wastewater Treatment

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<td>Activated Sludge (Package Plants/Oxidation Ditches)</td>
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<td>Week Ten</td>
<td>Disinfection Processes (continued) and Review</td>
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Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: August 25, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 228
Course Title: Wastewater Collection

Course Revision Information

Type of change
X Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Prerequisite: Replace MTH 095 (Intermediate Algebra) with MTH 065 (Elementary Algebra) – Instructor Enforced
Co-Requisite: Delete co-requisite requirement for MTH 111 (College Algebra)
Justification: Level of math skills necessary for successful course completion is sufficiently addressed by MTH 065. Requiring MTH 095 and MTH 111 may act as impediments to prospective students who are actively employed in the field and are wishing to enhance their knowledge/skills or who are interested in exploring the topic as a possible career choice.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
X Course Outline - required
__ Other:
WASTEWATER COLLECTION SYSTEMS
WQT 228
COURSE OUTLINE

Course No: WQT 228
Course Credit: 3
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 0
Practicum Hrs/Wk:
Clock Hours: 33
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 3
Activity Code: 100
CIPS: 260101

Course Title: Wastewater Collection Systems
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

PREREQUISITES: MTH 065 – Elementary Algebra – Instructor Enforced

COURSE DESCRIPTION:
Course introduces the basics of wastewater and storm water collection systems. Primary focus will be pipe sizing, general system components, installation, inspection, operation and maintenance techniques. Elementary street construction and inspections are also studied in conjunction with storm drainage. Field trips may be made to existing facilities and work under construction.

COURSE OUTCOMES:
- Describe regulatory agencies responsible for oversight of drinking water, wastewater and storm water
- Demonstrate the concepts and principals of hydraulic computations for pressure and gravity systems.
- Explain basic design, operation and maintenance of wastewater and storm water collection systems
- Recognize and explain community and agency design standards

COURSE TOPICS:
- Regulatory Agency – Wastewater (Federal, State, Local)
- Hydraulics – Gravity System
- Domestic wastewater flows
- Wastewater Infiltration and inflow
- Peaking factors for wastewater flows
- Ultimate design flows for wastewater
- Minimum (scouring) velocities
- Wastewater pumping
- Minimum wastewater pipe sizing
- Manholes
- Basic wastewater components, fittings, and materials
- Wastewater Collection Operators
- Why Collection System Operation and Maintenance
- Wastewater Collection Systems
- Safe Procedures
- Inspecting and Testing Collection Systems
- Pipeline Cleaning and Maintenance Methods
- Underground Repair
- Design Standards
- Regulatory Agency – Storm water (Federal, State, Local)
- Probability of Design Events – Storm water
- Rainfall events
- Runoff characteristics
- Rational Formula
- Street design and storm drainage
- Ditches, catch basins, culverts and manholes
- Pipeline sizing
- Basic storm drainage components, fittings, and materials
- Utility locates
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      Ch. 2 – Why Wastewater Collection System Operation and Maintenance? | Homework |
| #2   | Wastewater Collection Systems:  
      Quiz 1 |
| #3   | Wastewater Collection Systems:  
      Quiz 2 |
| #4   | Wastewater Collection Systems:  
      Quiz 3 |
| #5   | Wastewater Collection Systems:  
      Quiz 4 |
| #6   | Wastewater Collection Systems:  
| #7   | Wastewater Collection Systems:  
| #8   | Storm Water Collection Systems | Homework  
      Quiz 5 |
| #9   | Storm Water Collection Systems | Quiz 6 |
| #10  | Storm Water Collection Systems |  |
| #11  | Final Exam |  |
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: August 25, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 260
Course Title: Water Treatment

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Prerequisite: Replace MTH 095 (Intermediate Algebra) with MTH 065 (Elementary Algebra) – Instructor Enforced
Co-Requisite: Delete co-requisite requirement for MTH 111 (College Algebra)
Justification: Level of math skills necessary for successful course completion is sufficiently addressed by MTH 065. Requiring MTH 095 and MTH 111 may act as impediments to prospective students who are actively employed in the field and are wishing to enhance their knowledge/skills or who are interested in exploring the topic as a possible career choice.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
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__ Other:

Description of Impact
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**Additional Documentation**

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- X Course Outline - required
- __ Other:

Course Title: Water Treatment
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

PREREQUISITES: MTH 065 – Elementary Algebra – Instructor Enforced

TEXT:

COURSE DESCRIPTION: This course covers the fundamentals of water treatment facilities, including operation and maintenance of facilities.

COURSE OUTCOMES:
1. Recognize the importance of water treatment and the protection of water quality
2. Describe the roles and responsibilities of design engineer, the owner of treatment facilities, and the treatment plant operator
3. Identify the federal and state regulatory authorities responsible for water treatment facilities in Oregon
4. Describe certification pathways for water operators in Oregon
5. Identify water sources and water intake systems
6. Describe coagulation, flocculation, sedimentation, filtration, and disinfection processes
7. Recall basics of treatment to control tastes and odors in drinking water, and corrosion control
8. Identify laboratory testing requirements
9. Describe overall plant operation including daily operating procedures, regulation of flows, chemical use and handling, records and reports, plant maintenance, safety and security, emergency conditions and procedures, handling complaints, and energy conservation
10. Employ mathematical computations for water treatment process control
Course Outline

Course No.: WQT 260  
Course Title: Water Treatment

Week One  Water Treatment Plant Operator and Water Sources and Treatment  
Read: Ch. 1, 2

Week Two  Reservoir Management and Intake Structures  
Read: Ch. 3

Week Three  Coagulation and Flocculation  
Read: Ch. 4

Week Four  Sedimentation  
Read: Ch. 5

Week Five  Filtration  
Read: Ch. 6

Week Six  Midterm Assignment  Disinfection  
Read: Ch. 7

Week Seven  Corrosion Control  
Read: Ch. 8

Week Eight  Taste and Odor Control  
Read: Ch. 9

Week Nine  Plant Operation  
Read: Ch. 10

Week Ten  Laboratory Procedures  
Read: Ch. 11

Week Eleven  Final Exam
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: August 25, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 261
Course Title: Water Distribution

Course Revision Information

Type of change
X Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Prerequisite: Replace MTH 095 (Intermediate Algebra) with MTH 065 (Elementary Algebra) – Instructor Enforced
Co-Requisite: Delete co-requisite requirement for MTH 111 (College Algebra)
Justification: Level of math skills necessary for successful course completion is sufficiently addressed by MTH 065. Requiring MTH 095 and MTH 111 may act as impediments to prospective students who are actively employed in the field and are wishing to enhance their knowledge/skills or who are interested in exploring the topic as a possible career choice.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
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Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

X_ Course Outline - required

__ Other:
Course Title: Water Distribution
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

PREREQUISITES: MTH 065 – Elementary Algebra – Instructor Enforced

TEXT:

COURSE DESCRIPTION:
This course covers water distribution system operation and maintenance and the fundamentals of fluid mechanics.

COURSE OUTCOMES:
1. Demonstrate understanding of water distribution system operation and maintenance
2. Describe the relationship between absolute, gauge and atmospheric pressure.
3. Compute the forces on submerged surfaces.
4. Apply the principals of energy conservation to fluid flow.
5. Analyze the flow of fluids in closed systems.
Course Outline

Course No.: WQT 261
Course Title: WATER DISTRIBUTION

Week One
“Water Distribution System Operation and Maintenance”
Read: Chapter 1 and Chapter 2
Complete Chapter 1 and Chapter 2 Homework Posted on Angel

Week Two
“Water Distribution System Operation and Maintenance”
Read: Chapter 3
Complete Chapter 3 Homework Posted on Angel

Week Three
“Water Distribution System Operation and Maintenance”
Read: Chapter 4
Complete Chapter 4 Homework Posted on Angel

Week Four
“Water Distribution System Operation and Maintenance”
Read: Ch. 5
Complete Chapter 5 Homework Posted on Angel

Week Five
“Water Distribution System Operation and Maintenance”
Read: Chapter 6
Complete Chapter 6 Homework Posted on Angel

Midterm “Water Distribution System O&M”, Chapters 1 - 5

Week Six
“Water Distribution System Operation and Maintenance”
Read: Chapter 7
Complete Chapter 7 Homework Posted on Angel

Week Seven
“Water Distribution System Operation and Maintenance”
Read: Chapter 8
Complete Chapter 8 Homework Posted on Angel

Week Eight
Fluid Mechanics
Open source materials to be provided.
Complete homework as posted on Angel

Week Nine
Fluid Mechanics
Open source materials to be provided.
Complete homework as posted on Angel

Week Ten
Fluid Mechanics
Open source materials to be provided.
Course Review

Week Eleven
Final Exam
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 290
Course Title: Occupational Skills Training

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

Change course title and maximum number of credit hours to align with Occupational Skills Training

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
None
List current information and proposed changes

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Additional Documentation

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- X_ Course Outline - required
- __ Other:
Course Title: Occupational Skills Training (OST)

Developed By: Clay Baumgartner, PE

Course Title: Occupational Skills Training

Developed By: Clay Baumgartner, PE

Credits: 1 - 28

Course Description:

Students are expected to learn skills related to their program of study in a work setting. Placements are normally off-campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The OST Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

Course Outcomes:

1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.
CREDITS AND HOURS:
Variable (1-28) credits; students earn 1 college credit for each 33 hours of work during a term.

PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

COURSE OUTLINE:

Week 1 Occupational Skills Training
Week 2 Occupational Skills Training
Week 3 Occupational Skills Training
Week 4 Occupational Skills Training
Week 5 Occupational Skills Training
Week 6 Occupational Skills Training
Week 7 Occupational Skills Training
Week 8 Occupational Skills Training
Week 9 Occupational Skills Training
Week 10 Occupational Skills Training
Week 11 Occupational Skills Training
Courses:

New Courses

1. CIV 290 (new occupational skills training course for engineering technology)
2. GIS 203 (new course at OIT for Surveying and Geomatic Program)
3. GIS 280 (new cooperative occupational skills training for engineering technology)
4. OST 290 (general occupation skills training course)
5. SOILS 206 (split existing NR 205 into 2 courses, SOILS 205 lecture and SOILS 206 lab)
6. SUR 209 (new course for Forestry Program)
7. WQT 280 (new cooperative skills training course for engineering technology)
UCC New Course Approval

Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: Clay Baumgartner
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow
Program: Civil Engineering and Surveying Technology

New Course Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year
Course Title: Occupational Skills Training
Course Number: CIV 290
Number of Credits: Variable, 1-28 Activity Code:
  _X_100 - Lower Division Collegiate
  _210 - CTE Preparatory
  _211 - Stand-alone (Independent) CTE Preparatory
  _220 - CTE Supplemental
  _230 - CTE Apprenticeship
  _310 - English as a Second Language
  _320 - Adult Basic Education
  _330 - General Education Development Test Preparation
  _340 - Adult High School Diploma, High School Completion
  _350 - Post-Secondary Remedial, Reading or Writing
  _351 - Post-Secondary Remedial, Math
  _352 - Post-Secondary Remedial, Electives
  _360 - ACE - Unknown
  _361 - ACE - Health and Fitness
  _362 - ACE - Safety
  _363 - ACE - Workforce
  _510 - Non-Reimbursable – Unknown
  _511 - Non-Reimbursable - Hobby and Recreation
  _512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

  _Lecture (11 hrs/credit)
__Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
X.Other: Individualized career training focused on learning on a job site, 33 hrs/credit

**Number of Hours:** 1 unit for 33 hours on-job site work
See 'course type' above for guidance

**Co- and Pre-Require Information**
*Please define any co- or pre-requisite information.*
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate

**Co- and Pre-Require Enforcement**
*Please choose an enforcement option for the information listed above.*
__Registration Enforced
X.Instructor Enforced
__Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**
Graded course; no pass/no-pass option **Load**

**Factor:**

**Award Information:**
*Please select all that apply.*

__AA
__X.AS
__X.AAS
__Below 100-Level
__X.Elective
__X.Certificate
__X AAOT

*If you selected ‘AAOT’ above, please select the area of distribution below.*
__Arts and Letters
__Mathematics
UCC New Course Approval

__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy

**CTE and Lower Division Collegiate Proposals Only**

Approved by Advisory Committee?
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
X_Occupational Preparatory (organized degree/cert. program)
X_Occupational Supplementary
__Foundational Requirement
__Discipline Studies
X_Elective

**Required Course Information**

*Please list all programs for which this course will be required*
Occupational Skills Training Certificate
Water Quality Operator, Occupation Skills Training Pathway Certificate
Civil Engineering and Surveying Technology, Applied Surveying Option
Civil Engineering and Surveying Technology, Applied Water Quality Option

**New Course Justification**

*Student Need for Course (Please describe)*
Occupational Skills Training meets the employment training needs of a community and an individual where there is not enough "need" to create on-going programs. The training offers students the ability to earn college credits while providing them the opportunity to design a career path that accommodates their occupational goals, abilities, skills, and interests.

**Course Impacts (Select all that apply)**
__Instructional costs (staff, materials, equipment, or facilities) are required.
Additional instructional costs (staff, materials, equipment, or facilities) are needed. 
__Impact to other divisions in terms of classes and staffing X_Other

Course Impact Description
__For any of the course impacts listed above, please describe.__
Occupational skills training students will require monitoring and performance review by existing staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter)
__Replacement Course For: N/A

Additional Process Items
__Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_Course Outline - required
__Start-Up Budget (if needed)
__Advisory Committee Minutes (if needed)
Course Syllabus

COURSE TITLE: Occupational Skills Training (OST)
COURSE NO.: CIV 290

Course Title: Occupational Skills Training
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

COURSE DESCRIPTION:
Students are expected to learn skills related to their program of study in a work setting. Placements are normally off campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The OST Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

COURSE OUTCOMES:
1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.

CREDITS AND HOURS:
Variable (1-28) credits; students earn 1 college credit for each 33 hours of work during a term.
PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

COURSE OUTLINE:

Week 1 Occupational Skills Training
Week 2 Occupational Skills Training
Week 3 Occupational Skills Training
Week 4 Occupational Skills Training
Week 5 Occupational Skills Training
Week 6 Occupational Skills Training
Week 7 Occupational Skills Training
Week 8 Occupational Skills Training
Week 9 Occupational Skills Training
Week 10 Occupational Skills Training
Week 11 Occupational Skills Training
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**
- **Name of New Course Contact:** Clay Baumgartner
- **Contact Title:** Chair, Engineering and CIS Department
- **Department:** Engineering and CIS
- **Program:** Engineering

**New Course Information**
- **Date, Year, and Term of Proposed Implementation:** September 2016, Fall 2016, 2016-17 Academic Year
- **Course Title:** The Digital World and Geospatial Concepts
- **Course Number:** GIS 203
- **Number of Credits:** 4
- **Activity Code:**
  - _X_100 - Lower Division Collegiate
  - _210 - CTE Preparatory
  - _211 - Stand-alone (Independent) CTE Preparatory
  - _220 - CTE Supplemental
  - _230 - CTE Apprenticeship
  - _310 - English as a Second Language
  - _320 - Adult Basic Education
  - _330 - General Education Development Test Preparation
  - _340 - Adult High School Diploma, High School Completion
  - _350 - Post-Secondary Remedial, Reading or Writing
  - _351 - Post-Secondary Remedial, Math
  - _352 - Post-Secondary Remedial, Electives
  - _360 - ACE - Unknown
  - _361 - ACE - Health and Fitness
  - _362 - ACE - Safety
  - _363 - ACE - Workforce
  - _510 - Non-Reimbursable - Unknown
  - _511 - Non-Reimbursable - Hobby and Recreation
  - _512 - Non-Reimbursable - Other/Administrative

**Course Type**
*(If your course is a combination of the below options, please define it in ‘other’)*

- X_Lecture (11 hrs/credit)
- __Lab (30 hrs/credit)
X_Lecture/Lab (20 hrs/credit)
_Other: Individualized career training focused on learning on a job site, 33 hrs/credit

**Number of Hours:** 3 hrs. lecture, 2 hrs. lec/lab/wk.; 55 hrs/term
*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**
*Please define any co- or pre-requisite information.*
None

**Co- and Pre-Requisite Enforcement**
*Please choose an enforcement option for the information listed above.*
__Registration Enforced
_Instructor Enforced
Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**
A-F, audit

**Load Factor:**
4.4

**Award Information:**
*Please select all that apply.*

__AA
_X_AS
_X_AAS
__Below 100-Level
_X_Elective
_X_Certificate
_X_AAOT

*If you selected ‘AAOT’ above, please select the area of distribution below.*

__Arts and Letters
__Mathematics
_X_Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
Civil Engineering and Surveying Technology, AAS; AS with emphasis in Surveying and Geomatics

New Course Justification
Student Need for Course (Please describe)
This is the first of three introductory GIS courses now required by OIT for their transfer Geomatics and Surveying program. The course also transfers to OSU, UO, and PSU. The course will also be one of three core GIS courses included in a new GIS pathways certificate at UCC. GIS is commonly used by many public agencies including BLM, US Forest Service, Natural Resources and Conservation Service, and most public works agencies. There is also potential for this introductory course to be taught as a dual credit course in local high schools.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
X_Other

Course Impact Description
For any of the course impacts listed above, please describe.
Course will replace CIV 215 Contract Documents in the AAS degree for Civil and Surveying Technology. There is not cost impact to College for instruction. There will be some initial course development costs.
Replacement Course For:
CIV 215 Contract Documents
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_ Course Outline - required
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)
Course Outline

COURSE TITLE: The Digital Earth and Geospatial Concepts
COURSE NO.: GIS 203

Course Title: The Digital Earth and Geospatial Concepts
Developed By: Clay Baumgartner, PE
Development Date: 10/11/15
Revision Date:
Review Date:

COURSE DESCRIPTION:
Introduction to geospatial technologies such as GPS, smartphones, mobile devices, and online mapping and navigation tools used in GIS, remote sensing, and geovisualization. Introduction of how present day information systems attempt to represent the features and attributes of our natural world in digital form. Examination of how these systems can be used to portray and solve geospatial problems. Introduction to the concept, vocabulary, and use of GIS. Concepts and applications in government, business, and the environment.


COURSE OUTCOMES:
1. Recognize and use basic spatial and cartographic concepts (e.g. scale, projection, and coordinate systems), the basic tools and technologies of geospatial analysis, and spatial reasoning principles.
2. Demonstrate facility in the classification and analysis of geospatial data (e.g. satellite images, digital maps and their associated tabular datasets) and the ability to use geographic information science technology (software, data collection instruments and devices).
3. Develop and integrate spatial thinking and the capacity to create visualizations (e.g. images, maps, diagrams, charts, 3D views) of spatial phenomena, including those illustrating natural and human systems and their interactions.
4. Describe and interpret key concepts of geospatial science: Basic statistical principles; principles of computational geometry and location; principles of location measurement and analysis.
5. Construct and compose the following tools and skills used by geospatial scientists, at multiple scales: Select, apply geospatial technologies; acquire data from imagery and online sources; use measurement units and mathematical notation.
6. Recognize and apply concepts and theories of basic physical sciences, including optics (electromagnetic radiation), statics (mass and volume of objects), and dynamics (motion of objects, relative motion of objects in space).
7. Apply scientific methodology and demonstrate the ability to draw conclusions based on observation, analysis, and synthesis, including ability to analyze geospatial data and products and utilize technology.

8. Demonstrate connections with other subject areas, including applications of geospatial technologies in government, business, and the environment.

**COURSE OUTLINE:**

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<td>Where in the world are you? Location, datums,</td>
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**Laboratory Schedule and Information**

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<td>4. USGS digital line graphs, National Land Cover database</td>
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<td>5. Geocoding, network problems, online routing</td>
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<td>6. Aerial photography, NAIP imagery, online oblique imagery</td>
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<td>7. Online remotely sensed data, NDVI, true and false color</td>
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<td><strong>Lab exam</strong></td>
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Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: Clay Baumgartner
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow
Program: Engineering

New Course Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year
Course Title: Cooperative Work Experience
Course Number: GIS 280
Number of Credits: Variable, 1-12
Activity Code:
_X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

_Lecture (11 hrs/credit)
_Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
X_Other: Individualized career training focused on learning on a job site, 33 hrs/credit

**Number of Hours:** 1 unit for 33 hours on-job site work  
*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**  
*Please define any co- or pre-requisite information.*  
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate

**Co- and Pre-Requisite Enforcement**  
*Please choose an enforcement option for the information listed above.*  
__Registration Enforced
X_Instructor Enforced
__Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**  
Graded course; no pass/no-pass option

**Load Factor:**

**Award Information:**  
*Please select all that apply.*

__AA
_X_AAS
__Below 100-Level
_X_Elective
_X_Certificate
__AAOT

*If you selected 'AAOT' above, please select the area of distribution below.*

__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
X_Occupational Preparatory (organized degree/cert. program)
X_Occupational Supplementary
__Foundational Requirement
__Discipline Studies
X_Elective

Required Course Information

Please list all programs for which this course will be required
Occupational Skills Training Certificate

New Course Justification

Student Need for Course (Please describe)
Cooperative work experience meets the employment training needs of a community and an individual students. The training offers students the ability to earn college credits while providing them the opportunity to develop work experience that accommodates their occupational goals, abilities, skills, and interests.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
X_Other

Course Impact Description

For any of the course impacts listed above, please describe.
Cooperative work experience training students will require monitoring and performance review by existing staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter)

Replacement Course For:
N/A
**Additional Process Items**

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fillable versions of these forms can be found at [http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces)

- X_ Course Outline - required
- __ Start-Up Budget (if needed)
- __Advisory Committee Minutes (if needed)
Course Title: Cooperative Work Experience
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

COURSE DESCRIPTION:
Students are expected to learn skills related to their program of study in a work setting. Placements are normally off campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The CWE Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

COURSE OUTCOMES:
1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.

CREDITS AND HOURS:
Variable (1-12) credits; students earn 1 college credit for each 33 hours of work during a term.
Umpqua Community College
Roseburg, Oregon

PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

ASSESSMENT:
Assessment will be based on: Coordinator Site Visits, the Student Self Evaluation, the Supervisor Evaluation, and Student Time Journals.

COURSE OUTLINE:

- Week 1 Cooperative Work Experience
- Week 2 Cooperative Work Experience
- Week 3 Cooperative Work Experience
- Week 4 Cooperative Work Experience
- Week 5 Cooperative Work Experience
- Week 6 Cooperative Work Experience
- Week 7 Cooperative Work Experience
- Week 8 Cooperative Work Experience
- Week 9 Cooperative Work Experience
- Week 10 Cooperative Work Experience
- Week 11 Cooperative Work Experience
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: Clay Baumgartner
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow
Program: Occupational Skills Training Certificate

New Course Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year
Course Title: Occupational Skills Training
Course Number: OST 280
Number of Credits: Variable, 1-28
Activity Code:
X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

__ Lecture (11 hrs/credit)
__ Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)
X_Other: Individualized career training focused on learning on a job site, 33 hrs/credit

Number of Hours: 1 unit for 33 hours on-job site work
See 'course type' above for guidance

Co- and Pre-Requirement Information
Please define any co- or pre-requisite information.
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate

Co- and Pre-Requirement Enforcement
Please choose an enforcement option for the information listed above.
__Registration Enforced
X_Instructor Enforced
__Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
Graded course; no pass/no-pass option

Load Factor:

Award Information:
Please select all that apply.

__AA
X_AS
X_AAS
__Below 100-Level
X_Elective
X_Certificate
X_AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
X_Occupational Preparatory (organized degree/cert. program)
X_Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information

Please list all programs for which this course will be required
Engineering Technician – Water Quality Operations
Occupational Skills Training Certificate

New Course Justification

Student Need for Course (Please describe)
Occupational Skills Training meets the employment training needs of a community and an individual where there is not enough "need" to create on-going programs. The training offers students the ability to earn college credits while providing them the opportunity to design a career path that accommodates their occupational goals, abilities, skills, and interests.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
X_Other

Course Impact Description

For any of the course impacts listed above, please describe.
Occupational skills training students will require monitoring and performance review by existing staff which will result in very modest program costs (approximately 0.25 ILC's per student per quarter)

Replacement Course For:
N/A
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_ Course Outline - required
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)
COURSE TITLE: Occupational Skills Training (OST)

Course No: OST 290
Course Credit: 1 - 28
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 0
Practicum Hrs/Wk: 3 Hrs per credit/Wk
Clock Hours: 33 Hrs per credit
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: .25 per student
Activity Code: 100
CIPS: 260101

Course Title: Occupational Skills Training
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

COURSE DESCRIPTION:
Students are expected to learn skills related to their program of study in a work setting. Placements are normally off campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The OST Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

COURSE OUTCOMES:
1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.

CREDITS AND HOURS:
Variable (1-28) credits; students earn 1 college credit for each 33 hours of work during a term.
PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

ASSESSMENT:
Assessment will be based on: Coordinator Site Visits, the Student Self Evaluation, the Supervisor Evaluation, and Student Time Journals.

COURSE OUTLINE:

Week 1 Occupational Skills Training
Week 2 Occupational Skills Training
Week 3 Occupational Skills Training
Week 4 Occupational Skills Training
Week 5 Occupational Skills Training
Week 6 Occupational Skills Training
Week 7 Occupational Skills Training
Week 8 Occupational Skills Training
Week 9 Occupational Skills Training
Week 10 Occupational Skills Training
Week 11 Occupational Skills Training
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**

Name of New Course Contact: Clay Baumgartner  
Contact Title: Chair, Engineering and CIS Department  
Department: Engineering and CIS  
Supervisor: Jesse Morrow  
Program: Engineering and Natural Resources

**New Course Information**

Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year  
Course Title: Lab for SOIL 205 Soil Science  
Course Number: SOIL 206  
Number of Credits: 1  
Activity Code:  
_X_100 - Lower Division Collegiate  
_210 - CTE Preparatory  
_211 - Stand-alone (Independent) CTE Preparatory  
_220 - CTE Supplemental  
_230 - CTE Apprenticeship  
_310 - English as a Second Language  
_320 - Adult Basic Education  
_330 - General Education Development Test Preparation  
_340 - Adult High School Diploma, High School Completion  
_350 - Post-Secondary Remedial, Reading or Writing  
_351 - Post-Secondary Remedial, Math  
_352 - Post-Secondary Remedial, Electives  
_360 - ACE – Unknown  
_361 - ACE - Health and Fitness  
_362 - ACE – Safety  
_363 - ACE – Workforce  
_510 - Non-Reimbursable – Unknown  
_511 - Non-Reimbursable - Hobby and Recreation  
_512 - Non-Reimbursable - Other/Administrative

**Course Type**

*(If your course is a combination of the below options, please define it in ‘other’)*

_Lecture (11 hrs/credit)  
_X_Lab (30 hrs/credit)
_Lecture/Lab (20 hrs/credit)

Other:

**Number of Hours:** 3 hrs. lab/wk.; 33 hrs/term
*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**
*Please define any co- or pre-requisite information.*
Co-Requisite: SOIL 205

**Co- and Pre-Requisite Enforcement**
*Please choose an enforcement option for the information listed above.*

- [ ] Registration Enforced
- [ ] Instructor Enforced
  - Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**
A-F, audit

**Load Factor:**
2.1

**Award Information:**
*Please select all that apply.*

- [ ] AA
- [x] AS
- [x] AAS
- [ ] Below 100-Level
- [x] Elective
- [x] Certificate
- [x] AAOT

*If you selected ‘AAOT’ above, please select the area of distribution below.*

- [ ] Arts and Letters
- [ ] Mathematics
- [x] Science or Computer Science
- [ ] Social Science
- [ ] Speech/Oral Communication
- [ ] Writing
- [ ] Cultural Literacy
CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
Civil Engineering and Surveying Technology, AAS; AS with emphasis in Surveying and Geomatics; AS in Natural Resources: Landscape Monitoring

New Course Justification
Student Need for Course (Please describe)
The combination SOIL 205 and SOIL 206 will replace the engineering course CIV 223 Properties & Materials. The combination of SOIL 205 and SOIL 206 will transfer to OSU to satisfy a Baccalaureate Core requirement.

Course Impacts (Select all that apply)
X/Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
X/Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.
Lab for SOIL 205. There is a net reduction in instructional costs as the combination SOIL 205 and SOIL 206 will replace the engineering course CIV 223 Properties & Materials. There will be some initial course development costs.
Replacement Course For:
CIV 223 Properties & Materials
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_ Course Outline - required
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)
Course Title: Soils Lab for SOIL 205 Soil Science  
Developed By: Clay Baumgartner, PE  
Development Date: 10/11/15  
Revision Date:
Review Date:

Course Description SOIL 206: Laboratory exercises and field trips designed to develop student competency in soil processes, description, analysis, and assessment with a particular emphasis on the role of soils in managed and unmanaged forest ecosystems.

Co-Requisite: SOIL 205

Course Outcomes: Upon completion of SOIL 206, students will be able to:

1. Describe the relationship between the five soil forming factors, soil development, and outcomes of forest management.
2. Explain the environmental functions of soil and how these functions may be affected by management, especially silvicultural operations.
3. Describe how water moves in soils and the controls that influence its availability to plants. Explain the importance of soil moisture to forests at various successional stages.
4. Locate publically available information and maps on soils. Explain how this information is useful to forest managers.
5. Calculate nutrient pools and explain how they are released from the soil and made available to plants.
6. Calculate soil organic matter pools and explain their importance to soil processes.
7. Describe how roots, soil flora/fauna, and mycorrhiza interact with soil and influence soil processes.
8. Describe soils’ role in sustainability and long-term soil productivity.
9. Explain the effects of common forest management activities on soil.
10. Make observations of soil and forest characteristics and interpret observations with regard to forest management objectives.
## OUTLINE

<table>
<thead>
<tr>
<th>WEEK</th>
<th>LAB EXERCISES</th>
</tr>
</thead>
</table>
| **One** | Introduction to soils and common field tools and techniques (Field Lab)  
Methods for examining soils (soil pits, auger, and coring).  
Practice identifying major genetic soils horizons.  
Introduce field methods for collecting samples and characterizing soils (color, structure, and texture). |
| **Two** | Local soils of SW Oregon (Field Lab)  
Practice identifying soil horizons using color, structure, roots, strength, and texture.  
Practice determining parent material and soil order.  
Practice identifying soil forming factors.  
Examine relationships between soils in the field trip area. |
| **Three** | Management impacts on soils (Field Lab)  
Introduce bulk density and soil strength.  
Examine the legacy impact of resource management on soil compaction and erosion.  
Examine soils in an undisturbed forest. |
| **Four** | Soil physical properties: Texture, density, and strength (Tower Soils Lab)  
Learn about soil physical properties and how to determine them in the field and lab.  
Learn hand texturing, sieving, jar, and the hydrometer method of soil texture determination.  
Practice determining soil color, structure, and other characteristics. |
| **Five** | Soil water (Tower Soils Lab)  
Learn how soil moisture and soil physical attributes interact to affect plant uptake.  
Learn about several ways to measure soil moisture and the limitations of each method.  
Observe saturated flow, field capacity, available water content, and plant wilting point.  
Observe patterns of water movement through soils.  
Examine the dynamics of soil moisture through seasons, soil depth, and as a result of management. |
| **Six** | Soil survey and soil mapping  
Learn basics of soil survey systems (development, pertinent information, etc.).  
Learn the NRCS system and the kinds of information contained in the soil survey.  
Practice extracting specific soil information.  
Generate reports from NRCS Web Soil Survey.  
Explore Soil Resource Laboratory SoilWeb. |
| **Seven** | Soil chemistry (Tower Soils Lab)  
Learn a few basic measurements related to soil nutrients and chemistry including organic matter and pH.  
Examine how pH and organic matter vary across soil types and depth.  
Calculate CEC from two different methods. |
| **Eight** | Soil biology and roots (Field Lab)  
Examine the spatial distribution of roots in a forest soil.  
Learn the major organisms in forest soils. |
| **Nine** | Wetland soils and species composition (TBA)  
Learn how soils affect the composition of species and the productivity of those species.  
Learn about hydric soil characteristics and introduce wetland soils. |
| **Ten** | Soils, geomorphology, and Hydrology (TBA)  
Learn how geology, geomorphology, and hydrology affect soil formation.  
Examine the effect of forest management (harvesting) and other disturbances (fire, mass wasting and windthrow) on soils.  
Examine the effect of ameliorating treatments on soil disturbance. |
| **Eleven** | Finals |
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: Clay Baumgartner
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow
Program: Engineering

New Course Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year
Course Title: Photogrammetry and Introduction into Remote Sensing
Course Number: SUR 209
Number of Credits: 4
Activity Code:
_X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

X _Lecture (11 hrs/credit)
_X_Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)
Other:

**Number of Hours:** 3 hrs. lecture/wk. and 3 hrs. lab/wk. and 66 hrs/term
See 'course type' above for guidance

**Co- and Pre-Requisite Information**
Please define any co- or pre-requisite information.
Pre-Requisite: MTH 111

**Co- and Pre-Requisite Enforcement**
Please choose an enforcement option for the information listed above.
-X_ Registration Enforced
-Instructor Enforced
- Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**
A-F, audit

**Load Factor:**
5.1

**Award Information:**
Please select all that apply.

- AA
-X AS
- AAS
- Below 100-Level
-X Elective
- Certificate
-X AAOT

*If you selected 'AAOT' above, please select the area of distribution below.*

- Arts and Letters
- Mathematics
-X Science or Computer Science
- Social Science
- Speech/Oral Communication
- Writing
- Cultural Literacy
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
___Yes
___No

Minutes must be submitted to IC
___Yes
___No

Course on "LDC Course List" with ODE?
___Yes
___No (Course has been approved for transfer.)
___To Be

Course Type:
___Occupational Preparatory (organized degree/cert. program)
___Occupational Supplementary
___Foundational Requirement
___Discipline Studies
___Elective

Required Course Information

Please list all programs for which this course will be required
AS with emphasis in Forestry Engineering, AS with emphasis in Forestry Management, AS with emphasis in Forestry Operations.

New Course Justification

Student Need for Course (Please describe)

Required course for Forestry Engineering, Forestry Management, and Forestry Operations degrees at OSU.

Course Impacts (Select all that apply)
___Instructional costs (staff, materials, equipment, or facilities) are required.
___Additional instructional costs (staff, materials, equipment, or facilities) are needed.
___Impact to other divisions in terms of classes and staffing
___Other

Course Impact Description

For any of the course impacts listed above, please describe.

Engineering program has proposed a net decrease of 5 credit hours in Civil Engineering & Surveying Technology AAS degree through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours offered through Engineering programs. Will be costs associated with developing curriculum.

Replacement Course For:
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_ Course Outline - required
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)
Course Title: Photogrammetry and Introduction into Remote Sensing

Course No: SUR 209
Course Credit: 4
Lecture Hrs/wk: 3
Lecture/Lab Hrs/Wk: 3
Clock Hours: 66
Length of Course: 11 wks

Banner enforced Prerequisite:
Co-Requisite: MTH 112

Course Description: Management and conservation of natural resources with the fundamentals of spatial data acquisition from airborne and spaceborne sensors. Introduction to theory of spectral reflectance properties of vegetation, the principles of photographic analysis and aerial photo-interpretation and new advances such as LIDAR.

Co-Requisite: MTH 112

Learning Resources

From the bookstore:
- Aerial photos
- Aerial photo interpretation template
- Blue & red photo pencils or sharpies (ultra-fine)
- Photo

Required tools
- Handheld scientific calculator
- Pocket Stereoscope

Suggested Texts:
- Aerial Photography & Image Interpretation 2nd ed. (Paine & Kiser)
Course Outcomes: Students completing this course will acquire a basic understanding of the techniques available to remotely sense vegetation from airborne and spaceborne platforms. Course objectives also include basic techniques and skills in forest photogrammetry including photo interpretation, photo measurements. Another emphasis will be on field application of LiDAR, satellite imagery and aerial photographs as well as field validation of remotely sensed observations (including issues of scaling). Upon completion of SUR 209, students will be able to:

- Interpret the electromagnetic spectrum, and be able to identify and explain the spectral signature of vegetation.
- Place aerial or satellite images in a geographic coordinate system and transform between them using tools such as ArcGIS or Envi.
- Orient stereoscopic images under a stereoscope and delineate forest stands from it, and determine stand height from aerial photographs. They will further be able to determine stand volume by applying height volume relationships and type timber from interpreting aerial photographs
- Determine stand height, tree height and stand volume also from discrete LiDAR data by extracting ground returns, developing a digital elevation model from it and comparing this model to non-ground returns in a LiDAR dataset
- Independently set up a sampling scheme for ground validation of remotely sensed data and validate measurements taken from both LiDAR and air photos
- Load geospatial data into ArcGIS and do some basic operations (such as buffering/spatial querying) with it
- Explain the spatial and spectral properties of the most common satellite sensors (Landsat and MODIS) and when confronted with a specific remote sensing problem, be able to recommend either one of these technologies and explain why.
## COURSE OUTLINE:

<table>
<thead>
<tr>
<th>Week</th>
<th>Reading Assignments</th>
<th>Learning Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course Introduction</td>
<td>Jeffrey Sachs lecture “Frontiers of Geoscience” and Discussion</td>
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<tr>
<td></td>
<td>Introduction into Remote Sensing The Electromagnetic Spectrum (Part I)</td>
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<td>2</td>
<td>The Electromagnetic Spectrum (Part II)</td>
<td>Lab 1: Electromagnetic spectrum</td>
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<td></td>
<td>Resolution in Remote Sensing (Part I - Spatial)</td>
<td>Homework assignment 1</td>
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<td></td>
<td>Resolution in Remote Sensing (Part II - Temporal, Spectral, Radiometric)</td>
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<tr>
<td>3</td>
<td>From image to map: Coordinate Systems and Map Projections (Part I)</td>
<td>Lab 2: Basic Image Analysis</td>
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<tr>
<td></td>
<td>From image to map: Coordinate Systems and Map Projections (Part II)</td>
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<td>Global Positioning System (GPS)</td>
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<td>4</td>
<td>Orthorectification</td>
<td>Lab 3: Georeferencing Quiz 2</td>
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<td>Georeferencing and Image Transformations</td>
<td>Homework 2</td>
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<tr>
<td>5</td>
<td>Images Interpretation and Image Classification</td>
<td>Lab 4: Image Classification</td>
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<tr>
<td></td>
<td>Horizontal Measurements in Aerial Photographs</td>
<td>Midterm Exam</td>
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</tbody>
</table>
| 6 | Vertical Measurements in Aerial Photographs (Part I - Stereovision)  
Vertical Measurements in Aerial Photographs (Part II - Measuring Vegetation Height)  
Aerial Photo Mensuration | Homework 3  
Lab 5: Mapping and Horizontal Measurements in Aerial Imagery  
Quiz 3 |
|---|---|
| 7 | Introduction into Light Detection And Ranging (LiDAR)  
Obtaining Height Models from LiDAR I: Extracting ground Elevations  
Obtaining Height Models from LiDAR II: Fitting Surfaces | Lab 6: Image Interpretation and Stereoscopic measurements |
| 8 | Vegetation Height Estimates from LiDAR  
Obtaining Vertical Canopy Structure from LiDAR I: Height Percentiles and Canopy Profiles  
Obtaining Vertical Canopy Structure from LiDAR II: Leaf Area Profiles, Canopy Volumes and Indirect estimates of Vegetation Biomass | Lab 7: Introduction to LiDAR Quiz 4  
Homework assignment 4 |
| 9 | Error sources when working with LiDAR I  
Error sources when working with LiDAR II  
Errors and Uncertainties | Lab 8: Estimating vegetation heights from LiDAR  
Homework Assignment 5  
Quiz 5 |
| 10 | Sampling Techniques I  
(Sampling Schemes)  
Sampling Techniques II (Ground truthing) | |
| 11 | | Final Exam |
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**

**Name of New Course Contact:** Clay Baumgartner  
**Contact Title:** Chair, Engineering and CIS Department  
**Department:** Engineering and CIS  
**Supervisor:** Jesse Morrow  
**Program:** Engineering

**New Course Information**

**Date, Year, and Term of Proposed Implementation:** September 2016, Fall 2016, 2016-17 Academic Year  
**Course Title:** Cooperative Work Experience  
**Course Number:** WQT 280  
**Number of Credits:** Variable, 1-12  
**Activity Code:**
- _X_100 - Lower Division Collegiate  
- _210 - CTE Preparatory  
- _211 - Stand-alone (Independent) CTE Preparatory  
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- _510 - Non-Reimbursable - Unknown  
- _511 - Non-Reimbursable - Hobby and Recreation  
- _512 - Non-Reimbursable - Other/Administrative

**Course Type**

*(If your course is a combination of the below options, please define it in ‘other’)*

- _Lecture (11 hrs/credit)  
- _Lab (30 hrs/credit)*
Lecture/Lab (20 hrs/credit)
X_Other: Individualized career training focused on learning on a job site, 33 hrs/credit

Number of Hours: 1 unit for 33 hours on-job site work
See 'course type' above for guidance

Co- and Pre-Requisite Information
Please define any co- or pre-requisite information.
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
__Registration Enforced
X_Instructor Enforced
__Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
Graded course; no pass/no-pass option
Load Factor:

Award Information:
Please select all that apply.

__AA
__AS
__AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.

__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
X_Occupational Preparatory (organized degree/cert. program)
X_Occupational Supplementary
__Foundational Requirement
__Discipline Studies
X_Elective

Required Course Information
Please list all programs for which this course will be required
Occupational Skills Training Certificate

New Course Justification
Student Need for Course (Please describe)
Cooperative work experience meets the employment training needs of a community and an individual students. The training offers students the ability to earn college credits while providing them the opportunity to develop work experience that accommodates their occupational goals, abilities, skills, and interests.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
X_Other

Course Impact Description
For any of the course impacts listed above, please describe.
Occupational skills training students will require monitoring and performance review by existing staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter)

Replacement Course For:
N/A
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

- [X] Course Outline - required
- [ ] Start-Up Budget (if needed)
- [ ] Advisory Committee Minutes (if needed)
Course Outline

COURSE TITLE: Cooperative Work Experience (CWE)
COURSE NO.: WQT 280

Course No: WQT 280
Course Credit: 1 - 12
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: Practicum Hrs/Wk: 3 Hrs per credit/Wk
Clock Hours: 33 Hrs per credit
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: .25 per student
Activity Code: 100
CIPS: 260101

Course Title: Cooperative Work Experience
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

COURSE DESCRIPTION:
Students are expected to learn skills related to their program of study in a work setting. Placements are normally off campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The CWE Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

COURSE OUTCOMES:
1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.

CREDITS AND HOURS:
Variable (1-12) credits; students earn 1 college credit for each 33 hours of work during a term.
PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

ASSESSMENT:
Assessment will be based on: Coordinator Site Visits, the Student Self Evaluation, the Supervisor Evaluation, and Student Time Journals.

COURSE OUTLINE:

Week 1 Cooperative Work Experience
Week 2 Cooperative Work Experience
Week 3 Cooperative Work Experience
Week 4 Cooperative Work Experience
Week 5 Cooperative Work Experience
Week 6 Cooperative Work Experience
Week 7 Cooperative Work Experience
Week 8 Cooperative Work Experience
Week 9 Cooperative Work Experience
Week 10 Cooperative Work Experience
Week 11 Cooperative Work Experience
Degrees/Certificates

Revisions

1. AAS, Civil and Surveying Technology, a) Base, b) Applied Surveying Option, and c) Applied Water Quality Option (*creates base with net reduction in credit hours, creates options with occupational skills training*).
2. Engineering and Drafting Technician Completion Certificate (*update curriculum to match AAS*).
3. Drafting Pathways Certificate (*replace DRF 116 with elective*).
4. Water Quality Pathways (*delete math requirement*).
5. AS Surveying & Geomatics (*update to align with revisions at OIT for articulation*).
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**

Name of Program Revision Contact: Clay Baumgartner  
Contact Title: Department Chair  
Department: Engineering and CIS

**Program Revision Information**

Date, Year, and Term of Proposed Revision: September 2016, Fall Quarter  
Program Title: Civil Engineering and Surveying Technology Program, AAS  
Civil Engineering and Surveying Technology, AAS, Applied Surveying Option  
Civil Engineering and Surveying Technology, AAS, Applied Water Quality Option

**Revision Type - select all that apply**

- Credits
- Title
- Summary
- Outcomes
- Curriculum
- Suspension
- Reactivate
- Delete
- Repackage for a new area of concentration or certificate within existing program.  
- Other: (please describe)Creates options for parent degree

**Revised Outcomes (If needed)**

**Revision Description and Justification**

Please give as many details as possible about the revision, including justification for the change. Courses in parent program have been revised to increase educational pathways while maintaining job readiness of graduates. Calculus courses have been added and additional transfer courses incorporated so that students can transfer with AAS + 1 year. We have also developed two "Options" that are more applied and provide 6 months of occupational skills training. Two courses have been exchanged to create a GIS pathways certificate. There is a net reduction of 4 credit hours in engineering courses offered by Department through combining transfer and technology courses.

**Program Impacts - select all that apply**

- Instructional costs (staff, materials, equipment, or facilities) required.  
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.  
- Impact to other divisions in terms of classes and staffing  
- Other:
Program revision for: Civil Engineering and Surveying Technology, AAS

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Note: Net reduction of 5 credit hours in engineering program course offerings

* Approved Biological Science + Lab electives
** WLD 131 Basic Metallurgy or WLD 140 Blue Print Reading and Sketching can be substituted for CIV 280

NR/SOILS 205/206 Soil Science 4 cr (recommended for Civil and Surveying focus), or BI 101, BI 102, or BI 103 4 cr (recommended for Water Quality Focus)

** Approved Engineering Electives. Combined credit total of 13 – 17 hours.
** Human Relations Elective Approved in UCC Catalog
Program revision for: Civil Engineering and Surveying Technology,  
**APPLIED SURVEYING OPTION, AAS**

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**WLD 131 Basic Metallurgy or WLD 140 Blue Print Reading and Sketching can be substituted for CIV 280**

****Human Relations Elective Approved in UCC Catalog

**Note:** 29 credit or 30 percent change from base; 70 percent of core courses in option
### Program revision for: Civil Engineering and Surveying Technology, **APPLIED WATER QUALITY OPTION, AAS**

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#### PROPOSED OPTION

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<td>WQT 227</td>
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<td>WR 121</td>
<td>English Composition</td>
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<td>Total Credits in Program</td>
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* Approved Biological Science + Lab electives

** NR/SOILS 205/206 Soil Science 4 cr (recommended for Civil and Surveying focus), or BI 101, BI 102, of BI 103 4 cr (recommended for Water Quality Focus)

** WLD 131 Basic Metallurgy or WLD 140 Blue Print Reading and Sketching can be substituted for CIV 280

*** Human Relations Elective Approved in UCC Catalog

** Note: 29 credit or 30 percent change from base; 70 percent of core courses in option
## Civil Engineering and Surveying Technician, AAS Proposed

### Prerequisites and Course Availability per Term

(For complete information, see 2016-2017 UCC Catalogue)  
REVISED 10/22/15

<table>
<thead>
<tr>
<th>Course No. and Course Name</th>
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<td><strong>Term 1</strong></td>
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<tr>
<td>DRF 112 Computer Aided Drafting (CAD) I</td>
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<td>ENGR 111 Engineering Orientation I</td>
<td>x</td>
<td>3 MTH 65 Elementary Algebra</td>
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<tr>
<td>GIS 203 The Digital Earth</td>
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<td>4 MTH 65 Elementary Algebra</td>
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<tr>
<td>WR 121 English Composition, Intro to Argument</td>
<td>x x x x</td>
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</tr>
</tbody>
</table>

| **Term 2**                 |              |         |
| DRF 113 Computer Aided Drafting (CAD) II | x | 3 DRF 112 CAD I |
| GIS 234 Intro to Geographic Information Systems (GIS) | x | 4 |
| ENGR 112 Engineering Orientation II | x | 3 ENGR 112 Engineering Orientation I |
| MTH 111 Algebra | x x x x | 5 MTH 95 Pre-Algebra |

| **Term 3**                 |              |         |
| CIV 214 CAD - Civil 3D | x | 3 DRF 113 CAD I |
| GIS 235 GIS Data Integration | x | 4 GIS 234 |
| ENGR 245 Engineering Graphics | x | 3 DRF 112 CAD I |
| MTH 112 Elementary Functions | x x x x | 4 MTH 111 Algebra |
| SUR 161 Surveying I | x | 4 MTH 95 Pre-Algebra |

| **Summer**                 |              |         |
| CIV, GIS or WQT 290* Cooperative Work Experience | x x x x | 3 |

| **Term 4**                 |              |         |
| ENGR 211 Statics | x | 4 MTH 112 |

| **Approved Program Elective 1** | x | 4 See advisor |

| MTH 251 Calculus I | x | 5 MTH 112 |
| WR 227 Technical Report Writing | x x x x | 4 WR 121 |

| **Term 5**                 |              |         |
| Approved Program Elective 2 | x | 4 Range: 4 to 6 credits. See advisor |

| MTH 252 Calculus II | 4 MTH 251 |
| ENGR 212 Dynamics | 4 ENGR 211 |
| CWE 161 CWE Seminar I | x x x | 1 |

| ENGR 213 Strength of Materials | x | 4 ENGR 211 |
| SOIL 206* Soils Science Lab | x | 3 MTH 95 |
| **Approved Program Elective 3** | x | 3 See advisor |

| SP 111 Fundamentals of Public Speaking | x x x | 4 WR 095 |

| **TOTAL AAS DEGREE CREDITS** | 98 | Range 98 to 100 |

---

* WLD 131 Basic Metallurgy and WLD 140 Blue Print Reading and Sketching can be substituted for CWE 280  
** Counts at OSU as Biological Science with lab  
*** See Following Page for Program Electives

*Last updated 11/3/2015*
### PROGRAM ELECTIVES

**Program Elective 1**
- Sur 162 Plane Surveying II or 4 cr
- WQT 261 Water Distribution 4 cr

**Program Elective 2**
- Sur 163 Plane Surveying III or 4 cr
- WQT 227 Wastewater Collection and 3 cr
- WQT 228 Wastewater Treatment 3 cr

**Program Elective 3**
- Sur 242 Land Descriptions & Cadastre or 3 cr
- WQT 260 Water Treatment 3 cr
# CIVIL ENGINEERING AND SURVEYING TECHNICIAN, AAS

**Applied Surveying Option**

### Prerequisites and Course Availability per Term

(For complete information, see 2016-2017 UCC Catalogue)

**REVISED 10/22/15**

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<td>GIS 203 The Digital Earth</td>
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<td>GIS 234 Intro to Geographic Information Systems (GIS)</td>
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<td>SUR 162 Surveying II</td>
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<td>Term 6</td>
<td>TOTAL AAS DEGREE CREDITS</td>
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* WLD 131 Basic Metallurgy and WLD 140 Blue Print Reading and Sketching can be substituted for CIV 280

Percentage of base: 70%

Last updated 11/3/2015
CIVIL ENGINEERING AND SURVEYING TECHNICIAN, AAS

Applied Water Quality Technology Option

Prerequisites and Course Availability per Term
(for complete information, see 2016-2017 UCC Catalogue)  REVISED 10/22/15

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<th>Prerequisites/Notes</th>
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TOTAL AAS DEGREE CREDITS 99

* WLD 131 Basic Metallurgy and WLD 140 Blue Print Reading and Sketching can be substituted for CWE 280

Percentage of base 71%

Last updated 11/3/2015
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**
Name of Program Revision Contact: Clay Baumgartner  
Contact Title: Department Chair  
Department: Engineering and CIS

**Program Revision Information**
Date, Year, and Term of Proposed Revision: September 2016, Fall Quarter  
Program Title: Engineering and Drafting Technician, Completion Certificate

**Revision Type - select all that apply**
- Credits
- Title
- Summary
- Outcomes
- Curriculum
- Suspension
- Reactivate
- Delete
- Repackage for a new area of concentration or certificate within existing program.
- Other: (please describe)

**Revised Outcomes (If needed)**

**Revision Description and Justification**
Please give as many details as possible about the revision, including justification for the change.
Removing one drafting course, DRF 116 Structural Drafting, and one math class, MTH 95 Intermediate Algebra from completion certificate. Adding two GIS courses. Aligns with overall changes being made to the AAS degree in Civil Engineering and Surveying Technology.

**Program Impacts - select all that apply**
- Instructional costs (staff, materials, equipment, or facilities) required.
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- Impact to other divisions in terms of classes and staffing
- Other:
Program revision for: Civil Engineering and Surveying Technology, AAS

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<td>DRF 112</td>
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<td>CAD II</td>
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<td>DRF 116</td>
<td>Structural Drafting</td>
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<td>Engineering Orientation I</td>
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<td>Engineering Orientation II</td>
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<td>Engineering Graphics</td>
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<td>Surveying I</td>
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## Proposed

**Prerequisites and Course Availability per Term**

*(for complete information, see 2016-2017 UCC Catalogue)*

**REVISED 10/22/15**

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<th>Prerequisites/Notes</th>
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<tr>
<td>DRF 112 Computer Aided Drafting (CAD) I</td>
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<td>ENGR 111 Engineering Orientation I</td>
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<td>MTH 65 Elementary Algebra</td>
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<td>GIS 203 The Digital Earth and Geospatial Concepts</td>
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<td>WR 121 English Composition, Intro to Argument</td>
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**Term 1**

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**Term 2**

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<td>GIS 235 GIS II Analysis and Applications</td>
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<td>SUR 161 Surveying I</td>
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<td>MTH 95 Pre-Algebra</td>
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</table>

**Term 3**

Last updated 11/3/2015
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**

Name of Program Revision Contact: Clay Baumgartner  
Contact Title: Department Chair  
Department: Engineering and CIS

**Program Revision Information**

Date, Year, and Term of Proposed Revision: September 2016, Fall Quarter  
Program Title: Drafting Pathways Certificate

**Revision Type - select all that apply**

- Credits
- Title
- Summary
- Outcomes
- Curriculum
- Suspension
- Reactivate
- Delete
- Repackage for a new area of concentration or certificate within existing program.
- Other: (please describe)

**Revised Outcomes (If needed)**

**Revision Description and Justification**

Please give as many details as possible about the revision, including justification for the change. Removes DRF 116 Structural Drafting and replaces with a Drafting Elective. The elective courses are included in the parent AAS program.

**Program Impacts - select all that apply**

- Instructional costs (staff, materials, equipment, or facilities) required.
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- Impact to other divisions in terms of classes and staffing
- Other:
Program revision for: Drafting Pathways Certificate

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Approved Drafting Electives (courses from Civil Engineering and Surveying Technology, AAS)

1. CIV 114 CAD – Civil3D
2. CIV 280 Cooperative Work Experience (CWE)
3. GIS 280 Cooperative Work Experience (CWE)
4. GIS 234 GIS I Introduction to GIS
5. WLD 140 Blue Print Reading and Sketching
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

Basic Information
Name of Program Revision Contact: Clay Baumgartner
Contact Title: Chair
Department: Engineering and CIS Department

Program Revision Information
Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year
Program Title: Water Quality Technician Pathway Certificate

Revision Type - select all that apply
X_ Credits
__ Title
__ Summary
__ Outcomes
__ Curriculum
__ Suspension
__ Reactivate
__ Delete
__ Repackage for a new area of concentration or certificate within existing program.
__ Other: (please describe)

Revised Outcomes (If needed)

Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Credit Revision: Delete math requirement from certificate
Justification: Level of math skills necessary for successful employment in water quality field is sufficiently addressed by pre-requisites for course. There sufficient credit hours for a pathways certificate without the math course. Requiring MTH 111 may act as impediment to prospective students who are actively employed in the field and are wishing to enhance their knowledge/skills or who are in non-engineering fields of study and are interested in water quality as a potential career choice.

Program Impacts - select all that apply
__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:
Please list changes to program course listing below.

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<tr>
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<tr>
<td>Course #</td>
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<tr>
<td>MTH 111</td>
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</tr>
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<td>WQT 227</td>
<td>Wastewater Treatment</td>
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<tr>
<td>WQT 228</td>
<td>Wastewater Collection</td>
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<tr>
<td>WQT 260</td>
<td>Water Treatment</td>
</tr>
<tr>
<td>WQT 261</td>
<td>Water Distribution</td>
</tr>
</tbody>
</table>
### Additional Documentation

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- [ ] Curriculum Revision Form
- [ ] Start-Up and First Year Budget
- [ ] Other:

**Total credits for Program:** 13
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**
Name of Program Revision Contact: Clay Baumgartner
Contact Title: Department Chair
Department: Engineering and CIS

**Program Revision Information**
Date, Year, and Term of Proposed Revision: September 2016, Fall Quarter
Program Title: AS with emphasis in Surveying and Geomatics

**Revision Type - select all that apply**
-X_ Credits
- _Title
- _Summary
- _Outcomes
-X_ Curriculum
- _Suspension
- _Reactivate
- _Delete
- _Repackage for a new area of concentration or certificate within existing program.
- _Other: (please describe) Creates options for parent degree

**Revised Outcomes (If needed)**

**Revision Description and Justification**
*Please give as many details as possible about the revision, including justification for the change.*
Courses in AS degree have been revised to better align with the OIT transfer program. There is a net reduction of 7 credit hours in AS degree.

**Program Impacts - select all that apply**
- _Instructional costs (staff, materials, equipment, or facilities) required.
- _Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- _Impact to other divisions in terms of classes and staffing
- _Other:

---
Program revision for: **AS with emphasis in Surveying and Geomatics**

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<td>DRF 113</td>
<td>CAD II</td>
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<td>ENGR 111</td>
<td>Engineering Orientation II</td>
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<td>GIS 134</td>
<td>GIS I</td>
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<tr>
<td>MTH 112</td>
<td>Elementary Functions</td>
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<tr>
<td>MTH 243</td>
<td>Intro to Probability &amp; Statistics</td>
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<tr>
<td>MTH 251</td>
<td>Calculus I</td>
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<td>MTH 252</td>
<td>Calculus II</td>
</tr>
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<td>MTH 253</td>
<td>Calculus III</td>
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<td>General Physics W/Calculus</td>
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<td>PH 213</td>
<td>General Physics W/Calculus</td>
</tr>
<tr>
<td>SUR 161</td>
<td>Surveying I</td>
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<td>SUR 162</td>
<td>Surveying II</td>
</tr>
<tr>
<td>SUR 163</td>
<td>Surveying III</td>
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<td>SUR 242</td>
<td>Land Desc. &amp; Cadastre</td>
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<td>SP 111</td>
<td>Public Speaking</td>
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<td>WR 121</td>
<td>English Composition</td>
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<td>WR 122</td>
<td>English Composition</td>
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<tr>
<td><strong>Social Science Elective</strong></td>
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<tr>
<td><strong>Science Elective</strong></td>
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Total Credits in Program: 108

* For humanities elective credits choose from UCC’s prefixes ART, ENG, MUP, MUS, PHL, R, TA or second year languages. Only 3 humanities credits can be studio/performance based.

** For social science electives choose from the following UCC course prefixes: ANTH, CLA, EC, GEG (except 105), HST, PS, PSY, SOC, SSC, and WS, or other courses designated as Social Science electives by the OIT.
## AS, SURVEYING & GEOMATICS

**PROPOSED**

### Prerequisites and Course Availability per Term

(for complete information, see 2016-2017 UCC Catalogue)  
REVISED 10/22/15

<table>
<thead>
<tr>
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<th>Prerequisites/Notes</th>
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<td>MTH 65 Elementary Algebra</td>
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<td>GIS 203 The Digital Earth</td>
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<td>WR 121 English Composition, Intro to Argument</td>
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<td>GIS 234 Intro to Geographic Information Systems (GIS)</td>
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<tr>
<td>MTH 251 Calculus I</td>
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<td>WR 122 English Composition, Style &amp; Argument</td>
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<td>CIV 214 CAD - Civil 3D and Virtual Design</td>
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<td>DRF 113 CAD I</td>
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<td>GIS 235 GIS Data Integration</td>
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<td>MTH 252 Calculus II</td>
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<td>SUR 161 Surveying I</td>
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<td>Coreq - MTH 112</td>
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<td>SUR 162 Plane Surveying II</td>
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<td>MTH 254 Vector Calculus I</td>
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<td>MTH 112</td>
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<td>PH 211 General Physics w/Calculus</td>
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<td>Coreq - MTH 251</td>
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<td>SUR 163 Route Surveying</td>
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<td>SUR 162</td>
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<td>MTH 243 Intro to Probability &amp; Statistics</td>
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<td>MTH 111 Algebra</td>
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<td>SUR 242 Land Descriptions &amp; Cadastre</td>
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<td>WR 227 Technical Report Writing</td>
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<td>PH 213 General Physics w/Calculus</td>
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<tr>
<td>SP 111 Fundamentals of Public Speaking</td>
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**TOTAL AAS DEGREE CREDITS**  
101

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*Last updated 11/3/2015*
Degrees/Certificates

New

1. Forest Engineering
2. Forest Management
3. Forest Operations
4. GIS Pathways
5. Occupational Skills Training Completion Certificate
6. Water Quality Operations Pathways
Basic Information
Name of Program: Forest Engineering, AS Degree with Emphasis in Forest Engineering
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
___Less than 1 year certificate
_1 year certificate
___2 year certificate
___Career Pathway certificate
X_Degree

Number of Credits: 105 - 107

New Program/Certificate Title: Forest Engineering, AS Degree with Emphasis in Forest Engineering

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
The UCC Forest Engineering program prepares students for transfer to the bachelor’s degree program at Oregon State University (OSU). The curriculum is intended to meet the requirements for the first two years of course work necessary for application to the Forest Engineering professional program at OSU. Students can also take additional courses at UCC for transfer to the dual Civil and Forest Engineering program at OSU.

Students that finish the coursework will complete at UCC with a two-year AS degree. The two-year degree may also provide a direct career pathway to employment as a Forest Technician or Engineering Technician.

Prospective students should see an engineering faculty advisor, or Counseling and Career Planning Services, to develop your educational plan. Most core courses at UCC are offered only once each academic year, and must be taken in sequence. A well-planned course of study will help ensure a smooth transition to a university.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
This is a transfer degree and LMI market need is not required for program approval. However, graduates for the Forest Engineering program at OSU have close to 100 percent placement. Students that enter the job market after completing the 2-year AS could apply for positions as Forest Technicians or Engineering Technicians.
Target Student Population:
Degree oriented students.

Program Outcomes: (please list numerically)
Associate of Science Degree.

Program Impacts:
X_Standard Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs (staff, materials, equipment or facilities) are needed.
__Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):
AS degrees typically include 6 to 10 core program classes and the remainder are foundation and general education courses. The core courses for Forestry transfer degrees are primarily a combination of forestry/natural resource courses and engineering courses. By minor adjustment of the core courses and/or foundation courses, it is possible offer three Forestry AS degrees at UCC in:

1. Forestry Engineering
2. Forestry Management
3. Forestry Operations

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 241 Dendrology
4. NR 271 Recreation Resource Management (not included in Forestry Engineering Degree)
5. SOIL 205 Soil Science Lecture

The core engineering courses included in all three of the proposed Forestry degrees include:
1. GIS 234 GIS I Intro to GIS
2. ENGR 112 Problem Solving & Technology
3. SOIL 206 Soil Science Lab
4. SUR 161 Plane Surveying I
5. SUR 209 Photogrammetry

The Forestry Engineering degree includes more engineering courses. The Forestry Operations degree includes business courses. All courses for the three degrees are currently offered at UCC except for SUR 209 Photogrammetry (OSU Equivalent FE 209) and NR 271 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 271. The engineering program has reduced program offerings in the Engineering Technology program by 5 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program. A UCC Advising Guide is attached, along with a transfer guide prepared by the OSU College of Forestry.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
See notes from Program Impact Description above
Program Standards
Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
The AS degree with emphasis in Forest Engineering is a program that offers students the opportunity to design and pursue a career path that is not currently available as a certificate or degree program at UCC.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program. There are summer internships available locally. UCC and OSU can provide students with assistance in locating summer internships.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
OSU has reviewed the course equivalencies for the transfer courses.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All courses are currently offered at UCC except for SUR 209 Photogrammetry (OSU Equivalent FE 209) and MTH 265 Statistics for Engineers and Scientists (OSU Equivalent ST 314). The engineering program has reduced program offerings in the Engineering Technology program by 5 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program. The UCC Math Department plans to add MTH 265 at UCC, since this is now a math requirement at OSU for most of the branches of engineering. A UCC Advising Guide is attached, along with a transfer guide prepared by the OSU College of Forestry.
Proposed Courses: **Forestry Engineering, AS**

<table>
<thead>
<tr>
<th>UCC Course #</th>
<th>UCC Course Title</th>
<th>Credits</th>
<th>OSU Course #</th>
<th>OSU Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DRF 112</td>
<td>CAD I</td>
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<td>CCE 201</td>
<td>Engr Graphics &amp; Design</td>
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<td>General Chemistry I</td>
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<td>ECON 201^2</td>
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<td>FE 101</td>
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<td>Problem Solving &amp; Tech</td>
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<td>Forest Engr Prob Solv</td>
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<td>GIS I</td>
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<td>FE 257</td>
<td>GIS &amp; Forestry Engr Appl</td>
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<td>HHS 231 &amp;</td>
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<td>NR 201</td>
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<td>FE 208</td>
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<td><strong>Total Credits in Program</strong></td>
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**Additional Courses for Dual Civil Engineering and Forestry Engineering Major**

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<th>OSU Course #</th>
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<td>CH 202*</td>
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<td>Calculus III</td>
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<td>MTH 306</td>
<td>Matrix &amp; Power Series Methods</td>
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**NOTES:**
1. MTH 243 transfers for FE major but not for dual FE/CE major. Need statistics with calculus for dual major.
2. Five perspective electives is a general education requirement at OSU. Additional courses could be taken at UCC, depending on maximum total credits for transfer. See advisor for specific course requirements.
3. UCC ENGR 111 Engineering Orientation I will transfer to OSU as either CCE 101 or FE 101 but not both. For dual Civil Engineering and Forestry Engineering majors, either CCE101 or FE 101 will need to be taken at OSU.
### Prerequisites and Course Availability per Term

**Term 1**
- **Course**: ENGR 211
  - **Credits**: 4
  - **Term Offered**: S
  - **Prerequisites/Notes**: ENGR 111 Statics, MTH 254 Vector Calculus

**Term 2**
- **Course**: MTH 256 Linear Algebra
  - **Credits**: 2
  - **Term Offered**: S
  - **Prerequisites/Notes**: MTH 111 Algebra

**Term 3**
- **Course**: ECON 201
  - **Credits**: 3
  - **Term Offered**: S
  - **Prerequisites/Notes**: MTH 111

**Term 4**
- **Course**: PH 211 Physics I w/Calculus
  - **Credits**: 5
  - **Term Offered**: S
  - **Prerequisites/Notes**: ENGR 212 Dynamics

**Term 5**
- **Course**: ENGR 213 Strength of Materials
  - **Credits**: 4
  - **Term Offered**: S
  - **Prerequisites/Notes**: ENGR 211

**Term 6**
- **Course**: SOIL 205 Soil Science Lecture
  - **Credits**: 3
  - **Term Offered**: S
  - **Prerequisites/Notes**: CH 222, General Chemistry II

**Additional Courses for Dual Civil Engineering and Forestry Major**
- **Course**: MTH 261
  - **Credits**: 4
  - **Term Offered**: S
  - **Prerequisites/Notes**: CH 222, General Chemistry II

**TOTAL DEGREE CREDITS**
- **Term 1**: 157
- **Term 2**: 107

**Program Advisor**

**Notes**
1. Five perspective electives related to humanities/social science is a general education requirement at OSU. Additional courses could be taken at UCC, depending on minimum total credits for transfer.
2. MTH 243 transfers for FE major but not for dual FE/CE major. Need statistics with calculus for dual major.
3. UCC ENGR 111 Engineering Orientation I will transfer to OSU as either CCE 101 or FE 101 but not both. For dual Civil Engineering and Forestry Engineering majors, either CCE101 or FE 101 will need to be taken at OSU.
4. Grade of "C" or better in all courses.

**Last updated 11/3/2015**
Forest Engineering Major Requirements | OSU Course | Umpqua Course
--- | --- | ---
Civil Engineering II: Engineering Graphics & Design | CCE 201 | DRF 112
Chemistry for Engineering Majors | CH 201 | CH 221
Public Speaking or Argument & Critical Discourse | COMM 111* or COMM 114* | SP 111 or SP 112
Intro to Microeconomics | ECON 201* | ECON 201
Statics | ENGR 211 | ENGR 211
Dynamics | ENGR 212 | ENGR 212
Strength of Materials | ENGR 213 | ENGR 213
Intro to Forest Engineering | FE 101 | ENGR 111
Forest Engineering Problem Solving & Technology | FE 102 | ENGR 112
Forest Surveying | FE 208 | SUR 161
Forest Photogrammetry | FE 209 | SUR 209?
GIS & Forest Engineering Applications | FE 257 | GIS 234
Tree & Shrub Identification | FES 141 | NR 241?
Forest Biology | FES 240* | NR 240?
Intro to Forestry | FOR 111 | NR 201
Differential Calculus | MTH 251* | MTH 251
Integral Calculus | MTH 252 | MTH 252
Vector Calculus | MTH 254 | MTH 254
Applied Differential Equations | MTH 256 | MTH 256
General Physics I with Calculus | PH 211* | PH 211
General Physics II with Calculus | PH 212* | PH 212
Soil Science | SOIL 205* | SOIL 205
Soil Science Lab | FOR 206* | SOIL 206
Principles of Statistics | ST 201 | MTH 243
English Composition | WR 121* | WR 121
Technical Writing | WR 327* | WR 227

The courses above represent the first two years of a four year degree program. Transfer students should expect to complete the remaining course requirements at OSU. In addition to courses that fulfill the Forest Engineering major requirements, students should be completing courses to fulfill [OSU’s Baccalaureate Core](http://www.oregonstate.edu/academic-programs/general-education) (general education curriculum). Major requirements that fulfill Baccalaureate Core are marked with an asterisk (*).

Forest Engineering includes a professional program (the junior and senior years) which requires a special application. Prospective students should work with OSU College of Forestry staff for assistance in navigating that process successfully.

**Umpqua Contact:** Clay Baumgartner  
541-440-4683  
Clay.baumgartner@umpqua.edu

**OSU Contact:** College of Forestry Student Services Office  
541-737-1594  
Forestrystudentservices@oregonstate.edu

Updated 8/20/15 NK
Basic Information
Name of Program: Forest Management, AS Degree with Emphasis in Forest Management
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
___ Less than 1 year certificate
___ 1 year certificate
___ 2 year certificate
___ Career Pathway certificate
X Degree

Number of Credits: 94-95

New Program/Certificate Title: Forest Management, AS Degree with Emphasis in Forest Management

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
Forest Managers must understand natural resource systems and how to organize the management of forest resources for multiple uses and multiple values. The core curriculum in Forest Management is a broad-based education, including basic courses in mathematics, engineering, statistics, biology and ecology, the physical and social sciences, professional courses in forest biology and ecology and forest management.

The UCC Forest Management program prepares students for transfer to the Forestry bachelor’s degree program at Oregon State University (OSU). The curriculum is intended to meet the requirements for the first two years of coursework necessary for application to the professional program in the College of Forestry – Forest Management Option at OSU.

Prospective students should see a faculty advisor, or Counseling and Career Planning Services, to develop your educational plan. Most core courses at UCC are offered once each academic year and must be taken in sequence. A well-planned course of study will help ensure a smooth transition to a university.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
This is a transfer degree and LMI market need is not required for program approval.

Target Student Population:
Degree oriented students.
Program Outcomes: (please list numerically)
Associate of Science Degree

Program Impacts:
X_Standard Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs (staff, materials, equipment or facilities) are needed.
__Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):
AS degrees typically include 6 to 10 core program classes and the remainder are foundation and general education courses. The core courses for Forestry transfer degrees are primarily a combination of forestry/natural resource courses and engineering courses. By minor adjustment of the core courses and/or foundation courses, it is possible offer three Forestry AS degrees at UCC in:

1. Forestry Engineering
2. Forestry Management
3. Forestry Operations

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 241 Dendrology
4. NR 271 Recreation Resource Management (not included in Forestry Engineering Degree)
5. SOIL 205 Soil Science Lecture

The core engineering courses included in all three of the proposed Forestry degrees include:
1. GIS 234 GIS I Intro to GIS
2. ENGR 112 Problem Solving & Technology
3. SOIL 206 Soil Science Lab
4. SUR 161 Plane Surveying I
5. SUR 209 Photogrammetry

The Forestry Engineering degree includes more engineering courses. The Forestry Operations degree includes foundation courses. All courses for the three degrees are currently offered at UCC except for SUR 209 Photogrammetry (OSU Equivalent FE 209) and NR 251 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 251. The engineering program has reduced program offerings in the Engineering Technology program by 5 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
See notes from Program Impact Description above
Program Standards

Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
The AS degree with emphasis in Forest Management is a program that offers students the opportunity to design and pursue a career path that is not currently available as a certificate or degree program at UCC.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program. There are summer internships available locally. UCC and OSU can provide students with assistance in locating summer internships.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
OSU has reviewed the course equivalencies for the transfer courses.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All courses are currently offered at UCC except for SUR 209 Photogrammetry (OSU Equivalent FE 209) and NR 251 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 251. The engineering program has reduced program offerings in the Engineering Technology program by 5 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program.
Proposed Courses: **Forest Management, AS**

<table>
<thead>
<tr>
<th>Course #</th>
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<th>Credits</th>
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<th>Course Title</th>
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<td>Total Credits in Program</td>
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**Note:**
1. See advisor for OSU university specific requirements for Perspective electives
### Prerequisites and Course Availability per Term

#### Term 1

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<th>Course No. and Course Name</th>
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<th>Prerequisites/Notes</th>
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<td>NR 261 Intro to Natural Resources</td>
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<td>WR 121 English Composition</td>
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<td>GIS 234 GIS Intro to Geographic Information Systems</td>
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<td>MTH 243 Intro to Probability &amp; Statistics</td>
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<td>5 MTH 105</td>
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<td>WR 227 Technical Report Writing</td>
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<td>4 WR 121</td>
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</table>

#### TOTAL DEGREE CREDITS

95

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**Notes:**
1. General education requirement for perspectives at OSU. Additional courses could be taken at UCC, depending on maximum total credits for transfer. See advisor for specific course requirements.
2. Grade of "C" or better in all courses.

---

**Program Advisor:**

---

**Last updated 11/3/2015**
## Forestry - Management Option Requirements

<table>
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<tr>
<th>Requirement</th>
<th>OSU Course</th>
<th>Umpqua Course</th>
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<tbody>
<tr>
<td>Introductory Biology I</td>
<td>BI 204*</td>
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<tr>
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<td>CH 231 &amp; 261*</td>
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<td>Public Speaking or Argument &amp; Critical Discourse</td>
<td>COMM 111* or</td>
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<td>Intro to Microeconomics or</td>
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<tr>
<td>Intro to Environmental Economics &amp; Policy</td>
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<td>AEC 250*</td>
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<td>FE 208</td>
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<td>Forest Photogrammetry</td>
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<td>GIS and Forest Engineering Applications</td>
<td>FE 257</td>
<td>GIS 234</td>
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<td>Forest Biology</td>
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<td>Recreation Resource Management</td>
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<td>NR 271?</td>
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<td>Intro to Forestry or Managing Natural Resources</td>
<td>FOR 111 or</td>
<td>NR 201</td>
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<td>Computing Applications in Forestry</td>
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<td>ENGR 112</td>
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<td>Calculus for Management &amp; Social Science</td>
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<td>Soil Science</td>
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<td>Soil Science Lab</td>
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<td>Principles of Statistics</td>
<td>ST 201</td>
<td>MTH 243</td>
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<td>English Composition</td>
<td>WR 121*</td>
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<td>Technical Writing or Science Writing</td>
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<td>WR 227</td>
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<td>WR 362*</td>
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</table>

The courses above represent the first two years of a four year degree program. Transfer students should expect to complete the remaining course requirements at OSU. In addition to courses that fulfill the Forestry major requirements, students should be completing courses to fulfill OSU’s Baccalaureate Core (general education curriculum). Major requirements that also fulfill Baccalaureate Core are marked with an asterisk (*).

Forestry includes a professional program (the junior and senior years) which requires a special application. Prospective students should work with OSU College of Forestry staff for assistance in navigating that process successfully.

### Umpqua Contact: Clay Baumgartner
541-440-4683  
Clay.baumgartner@umpqua.edu

### OSU Contact: College of Forestry Student Services Office
541-737-1594  
Forestrystudentservices@oregonstate.edu

Updated 8/20/15 NK
Basic Information
Name of Program: Forest Operations, AS Degree with Emphasis in Forest Operations
Contact Name and Title: Martha Joyce, Chair, Business Department
Department: Business Department
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
___Less than 1 year certificate
___1 year certificate
___2 year certificate
___Career Pathway certificate
X_Degree

Number of Credits: 97-98

New Program/Certificate Title: Forest Operations, AS Degree with Emphasis in Forest Operations

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
Forest Operations is designed as a professional forestry degree that blends elements of forest engineering and forest management with business management and entrepreneurship. This unique degree will prepare graduates to support the needs of an evolving forest sector in Oregon and globally. As they gain experience, graduates will have options to serve as project managers for logging or silvicultural contracting service firms, as consultants, or as company or agency contract administrators that supervise a growing contracting work force.

The UCC Forest Operations program prepares students for transfer to the Forestry bachelor's degree program at Oregon State University (OSU). The curriculum is intended to meet the requirements for the first two years of coursework necessary for application to the professional program in the College of Forestry - Forest Operations Management Option at OSU.

Prospective students should see a faculty advisor, or Counseling and Career Planning Services, to develop your educational plan. Most core courses at UCC are offered once each academic year and must be taken in sequence. A well-planned course of study will help ensure a smooth transition to a university.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
This is a transfer degree and LMI market need is not required for program approval.

Target Student Population:
Degree oriented students.
Program Outcomes: (please list numerically)
Associate of Science Degree

Program Impacts:
X_Standard Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs (staff, materials, equipment or facilities) are needed.
__Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):
AS degrees typically include 6 to 10 core program classes and the remainder are foundation and general education courses. The core courses for Forestry transfer degrees include forestry/natural resource courses and engineering courses. By minor adjustment of the core courses and/or foundation courses, it is possible offer three Forestry AS degrees at UCC in:

1. Forestry Engineering
2. Forestry Management
3. Forestry Operations

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 241 Dendrology
4. NR 271 Recreation Resource Management (not included in Forestry Engineering and Forestry Operations)
5. SOIL 205 Soil Science Lecture

The core engineering courses included in all three of the proposed Forestry degrees include:
1. GIS 234 GIS I Intro to GIS
2. ENGR 112 Problem Solving & Technology
3. SOIL 206 Soil Science Lab
4. SUR 161 Plane Surveying I
5. SUR 209 Photogrammetry and Introduction into Remote Sensing

The Forestry Engineering degree includes more engineering courses. The Forestry Operations degree includes core business courses to help prepare students for the business and entrepreneurship aspects of forestry. All courses for the three degrees are currently offered at UCC except for SUR 209 Photogrammetry and Introduction into Remote Sensing (OSU Equivalent FE 209), NR 251 Recreation Resource Management (OSU Equivalent FES 251), and BA 260 Introduction to Entrepreneurship. The UCC Science Department is adding NR 251. The engineering program has reduced program offerings in the Engineering Technology program by 4 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program. BA 260 can be taken online at OSU and could be offered in the future at UCC as enrollment grows.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
See notes from Program Impact Description above
Program Standards
Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program From into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A - Need:
The community college provides clear evidence of the need for the program.
The AS degree with emphasis in Forest Operations is a program that offers students the opportunity to design and pursue a career path that is not currently available as a certificate or degree program at UCC.

Standard B - Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program. There are summer internships available locally. UCC and OSU can provide students with assistance in locating summer internships.

Standard C - Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program.

Standard D - Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
OSU has reviewed the course equivalencies for the transfer courses.

Standard E - Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All courses are currently offered at UCC except for SUR 209 Photogrammetry and Introduction into Remote Sensing (OSU Equivalent FE 209), NR 251 Recreation Resource Management (OSU Equivalent FES 251), and BA 260 Introduction to Entrepreneurship. The UCC Science Department is adding NR 251. The engineering program has reduced program offerings in the Engineering Technology program by 4 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program. BA 260 can be taken online at OSU and could be offered in the future at UCC as enrollment grows.
Proposed Courses: **Forest Operations, AS**

<table>
<thead>
<tr>
<th>UCC</th>
<th>OSU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Course #</strong></td>
<td><strong>Course Title</strong></td>
</tr>
<tr>
<td>BA 211</td>
<td>Principles of Accounting I</td>
</tr>
<tr>
<td>BA 212</td>
<td>Principles of Accounting II</td>
</tr>
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<td>BA 213</td>
<td>Principles of Accounting II</td>
</tr>
<tr>
<td>BA 226</td>
<td>Business Law</td>
</tr>
<tr>
<td>BI 212</td>
<td>Principles of Biology</td>
</tr>
<tr>
<td>CH 221</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Intro to Microeconomics</td>
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<tr>
<td>ENGR 112</td>
<td>Problem Solving &amp; Tech</td>
</tr>
<tr>
<td>GIS 234</td>
<td>GIS I Introduction to GIS</td>
</tr>
<tr>
<td>HPE 295</td>
<td>Wellness &amp; Health Assessment</td>
</tr>
<tr>
<td>MTH 111</td>
<td>College Algebra</td>
</tr>
<tr>
<td>MTH 112</td>
<td>Elementary Functions</td>
</tr>
<tr>
<td>MTH 241</td>
<td>Calculus for Management</td>
</tr>
<tr>
<td>MTH 243</td>
<td>Intro to Probability &amp; Statistics</td>
</tr>
<tr>
<td>NR 201</td>
<td>Intro to Natural Resources</td>
</tr>
<tr>
<td>NR 240</td>
<td>Forest Biology</td>
</tr>
<tr>
<td>NR 241</td>
<td>Dendrology</td>
</tr>
<tr>
<td>PH 201</td>
<td>General Physics I</td>
</tr>
<tr>
<td>SP 111 or SP 112</td>
<td>Fund of Public Speaking or Persuasive Speech</td>
</tr>
<tr>
<td>SOIL 205</td>
<td>Soil Science</td>
</tr>
<tr>
<td>SOIL 206</td>
<td>Soil Science Lab</td>
</tr>
<tr>
<td>SUR 161</td>
<td>Surveying I</td>
</tr>
<tr>
<td>SUR 209</td>
<td>Photogrammetry &amp; Intro into Remote Sensing</td>
</tr>
<tr>
<td>WR 121</td>
<td>English Composition</td>
</tr>
<tr>
<td>WR 227</td>
<td>Technical Writing</td>
</tr>
<tr>
<td></td>
<td>Arts &amp; Letters and Cultural Diversity Elective ¹ - Catalog</td>
</tr>
</tbody>
</table>

**Total Credits in Program**: 97-98

**Total Credits in Program**: 88

**Forestry Operations Courses Not Currently Offered at UCC But Available Online Through OSU**
- BA 260 Introduction to Entrepreneurship

**Program Advisor**

**NOTES:**

1. Five perspective electives related to humanities/social science is a general education requirement at OSU. Additional courses could be taken at UCC, depending on maximum total credits for transfer. See advisor for specific course requirements.
2. UCC BA 211 & BA 212 currently transfers as equivalent to OSU BA 211
3. Grade of "C" or better in all courses.
<table>
<thead>
<tr>
<th>UCC Course No. and Course Name</th>
<th>Term Offered</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
<th>OSU Course No.</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 221 General Chemistry I/Lec/Lab/Rec</td>
<td>F x W S x S</td>
<td>5</td>
<td>MTH 111</td>
<td>CH 231 Lab &amp; CH 261 Lab</td>
<td>5</td>
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<tr>
<td>WR 201 Intro to Natural Resources</td>
<td>x</td>
<td>3</td>
<td></td>
<td>OR 111 Introduction to Forestry</td>
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<tr>
<td>MTH 111 College Algebra</td>
<td>x x x x x</td>
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<td>MTH 95</td>
<td>MTH 111 College Algebra</td>
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<td>WR 121 English Composition Intro to Argument</td>
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<td>4</td>
<td>WR 115 or Placement Test</td>
<td>WR 121 English Composition</td>
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</tr>
<tr>
<td>BI 212 Principles of Biology</td>
<td>x</td>
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<td>CH 221</td>
<td>Bi 104 Intro to Biology or BI 212 General Biology</td>
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<tr>
<td>GIS 234 GIS I Intro to Geographic Information Systems</td>
<td>x x x x 4</td>
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<td>FE 257 GIS &amp; Forestry Engineering Applications</td>
<td>FE 112-122 Computing Applications</td>
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<tr>
<td>ENGR 112 Engineering Problem Solving &amp; Technology</td>
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<td>ENGR 111</td>
<td>ENGR 111</td>
<td>3</td>
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</tr>
<tr>
<td>MTH 112 Elementary Functions</td>
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<td>MTH 111</td>
<td>MTH 112 Elementary Functions</td>
<td>4</td>
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<tr>
<td>MTH 243 Intro to Probability &amp; Statistics</td>
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<td>MTH 105</td>
<td>ST 201 Statistics</td>
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<td>NR 241 Tree &amp; Shrub Identification</td>
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<td>FES 141 Tree &amp; Shrub Identification</td>
<td>3</td>
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<tr>
<td>SP 111 Public Speaking</td>
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<td>WR 095</td>
<td>COM 111 Public Speaking</td>
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<tr>
<td>SUR 161 Plane Surveying I</td>
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<td>MTH 112</td>
<td>FE 208 Forestry Surveying</td>
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<tr>
<td>BA 211 Principles of Accounting I</td>
<td>x x x x 3</td>
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<td>ECON 201 Review - Literature &amp; Arts</td>
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<tr>
<td>Perspectives1 Arts &amp; Letters &amp; Cultural Diversity - See Advisor</td>
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<td></td>
<td>ECON 201 Review - Literature &amp; Arts</td>
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<tr>
<td>ECON 201 Economics (Social Sciences)</td>
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<td>MTH 121-123 &amp; MTH 111</td>
<td>ECON 201 - Perspectives Elective - SP&amp;I</td>
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<tr>
<td>PH 201 General Physics</td>
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<td>MTH 111</td>
<td>PH 201 General Physics</td>
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<td></td>
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<tr>
<td>BA 212 Principles of Accounting II</td>
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<td>BA 211 with C or better</td>
<td>BA 211 Financial Accounting</td>
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<tr>
<td>MTH 241 Calculus for Management</td>
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<td>MTH 111</td>
<td>MTH 241 Calculus for Management</td>
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<tr>
<td>HPE 295 Health &amp; Health</td>
<td>x x 3</td>
<td>3</td>
<td>MTH 111</td>
<td>MTH 241 &amp; MTH 111</td>
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<tr>
<td>SUR 209 Photogrammetry and Intro to Remote Sensing</td>
<td>x x x 4</td>
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<td>MTH 111</td>
<td>FOR 209 Forest Photogrammetry</td>
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<tr>
<td>WR 227 Technical Report Writing</td>
<td>x x x 4</td>
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<td>WR 121</td>
<td>WR 227</td>
<td>3</td>
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<tr>
<td>BA 213 Principles of Accounting II</td>
<td>x x x 3</td>
<td>3</td>
<td>BA 212 with C or better</td>
<td>BA 213 Financial Accounting</td>
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<tr>
<td>BA 226 Business Law</td>
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<td>BA 230 Business Law</td>
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<tr>
<td>NR 240 Forest Biology</td>
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<tr>
<td>SOIL 206 Soil Science Lab</td>
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<td>FOR 206 Soil Science Lab</td>
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**TOTAL DEGREE CREDITS**

<table>
<thead>
<tr>
<th>Term Offered</th>
<th>Credits</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>98</td>
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</tr>
</tbody>
</table>

*Forestry Operations Courses Not Currently Offered at UCC But Available Online Through OSU*

**Program Advisor:**

- **Notes:**
  1. Five elective credits related to humanities/social science is a general education requirement at OSU. Additional courses could be taken at UCC, depending on maximum total credits for transfer.
  2. See advisor for specific course requirements.
## Transfer Guide: Forestry – Operations Management Option

http://www.forestry.oregonstate.edu/academic-programs/undergraduates/forestry-degree-operations-option

<table>
<thead>
<tr>
<th>Forestry - Operations Management Requirements</th>
<th>OSU Course</th>
<th>Umpqua CC Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Accounting</td>
<td>BA 211</td>
<td>BA 211 &amp; 212</td>
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<tr>
<td>Managerial Accounting</td>
<td>BA 213</td>
<td>BA 213</td>
</tr>
<tr>
<td>Business Law</td>
<td>BA 230</td>
<td>BA 226</td>
</tr>
<tr>
<td>Introduction to Entrepreneurship</td>
<td>BA 260</td>
<td>Available online at OSU</td>
</tr>
<tr>
<td>Introductory Biology I</td>
<td>BI 204*</td>
<td>BI 212</td>
</tr>
<tr>
<td>General Chemistry I &amp; Lab</td>
<td>CH 231 &amp; 261*</td>
<td>CH 221</td>
</tr>
<tr>
<td>Public Speaking or Argument &amp; Critical Discourse</td>
<td>COMM 111* or COMM 114*</td>
<td>SP 111 or SP 112</td>
</tr>
<tr>
<td>Intro to Microeconomics or Intro to Environmental Economics &amp; Policy</td>
<td>ECON 201* or AEC 250*</td>
<td>ECON 201</td>
</tr>
<tr>
<td>Forest Surveying</td>
<td>FE 208</td>
<td>SUR 161</td>
</tr>
<tr>
<td>Forest Photogrammetry</td>
<td>FE 209</td>
<td>SUR 209?</td>
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<tr>
<td>GIS and Forest Engineering Applications</td>
<td>FE 257</td>
<td>GIS 234</td>
</tr>
<tr>
<td>Forest Biology</td>
<td>FES 240*</td>
<td>NR 240?</td>
</tr>
<tr>
<td>Dendrology</td>
<td>FES 241</td>
<td>NR 241?</td>
</tr>
<tr>
<td>Intro to Forestry or Managing Natural Resources for the Future</td>
<td>FOR 111 or NR 201</td>
<td>NR 201</td>
</tr>
<tr>
<td>Computing Applications in Forestry</td>
<td>FOR 112</td>
<td>ENGR 112</td>
</tr>
<tr>
<td>College Algebra</td>
<td>MTH 111*</td>
<td>MTH 111</td>
</tr>
<tr>
<td>Elementary Functions</td>
<td>MTH 112*</td>
<td>MTH 112</td>
</tr>
<tr>
<td>Calculus for Management &amp; Social Science</td>
<td>MTH 241*</td>
<td>MTH 241</td>
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<tr>
<td>Principles of Physics I</td>
<td>PH 201*</td>
<td>PH 201</td>
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<td>Soil Science</td>
<td>SOIL 205*</td>
<td>SOIL 205</td>
</tr>
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<td>Soil Science Lab</td>
<td>FOR 206*</td>
<td>SOIL 206</td>
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<tr>
<td>Principles of Statistics</td>
<td>ST 201</td>
<td>MTH 243</td>
</tr>
<tr>
<td>English Composition</td>
<td>WR 121*</td>
<td>WR 121</td>
</tr>
<tr>
<td>Technical Writing or Science Writing</td>
<td>WR 327* or WR 362*</td>
<td>WR 227</td>
</tr>
</tbody>
</table>

The courses above represent the first two years of a four year degree program. Transfer students should expect to complete the remaining course requirements at OSU. In addition to courses that fulfill the Forestry major requirements, students should be completing courses to fulfill OSU's Baccalaureate Core (general education curriculum). Major requirements that also fulfill Baccalaureate Core requirements are marked with an asterisk (*). Forestry includes a professional program (the junior and senior years) which requires a special application. Prospective students should work with OSU College of Forestry staff for assistance in navigating that process successfully.

**Umpqua Contact:** Martha Joyce  
541-440-4605  
martha.joyce@umpqua.edu

**OSU Contact:** College of Forestry Student Services Office  
541-737-1594  
Forestrystudentservices@oregonstate.edu

Updated 8/20/15 NK
Basic Information
Name of Program: Engineering Program, GIS Pathways Certificate
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
- Less than 1 year certificate
- 1 year certificate
- 2 year certificate
- Career Pathway certificate
- Degree

Number of Credits: 16

New Program/Certificate Title: GIS Pathway Certificate

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
The GIS pathways certificate is to provide students with the technical skills and geospatial content to employ geospatial information system (GIS) in support of their career and education goals in: science, business, engineering, surveying, and resource management, public safety, and urban and regional planning. GIS 203, GIS 234, GIS 235, and SUR 161 transfer to many Oregon four-year colleges and support current graduates and working professionals as they update their technical skills. The core GIS classes are required in the Civil Engineering and Surveying Technology AAS degree and the AS degree with emphasis in Surveying and Geomatics.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
GIS technology overlaps into a wide variety of career paths. The certificate will complement many degrees and make graduates more employable. There is also potential for employees to receive training in GIS to further their career options. A summary of some of the career paths that use GIS.

<table>
<thead>
<tr>
<th>Title</th>
<th>Statewide Employment</th>
<th>SW Oregon Employment</th>
<th>Ave. Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010 Positions</td>
<td>Annual Openings</td>
<td>2010 Positions</td>
</tr>
<tr>
<td>Cartographer &amp; Photogrammetrist</td>
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<tr>
<td>Civil Engineering Tech</td>
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<td>Drafting (all fields)</td>
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<td>Surveying &amp; Mapping Technician</td>
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**Environmental Scientists & Project Technicians**

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**Urban & Regional Planner**

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**Water & Wastewater Operators**

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<th>5</th>
<th>$50,484</th>
<th>$41,397</th>
</tr>
</thead>
</table>

**Target Student Population:**
Certificate oriented students, transfer students and existing professionals seeking to improve their knowledge, skills, and professional credentials.

**Program Outcomes:** (please list numerically)
The graduate will:
- collect and input data into a GIS system using: GPS Unit, Digitizing, Geocoding.
- design and generate various cartographic/map products for planning or presentations.
- create, manage, and update spatial data.
- manage information in a GIS database.
- perform routine data analysis-buffer, query, union, intersect

**Program Impacts:**
X_Standard Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs ((staff, materials, equipment or facilities) are needed.
X_Impact to other divisions in terms of scheduling or staffing.

**Program Impact Description (for any of the program impacts listed above, please describe):**
All proposed classroom classes are taught as components of other programs. The parent program is the Civil Engineering and Surveying Technology, AAS. The GIS courses are also included in the AS degree with emphasis in Geomatics and Surveying. Two of the courses are included in the AS degree with emphasis in Natural Resources. One of the GIS courses is included in the AS degree with emphasis in Engineering.

**Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):**
None. All proposed classroom classes are taught as components of other programs. The parent program is the Civil Engineering and Surveying Technology, AAS.
Program Standards
Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
To successfully compete and enter the water and wastewater treatment plant and system operators field, it is necessary to have both specialized education and direct in-field experience. In southwestern Oregon, no other educational resources are available that provide the graduate with both the necessary education and in-facility experience. The proposed degree program provides both.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
Through involvement with Engineering Advisory Committee.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
The proposed program aligns closely with the educational and experience requirements necessary to enter the GIS field. The courses transfer to OSU and OIT. This field of employment will continue to have a steady demand for entry level employees as community growth and employee retirements occur. Providing a pathway for graduates to enter the field will remain an important community college role.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
The program provides the academic knowledge necessary for introductory GIS skills. The courses transfer to OSU and OIT

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All proposed classroom classes are currently being taught as components of other programs.
### Proposed Courses – please attach course outlines

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS 203 or</td>
<td>The Digital World and Geospatial Concepts or Cooperative Work Experience in</td>
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<tr>
<td>GIS 280</td>
<td>GIS Related Field</td>
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<td>GIS 234</td>
<td>GIS I Introduction to Geographic Information Systems</td>
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<td>GIS 235</td>
<td>GIS II Analysis and Applications</td>
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<td>SUR 161</td>
<td>Plane Surveying I</td>
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Additional Process Items

Please check all of the additional forms and documents you have completed and submitted to Curriculum Committee. Links to fill-able versions of these forms can be found at http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces.

X_Required: Labor Market Information (LMI) Form (not needed for Career Pathway Certificate)
__Required: Course Outlines for all courses
__Specialized Form: Advisory Committee
__Specialized Form: Start Up Budget
Basic Information
Name of Program: Occupational Skills Training Certificate
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
__Less than 1 year certificate
X_1 year certificate
__2 year certificate
__Career Pathway certificate
__Degree

Number of Credits: 45 - 56

New Program/Certificate Title: Occupational Skills Training Certificate

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
The Occupational Skills Training (OST) one-year certificate program provides a combination of academic study and hands-on training. Students earn approximately half of their program credits through training at local business/agency sites. The OST certificate can apply to nearly any occupation provided that the following criteria are met:

- Jobs are currently available in the selected field
- There are appropriate training sites in neighboring communities
- The occupational goal is appropriate to the 1 year certificate program

A copy of the information from the program at RCC is attached.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
In alignment with State of Oregon Guidelines for new OST programs, labor market information will be included as part of the individual student OST plan.
(Reference: http://handbook.ccwdwebforms.net/handbook/other-educational-programs-models-strategies/occupational-skills-training#)

Target Student Population:
Non-degree oriented students.

Program Outcomes: (please list numerically)
1) Complete an individualized training curriculum and employment plan, describing the skills and knowledge necessary to become competitively employable
2) Demonstrate an increase in occupational skills through hands-on training provided by an employer and through general education and occupation-related classroom instruction.

3) Demonstrate basic communication, human relations, and critical thinking and problem-solving abilities in the workplace.

Program Impacts:

X Standard Instructional Costs (staff, materials, equipment or facilities) are required.

___ Additional instructional costs (staff, materials, equipment or facilities) are needed.

___ Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):

All proposed classroom classes are currently being taught as components of other programs. Occupational skills training students will require monitoring and performance review by existing part-time staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter). Additional sustaining activities will be limited to coordinating with local agencies participating in the occupational skills training, participating in local professional operator organizations, and recruiting program participants through these activities.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):

Occupational skills training students will require monitoring and performance review by existing part-time staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter).
Program Standards
Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
The OST program offers students the opportunity to design and pursue a career path that is not currently available as a certificate or degree program at UCC.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
Through involvement with local businesses and agencies in a variety of occupations, the community college will develop occupational skills training programs where graduates obtain hands-on experience under the guidance of actively employed professionals.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
The proposed program aligns closely with the educational and experience requirements of a variety of career fields. Prerequisite to selecting and receiving approval for a given career field, the prospective student must ascertain, with the assistance of college staff, that employment opportunities exist in the propose field.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
The student successfully completing this program will demonstrate competitive proficiency in the functional skills of their training occupation through hands-on training provided by an employer and through general education and occupation-related classroom instruction.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All proposed classroom classes are currently being taught as components of other programs. Occupational skills training students will require monitoring and performance review by existing staff which will result in very modest program costs. Additional sustaining activities will be limited to coordinating with local agencies participating in the occupational skills training, participating in local professional operator organizations, and recruiting program participants through these activities.
# Proposed Courses – please attach course outlines

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td></td>
<td><strong>GENERAL EDUCATION REQUIREMENTS</strong></td>
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<tr>
<td>MTH 52 or Higher</td>
<td><strong>Introduction to Algebra for the Trades</strong></td>
<td>4 - 5</td>
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<tr>
<td>WR 115 or Higher</td>
<td><strong>Intro to Expository Writing</strong></td>
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<td>Elective</td>
<td><strong>Approved Human Relations</strong></td>
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<td><strong>WORK BASED TRAINING</strong></td>
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<tr>
<td>OST 290 or CIV 290 or WQT 290</td>
<td><strong>Occupational Skills Training</strong></td>
<td>20-28</td>
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<td><strong>OCCUPATIONAL RELATED COURSES</strong></td>
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<tr>
<td>Elective</td>
<td><strong>100 Level or Above Elective Courses Related to Career Direction</strong></td>
<td>7-15</td>
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<tr>
<td>CWE 161</td>
<td><strong>CWE Seminar I</strong></td>
<td>1</td>
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<td>Elective</td>
<td><strong>Approved Human Relations</strong></td>
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<tr>
<td>Elective</td>
<td><strong>Introduction to Algebra for the Trades</strong></td>
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</table>

**Total credits for Program**

45 minimum - 56

**Additional Process Items**

*Please check all of the additional forms and documents you have completed and submitted to Curriculum Committee. Links to fill-able versions of these forms can be found at [http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces).*

- Required: Labor Market Information (LMI) Form (not needed for Career Pathway Certificate)
- Required: Course Outlines for all courses
- Specialized Form: Advisory Committee
- Specialized Form: Start Up Budget
Occupational Skills Training
Certificate of Completion

Major Code: 309999

About the Program

The Occupational Skills Training (OST) one-year certificate program provides a combination of academic study and hands-on training in any one of a variety of specific occupations. Students earn approximately half their program credits through training at local business sites.

Almost any occupation can be addressed provided the following conditions are met: 1) There are jobs currently available in the selected field; 2) there is an appropriate training site available in the community; 3) the occupational goal is appropriate to the program length of one year; and 4) there is no overlap with existing RCC programs (trainings may overlap for students in special circumstances as approved by program personnel). RCC program staff will assist students in assessing possible occupations.

Customized learning goals for hands-on training are developed for each student by program faculty. These goals are chosen with care to ensure students' preparation for entry-level employment in the specific occupation of choice. Student progress is evaluated by RCC faculty with input from training site supervisors. Required academic coursework includes general education courses to increase knowledge of basic skills common to all work environments. Students are also required to take elective coursework related to their chosen occupational goals. Credits earned in this program may be applied to the Associate of General Studies degree. The OST program by itself is not financial aid eligible.

The curriculum in RCC courses is derived from a set of identified learning outcomes that are relevant to the discipline. For a list of learning outcomes for this discipline or program, see www.roguecc.edu/Programs/LearningOutcomes.

Entry Requirements

Students must submit a completed Occupational Skills Training (OST) application to program staff to be considered for acceptance into the program. As part of their training program, students are required to take a placement test to determine skill level and readiness in math, reading and writing. Students must begin with courses within their skill levels as determined by the placement test scores. In addition, students may also enroll in classes that would increase their employability and success. Criminal background checks and/or professional liability insurance are required for some occupations.

Advanced Standing

Coursework from accredited colleges and universities will be accepted in accordance with college policies. Individual courses may be challenged based on the student's life experience or knowledge. Arrangements may be made on an individual basis with the instructor teaching the course to determine specific challenge procedures.

Graduation Requirements

A certificate in Occupational Skills Training will be awarded to students who complete all courses in this program with a grade of "C" or better. Certain required courses are graded on a pass/no pass basis only. A grade of "F" for these courses indicates a student earned a "C" or better grade.

Prerequisites

Course No.  Course Title  Credits
MTH20  Pre-algebra or designated placement test score on current indicator chart  0-4
RD30  College Reading or designated placement test score on current indicator chart  0-4
WR30  Fundamentals of Composition II or designated placement test score on current indicator chart  0-4

Total Prerequisite Credits  0-12

General Education Requirements

Course No.  Course Title  Credits
CS120  Concepts in Computing I or higher level course or documented computer proficiency  1  0-4
MTH63  Applied Technical Math or MTH60 Fundamentals of Algebra I or BT160 Business Math or higher level math  4
PSY101  Psychology of Human Relations or BT101 Human Relations in Organizations  3
WR115  Introduction to Expository Writing or BT113 Business English I or higher level composition  2  3-4
HE112  Emergency First Aid or HE261 CPR or HE252 First Aid/CPR  1-3

Elective credits related to career direction  2-4

Total General Education Credits  18-32

Work-based Training Courses

Course No.  Course Title  Credits
ST109  Skills Training Seminar or BA109 Ready, Set, Work: Techniques for Landing a Job  0-2
ST101  Occupational Skills Training  3-4  and/or
ST201  Occupational Skills Training  3-4

Total Work-Based Training Courses  18-30

TOTAL PROGRAM CREDITS  36-62

Approved Electives

Course No.  Course Title  Credits
ST199  Workshop  variable

1 Successful completion of CS120 or otherwise meeting the proficiency requirement within the last 10 years fulfills this requirement.
2 Students who have successfully completed the 3-credit version of BT113 will have met this requirement.

Minimum 18 credits based on approved training plan and supervised by OST faculty.

For more information contact the Individualized Career Training Department:
Grants Pass or Medford ....................................... 541-956-7027
Toll free in Oregon ............................................. 800-411-6508, Ext. 7027
email ..................................... jburkes@roguecc.edu
Web address .........................................www.roguecc.edu/ICT
TTY .....................................Oregon Telecom Relay Service, 711

This advising guide is for advising purposes only. Please see current college catalog for additional information on specific college policies and graduation requirements.

In compliance with state and federal laws, Rogue Community College does not discriminate on the basis of race, religion, color, national origin, age, sex, veterans' status, sexual orientation, marital status or disability in employment, or in any of its educational programs or in the provision of benefits and services to students.

3345 Redwood Highway • Grants Pass, OR 97527
www.roguecc.edu
Basic Information
Name of Program: Water Quality Operator, Occupational Skills Training Pathway Certificate
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
__ Less than 1 year certificate
__ 1 year certificate
__ 2 year certificate
X Career Pathway certificate
__ Degree

Number of Credits: 56

New Program/Certificate Title: Water Quality Operator, Occupational Skills Pathway Certificate

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
One year of water quality specialized course work and on-the-job occupational skills training provides the skill set necessary for entry-level positions in the water quality operator field.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
Statewide:
Employment in this occupation in 2012 was at about the statewide average for all occupations. The total number of job openings is projected to be at about the statewide average number of job openings for all occupations through 2022. This occupation is expected to grow at a somewhat slower rate than the statewide average growth rate for all occupations through 2022. Reasonable employment opportunities exist for trained workers. Statewide, a 7.7% growth rate is projected through 2022.

Southwestern Oregon (Coos, Curry, and Douglas County):
The State of Oregon’s Employment Department data and projections indicate that in 2012, 107 persons were employed in the field and, by 2022, 6 new positions would be added and, annually, 4 positions would be replaced. If Lane, Josephine, and Jackson Counties are included, overall 2012 employment increases to 249 positions with a total of 15 new positions added by 2022. Annually, 9 positions would be replaced.

Additional Information:
Congress authorized the Clean Water Act in 1972 and the Safe Drinking Water Act in 1974. A large influx of Federal monies became available to the states to construct new treatment facilities and to expand and improve existing facilities in the mid to late 1970’s. During that period, a large number of new employees were hired into career positions. Now, in 2015, 40 years later, those 20-something new hires
are reaching retirement age. There is a large "bubble" of career retirements that will occur in the water and wastewater treatment fields. Discussions with local agencies managers indicate that upward of 50% of the existing staff will retire in the next 5 years, a problem not unique to Douglas County. While the State Employment Department numbers take some of these retirements into account, it appears that the replacement estimates may be understated.

**Target Student Population:**
Certificate oriented students and existing professionals seeking to improve their knowledge, skills, and professional credentials.

**Program Outcomes: (please list numerically)**
1) Use Word, Excel, and PowerPoint
2) Describe water quality operations for wastewater collection and treatment and water distribution and treatment
3) Demonstrate basic operational skills for either wastewater collection, wastewater treatment, water distribution, or water treatment facilities
4) Communicate and write effectively
5) Think critically to solve process performance problems
6) Work effectively on a team

**Program Impacts:**
X_Standard Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs (staff, materials, equipment or facilities) are needed.
__Impact to other divisions in terms of scheduling or staffing.

**Program Impact Description (for any of the program impacts listed above, please describe):**
All proposed classroom classes are currently being taught as components of other programs. Occupational skills training students will require monitoring and performance review by existing part-time staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter) which will be covered by tuition. Additional sustaining activities will be limited to coordinating with local agencies participating in the occupational skills training, participating in local professional operator organizations, and recruiting program participants through these activities.

**Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):**
Occupational skills training students will require monitoring and performance review by existing part-time staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter).
Program Standards

Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
To successfully compete and enter the water and wastewater treatment plant and system operators field, it is necessary to have both specialized education and direct in-field experience. In southwestern Oregon, no other educational resources are available that provide the graduate with both the necessary education and in-facility experience. The proposed degree program provides both.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
Through involvement with both professional organizations that represent water and wastewater operators and local agencies that provide these services, the community college will develop occupational skills training programs where graduates obtain in-facility experience under the guidance of actively employed professionals.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
The proposed program aligns closely with the educational and experience requirements necessary to enter the water and wastewater operator field. This field of employment will continue to have a steady demand for entry level employees as community growth and employee retirements occur. Providing a pathway for graduates to enter the field will remain an important community college role.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
The program provides the academic knowledge necessary to operate and maintain water and wastewater facilities by requiring completion of the first year Engineering Technician Program followed by four water/wastewater treatment related classes. Occupational skill training requires in-facility experience under the guidance of actively employed professionals.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All proposed classroom classes are currently being taught as components of other programs. Occupational skills training students will require monitoring and performance review by existing part-time staff equivalent to cooperative work experience. Sustaining activities will include coordinating with local agencies participating in the occupational skills training and participating in local professional operator organizations.
### Proposed Courses – please attach course outlines

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<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MTH 95</td>
<td>Intermediate Algebra</td>
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<tr>
<td>WR 121</td>
<td>English Composition, Intro to Argument</td>
<td>4</td>
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<td>*</td>
<td>Human Relations Elective</td>
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<td>WQT 261</td>
<td>Water Distribution</td>
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<td>WQT 260</td>
<td>Water Treatment</td>
<td>3</td>
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<tr>
<td>WQT 227</td>
<td>Wastewater Treatment</td>
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<td>WQT 228</td>
<td>Wastewater Collection</td>
<td>3</td>
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<td>WQT 290</td>
<td>Occupational Skills Training</td>
<td>28</td>
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<td>**</td>
<td>Approved Biological Science w/ Lab</td>
<td>4</td>
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<td>**</td>
<td>BI 101, BI 102, BI 103, or Soils 205/206</td>
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<td></td>
<td>Total credits for Program</td>
<td>56</td>
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</tbody>
</table>

**Additional Process Items**

*Please check all of the additional forms and documents you have completed and submitted to Curriculum Committee. Links to fill-able versions of these forms can be found at [http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces).*

- Required: Labor Market Information (LMI) Form (not needed for Career Pathway Certificate)
- Required: Course Outlines for all courses
- Specialized Form: Advisory Committee
- Specialized Form: Start Up Budget
Basic Information
Name of New Course: Tree and Shrub Identification
Contact: Ken Carloni, Ph.D.
Contact Title: Dept. Chair
Department: Science
Supervisor: Ken Carloni, Ph.D.
Program: Natural Resources

New Course Information
Date, Year, and Term of Proposed Implementation: 2016 Spring Term
Course Title: Tree and Shrub Identification
Course Number: NR 141
Number of Credits: 3
Activity Code:
_110 - Lecture (11 hrs/credit)
_30 - Lab (30 hrs/credit)
_40 - Lecture/Lab (20 hrs/credit)
_X - Other:
Number of Hours:
11 hrs. lecture, 44 hrs. lecture/lab per term

Co- and Pre-Requisite Information
Recommended:

Co- and Pre-Requisite Enforcement
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

Catalog Course Description – Identification of the principal forest trees of North America, emphasizing trees and shrubs of SW Oregon and N California. Introduction to the forested regions of the world, and to the structure and function of woody plants. This is a hybrid course -- during spring term, students must either attend the NR 241 face-to-face lectures or enroll in the online NR 141 course. A six-day field tour of Southwestern Oregon and Northern California will follow in early summer. The use of cameras and field notebooks for documenting tree and shrub identification, location and habitat will be emphasized. The field tour will highlight the use of botanical keys to identify native woody plants while touring through regional plant communities. The tour will leave from the UCC campus, and will likely include stops in the Siskiyou Mountains, Smith River, Redwood State and National Parks, Trinidad State Beach, the Trinity River, the Mt. Hood/McCloud River area, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of botanical interest before returning to UCC. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails, and to camp at improved campsites each night. This is an extended spring term course and grades will be awarded after the tour during the following summer term. A fee is required to cover transportation, food and camping.

Grading Option: A-F, or audit

Load Factor: 5.1 ILCs

Award Information:
__AA
_X_AS
__AAS
__Below 100-Level
_X_Elective
__Certificate
_X_AAOT

If you selected ‘AAOT’ above, please select the area of distribution below.
__Arts and Letters
__Mathematics
_X_Science or Computer Science
__Social Science
UCC New Course Approval

__Speech/Oral Communication
__Writing
__Cultural Literacy

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
This course articulates with FES 141 in the College of Forestry at Oregon State University.

Required Course Information
Associate of Science in Natural Resources, Forest Engineering

New Course Justification
Required for Forest Engineering AS degree, lab science for AAOT.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
This course will be taught by an adjunct and will require 3.1 ILCs of pay beyond the Science Dept.’s current personnel costs. A lab fee is included to cover equipment and materials. This will save Forest Engineering students one credit.

Additional Process Items
__X__ Course Outline - (see also below)
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)

Course Outcomes

Students who successfully complete this course will be able to:

1. Identify economically and culturally important native tree and shrub species found in the United States, and describe the forested biomes of the world.
2. Explain the general anatomy and physiology of woody plant species.
3. Use botanical keys to identify dominant trees and shrubs of SW Oregon and N California.
4. Use camera and field notebook for documenting woody plant identification, location and habitat will be emphasized.
Course Outline

- Woody plant families and important genera
- Using dichotomous keys
- Structure and function of woody plants
- Ecological functions of woody plant species in their habitats
- Role of woody plants in forest succession
- Documenting trees and shrubs in the field
- Forested biomes of the world with emphasis on SW Oregon and N California
Course Title: **Tree and Shrub Identification**
Developed By: Ken Carloni, Ph.D.
Development Date: Nov. 2015
Revision Date: 
Review Date: 

**COURSE DESCRIPTION:**

Identification of the principal forest trees of North America, emphasizing trees and shrubs of SW Oregon and N California. Introduction to the forested regions of the world, and to the structure and function of woody plants. This is a hybrid course -- during spring term, students must either attend the NR 241 face-to-face lectures or enroll in the online NR 141 course. A six-day field tour of Southwestern Oregon and Northern California will follow in early summer. The use of cameras and field notebooks for documenting tree and shrub identification, location and habitat will be emphasized. The field tour will highlight the use of botanical keys to identify native woody plants while touring through regional plant communities. The tour will leave from the UCC campus, and will likely include stops in the Siskiyou Mountains, Smith River, Redwood State and National Parks, Trinidad State Beach, the Trinity River, the Mt. Hood/McCloud River area, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of botanical interest before returning to UCC. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails, and to camp at improved campsites each night. This is an extended spring term course and grades will be awarded after the tour during the following summer term. A fee is required to cover transportation, food and camping.
Course Outcomes

Students who successfully complete this course will be able to:
1. Identify economically and culturally important native tree and shrub species found in the United States, and describe the forested biomes of the world.
2. Explain the general anatomy and physiology of woody plant species.
3. Use botanical keys to identify dominant trees and shrubs of SW Oregon and N California.
4. Use camera and field notebook for documenting woody plant identification, location and habitat will be emphasized.

Course Outline
- Woody plant families and important genera
- Using dichotomous keys
- Structure and function of woody plants
- Ecological functions of woody plant species in their habitats
- Role of woody plants in forest succession
- Documenting trees and shrubs in the field
- Forested biomes of the world with emphasis on SW Oregon and N California
UCC New Course Approval

Basic Information
Name of New Course: Recreation Resource Management
Contact: Ken Carloni, Ph.D.
Contact Title: Dept. Chair
Department: Science
Supervisor: Ken Carloni, Ph.D.
Program: Natural Resources

New Course Information
Date, Year, and Term of Proposed Implementation: 2016 Spring Term
Course Title: Tree and Shrub Identification
Course Number: NR 261
Number of Credits: 4
Activity Code:
_X_100 - Lower Division Collegiate
_210 - CTE Preparatory
_211 - Stand-alone (Independent) CTE Preparatory
_220 - CTE Supplemental
_230 - CTE Apprenticeship
_310 - English as a Second Language
_320 - Adult Basic Education
_330 - General Education Development Test Preparation
_340 - Adult High School Diploma, High School Completion
_350 - Post-Secondary Remedial, Reading or Writing
_351 - Post-Secondary Remedial, Math
_352 - Post-Secondary Remedial, Electives
_360 - ACE – Unknown
_361 - ACE - Health and Fitness
_362 - ACE – Safety
_363 - ACE – Workforce
_510 - Non-Reimbursable – Unknown
_511 - Non-Reimbursable - Hobby and Recreation
_512 - Non-Reimbursable - Other/Administrative

Course Type
_44_Lecture (11 hrs/credit)
_Lab (30 hrs/credit)
_Lecture/Lab (20 hrs/credit)
_Other:
Number of Hours:
44 hrs. lecture, 44 hrs. per term

Co- and Pre-Requisite Information
Recommended:

Co- and Pre-Requisite Enforcement
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

Catalog Course Description – Overview of recreation resource management including study of land and water resources used for outdoor recreation. The planning and management of natural and cultural resources for long-term resource productivity, with a focus on rural and wildlife areas of the forest, range and coast.

Grading Option: A-F, or audit

Load Factor: 4 ILCs

Award Information:
__AA
_X_AS
__AAS
__Below 100-Level
_X_Elective
__Certificate
_X-AAOT

If you selected ‘AAOT’ above, please select the area of distribution below.
__Arts and Letters
__Mathematics
_X_Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
This course aligns with FES 251 in the College of Forestry at Oregon State University.
Required Course Information
Associate of Science in Natural Resources

New Course Justification
Required for AS degree in Forest Engineering, Forest Management, Forest Operations. Third year course for BS in NR at OSU.

Course Impacts (Select all that apply)
- Instructional costs (staff, materials, equipment, or facilities) are required.
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- Impact to other divisions in terms of classes and staffing
- Other

Course Impact Description
This course will require 4 ILCs of pay beyond the Science Dept.’s current personnel costs.

Additional Process Items
- Course Outline - (see also below)
- Start-Up Budget (if needed)
- Advisory Committee Minutes (if needed)

Course Outcomes
Students who successfully complete this course will be able to:

1. define recreation and recount trends and historical events that shaped the field of recreation management;

2. list agencies and interest groups involved in natural resource based recreation, and describe their roles in the provision and management of recreation in outdoor settings;

3. describe and provide examples of positive and negative social (i.e., recreationists, communities) and ecological (i.e., biophysical, environmental) impacts associated with natural resource based recreation;

4. explain and provide applications of theories, concepts / constructs, and tools related to natural resource based recreation and its management (e.g., satisfaction, carrying capacity, norms, specialization, conflict, recreation opportunity spectrum, limits of acceptable change, indirect and direct management tactics); and

5. think critically about issues related to outdoor recreation and its management, and share opinions and experiences with others to strengthen understanding and comprehension.
Course Outline

- Current issues and overview of recreation impacts and management
- Land ethic, history, and visionaries
- Agencies in recreation management
- Ecological impacts of recreation and Leave-No-Trace
- Demographics and specialization of recreationists
- Satisfaction, motivations, experience-based management, and “Recreation Opportunity Spectrum”
- Carrying capacity, crowding, norms, and planning frameworks
- Recreation conflict, displacement, and substitutability
- Indirect and direct practices and principles of recreation management
Course No: NR 261
Course Credit: 4
Lecture Hrs/wk: 4
Labor Hrs/Wk: 
Lecture/Lab Hrs/Wk: 
Practicum Hrs/Wk: 
Clock Hours: 44
Length of Course: 11 wks.
Banner enforced Prerequisite: 
Instructor enforced Prerequisite: 
Co-Requisite: 
Load Factor: 4 ILCs
Activity Code: 100
CIPS: 260101

Course Title: Recreation Resource Management
Developed By: Ken Carloni, Ph.D.
Development Date: Nov. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:
Overview of recreation resource management including study of land and water resources used for outdoor recreation. The planning and management of natural and cultural resources for long-term resource productivity, with a focus on rural and wildlife areas of the forest, range and coast.

COURSE OUTCOMES:
Students who successfully complete this course will be able to:

1. define recreation and recount trends and historical events that shaped the field of recreation management;
2. list agencies and interest groups involved in natural resource based recreation, and describe their roles in the provision and management of recreation in outdoor settings;
3. describe and provide examples of positive and negative social (i.e., recreationists, communities) and ecological (i.e., biophysical, environmental) impacts associated with natural resource based recreation;
4. explain and provide applications of theories, concepts / constructs, and tools related to natural resource based recreation and its management (e.g., satisfaction, carrying capacity, norms, specialization, conflict, recreation opportunity spectrum, limits of acceptable change, indirect and direct management tactics); and
5. think critically about issues related to outdoor recreation and its management, and share opinions and experiences with others to strengthen understanding and comprehension.
COURSE OUTLINE

- Current issues and overview of recreation impacts and management
- Land ethic, history, and visionaries
- Agencies in recreation management
- Ecological impacts of recreation and Leave-No-Trace
- Demographics and specialization of recreationists
- Satisfaction, motivations, experience-based management, and “Recreation Opportunity Spectrum”
- Carrying capacity, crowding, norms, and planning frameworks
- Recreation conflict, displacement, and substitutability
- Indirect and direct practices and principles of recreation management
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: Dee Winn
Contact Title: Math Dept Chair
Department: Mathematics
Supervisor: Jason Aase
Program: Arts and Sciences

New Course Information
Date, Year, and Term of Proposed Implementation: 2016
Course Title: Statistics for Scientists and Engineers
Course Number: MTH 265
Number of Credits: 4
Activity Code:

x__100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

_x_ Lecture (11 hrs/credit)
__Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
__Other:

Number of Hours: 44
See 'course type' above for guidance

Co- and Pre-Requisite Information
Please define any co- or pre-requisite information.
Pre-req MTH 252

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
_x_ Registration Enforced
__ Instructor Enforced
__ Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
S
Load Factor:
4.0

Award Information:
Please select all that apply.

_x_AA
__AS
__AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.
_x_Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
UCC New Course Approval

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee? NA
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
Computers and Engineering
and possibly Science

New Course Justification
Student Need for Course (Please describe)
OSU has quit accepting our current statistics course (243) for entrance into their Engineering School. However, they do accept MTH265 from other schools, namely LBCC. The main difference is that MTH265 uses Calculus to go deeper into Statistics and Probability Theory.

Course Impacts (Select all that apply)
__Max cost is $70,000/45*4=$6,222.22 _Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.
Only the cost of paying a full-time instructor to teach the class once per year.
Replacement Course For:
MTH243 for that specific set of students. MTH243 will continue to be offered.
Additional Process Items
Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

x__ Course Outline - required
__ Start-Up Budget (if needed)
__Advisory Committee Minutes (if needed)
Course No: MTH 265  
Course Credit: 4  
Lecture Hrs/wk: 4  
Lab Hrs/Wk: 0  
Lecture/Lab Hrs/Wk: 0  
Practicum Hrs/Wk: 0  
Clock Hours: 44  
Length of Course 11 weeks  
Banner enforced Prerequisite: MTH 252 with a C or better  
Instructor enforced Prerequisite:  
Co-Requisite:  
Load Factor: 4.0  
Activity Code: 100 Lower Division Collegiate  
CIPS: 270101  

Course Title: Statistics for Engineers and Scientists  
Developed By: Dee Winn  
Development Date: 11/3/2015  
Revision Date:  
Review Date:  

COURSE DESCRIPTION: This course covers probability and inferential statistics applied to scientific and engineering problems. Includes random variables, expectation, sampling, estimation, hypothesis testing, regression, correlation and analysis of variance. This course satisfies the OSU requirement of ST 314 for engineering programs.  

COURSE OUTCOMES:  
• Calculate probabilities and interpret their meaning.  
• Calculate expected values of discrete random variables, including means and variances and interpret their meaning.  
• Calculate expected values of continuous random variables, including means and variances and interpret their meaning.  
• Calculate marginal and conditional probabilities of a continuous random variable and interpret their meanings.  
• Calculate means and variances of sample of random variables, both discrete and continuous and interpret their meaning.  
• Calculate the appropriate confidence intervals for single sample and multiple samples point estimators.  
• Be able to identify and perform the appropriate hypothesis test for single sample and multiple sample point estimators.
Courses:

Course Revisions
1. CIV 214 (update curriculum and change course name/number to align with OSU)
2. ENGR 112 (course name change)
3. GIS 234 (update curriculum and change course name/number to align with OIT/OSU)
4. GIS 235 (update curriculum and change course name/number to align with OIT/OSU)
5. SUR 162 (reduce credit hours to align with OIT transfer)
6. SUR 163 (reduce credit hours to align with OIT transfer)
7. WQT 227 (revise math pre-req)
8. WQT 228 (revise math pre-req)
9. WQT 260 (revise math pre-req)
10. WQT 261 (revise math pre-req)
11. WQT 290 (change from CWE to occupation skills training)

New Courses
1. CIV 290 (new occupational skills training course for engineering technology)
2. GIS 203 (new course at OIT for Surveying and Geomatic Program)
3. GIS 280 (new cooperative occupational skills training for engineering technology)
4. OST 290 (general occupation skills training course)
5. SOILS 206 (split existing NR 205 into 2 courses, SOILS 205 lecture and SOILS 206 lab)
6. SUR 209 (new course for Forestry Program)
7. WQT 280 (new cooperative skills training course for engineering technology)

Degrees/Certificates

Revisions
1. AAS, Civil and Surveying Technology, a) Base, b) Applied Surveying Option, and c) Applied Water Quality Option *(creates base with net reduction in credit hours, creates options with occupational skills training)*.
2. Engineering and Drafting Technician Completion Certificate *(update curriculum to match AAS)*
3. Drafting Pathways Certificate *(replace DRF 116 with elective)*
4. Water Quality Pathways *(delete math requirement)*
5. AS Surveying & Geomatics *(update to align with revisions at OIT for articulation)*

New
1. Forest Engineering
2. Forest Management
3. Forest Operations
4. GIS Pathways
5. Occupational Skills Training Completion Certificate
6. Water Quality Operations Pathways
### COURSE REVISIONS

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**Net Credit Hour Change:** 0

### NEW COURSES

**New Course**

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**Net Credit Hour Change:** 9

### DELETED/REPLACED COURSES

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**Credit Hour Reduction:** -13

### NET CHANGE IN PROGRAM CREDIT HOURS

-4

**NOTE:**
1. CWE & OST credits vary. Instructor ILCs at 0.25 per student per quarter
2. SOIL 205 Soil Science lecture will be instructed through Science Department
Courses:

Course Revisions

1. CIV 214 (update curriculum and change course name/number to align with transfer requirements for CEM program at OSU)
2. ENGR 112 (course name change)
3. GIS 234 (update curriculum and change course name/number to align with OIT/OSU)
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11. WQT 290 (change from CWE to occupation skills training)

Net Credit Hour Changes - Zero
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: 11-03-2015
Contact Title: Department Chair
Department: Engineering and CIS
Course Number: CIV 214
Course Title: CAD – Civil3D and Virtual Design

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: March 2016, Spring Quarter

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Modified course name/number and outcomes to better align with OSU CCE 203 Introduction to Virtual Design and Construction, for course transfer equivalency.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
No impacts
List current information and proposed changes

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Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

_x_ Course Outline - required

__ Other:
Course Title: **CAD – Civil3D and Virtual Design**

Developed By: Clay Baumgartner, PE

Development Date: 10/11/15

Revision Date:

Review Date:

**COURSE DESCRIPTION:**

This course uses the Autodesk Civil 3D program to produce virtual design and drawings for civil engineering projects. Drafting practices are used to prepare site plans, layout building sites, and develop construction drawings of infrastructure. Design and building information models are used for making estimates of quantities and cost, and for determination of constructability problems.

**COURSE OUTCOMES:**

1. Understand the evolution of computer aided design, and the combination of three-dimensional design tools with ability to provide 2D construction drawings, estimates of quantity and cost, and determination of constructability problems
2. Develop a working knowledge of Civil3D, including basic use of points, surfaces, alignments, profiles and profile views, assemblies and subassemblies, basic corridors, pipe networks, grading, basic styles, estimating quantities, estimating cost, and identifying potential conflicts/constructability issues.
3. Understand the importance of company standards for file name convention, layer management, styles, and plotted drawings.
4. Develop a basic understanding of work flow for civil design, and basic understanding of the importance of having a process to work with others during a project design and cost estimating.
5. Plot 2D drawings to a specified drafting standard. Understand how to create layouts, use layout templates, manage visibility and appearance of objects, create custom line types, and set plot settings for drawings.

6. Utilize Civil3D to develop materials takeoffs and cost estimates.

7. Understand the importance of “learning how to learn”, and awareness of learning resources that are available for Civil3D and other software tools.

REQUIRED TEXTBOOKS:
- AutoDesk Learning Resources
- Instructor Handouts

REQUIRED MATERIALS:
- Download student version of Civil3D on your personal computer (free download). Can use computers in labs during class and while on campus; to learn material will also need access to software off campus.

COURSE OUTLINE:

Week:
- **Week One**  Basics, and Label Styles and Object Styles
- **Week Two**  Points and Surfaces
- **Week Three**  Grading
- **Week Four**  Alignments and Profiles and Profile Views
- **Week Five**  Assemblies and Subassemblies and Basic Corridors
- **Week Six**  Pipe Networks
- **Week Seven**  Plan Production
- **Week Eight**  Estimates of Quantities, Costs and Constructability Problems
- **Week Nine**  Projects
- **Week Ten**  Projects
- **Week Eleven**  Final Project Due
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: ENGR 112
Course Title: Problem Solving and Technology

Course Revision Information

Type of change
X Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS and AS with Emphasis in Engineering

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

Change course title to better match transfer universities

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.

X Course Outline - required
__ Other:
ENGR 112       Problem Solving and Technology
Course Outline

Course No: ENGR112  
Course Credit: 3  
Lecture Hrs/wk: 3  
Lab Hrs/Wk:  
Lecture/Lab Hrs/Wk:  
Practicum Hrs/Wk:  
Clock Hours: 33  
Length of Course: 11 wks  
Banner enforced Prerequisite:  
Instructor enforced Prerequisite:  
Co-Requisite:  
Load Factor: 3  
Activity Code: 100  
CIPS: 260101

Course Title: Problem Solving and Technology  
Developed By: Clay Baumgartner, PE  
Development Date:  
Revision Date: 10/11/15  
Review Date: 

REQUIRED TEXT AND SOFTWARE:
“MicroSoft Office 2010” (Available from UCC Bookstore, $18 for students)  
“MatLab & Simulink Student Version R201x”, available at UCC Bookstore (Approximately $99 for Student Version of MatLab 201x)

COURSE DESCRIPTION:

Systematic approaches to engineering problem solving using computers and technology. Logical analysis, flowcharting, input/output design, introductory computer programming are covered. Two distinct software applications will be utilized in this course, Microsoft EXCEL® and MathWorks MATLAB®.
COURSE TOPICS:

- Concepts and principles of computation.
- Computational language fundamentals
- Macros and script files
- Graphical displays (2D)
- Program modules: functions and algorithms
- Elementary decision structures
- Numerical analysis
- Symbolic manipulation

COURSE OUTCOMES:

1. Discuss concepts and principals of computations.
2. Demonstrate use of engineering software to solve applicable engineering problems.
3. Demonstrate knowledge of the basic capabilities of Excel.
4. Demonstrate knowledge of basic descriptive statistics to analyze and describe data – mean, median, mode, standard deviation, charts, graphs, and histograms.
5. Demonstrate the basic capabilities of MATLAB programming applications.
7. Translate a flowchart into a basic computer program.
8. Develop Graphic User Interfaces (GUI).

COURSE OUTLINE:

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Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: GIS 234
Course Title: GIS I Introduction to GIS

Course Revision Information

Type of change
X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

Change course title and credit hours to align with OSU and OIT courses for transfer equivalency.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
X_ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...

Course revision. The number of credit hours is being increased from 3 to 4. One ILC of additional instruction is being added; the cost will be offset by additional course revenue from extra credit hour. There will be staff time related to updating curriculum.
List current information and proposed changes

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Additional Documentation

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- X_ Course Outline - required
- _ Other:
GIS 234
GIS I Introduction to Geographic Information Systems
Department of Engineering, CIS, and CS
Umpqua Community College
Winter 2016

Course No: GIS 234
Course Credit: 4
Lecture Hrs/wk: 3
Lab Hrs/Wk: 2
Lecture/Lab Hrs/Wk: 5
Practicum Hrs/Wk: 
Clock Hours: 55
Length of Course: 11 wks
Banner enforced Prerequisite: 
Instructor enforced Prerequisite: 
Co-Require: 
Load Factor: 4.4
Activity Code: 100
CIPS: 260101

Course Title: GIS I Introduction to Geographic Information Systems
Developed By: Clay Baumgartner, PE
Development Date: 
Revision Date: 10/18/15
Review Date:

Catalog Description:
This course is designed as an introduction to GIS and the spatial concepts it promotes. An understanding of digital geographic information and the intelligence behind it will be understood. ArcGIS is the software program used for spatial data input, analysis, and display.

Prerequisite:
None

Required Text:

Course Outcomes:

The material for this course will be presented in the following basic topic areas:

1. Recognize and use basic spatial and cartographic concepts (e.g. scale, projection, and coordinate systems), as well as statistical and surveying principles.
2. Demonstrate facility in the classification and analysis of geospatial data (e.g. satellite images, digital maps and their associated tabular datasets) and the ability to use geographic information science technology (software, data collection instruments and devices).

3. Develop and integrate spatial thinking and the capacity to create visualizations (e.g. images, maps, diagrams, charts, 3D views) of spatial phenomena, including those illustrating natural and human systems and their interactions.

4. Describe and interpret key concepts of geospatial science: Basic statistical principles; principles of computational geometry and location; principles of surveying.

5. Construct and compose the following tools and skills used by geospatial scientists, at multiple scales: Select, apply geospatial technologies; acquire data from imagery and online sources; use measurement units and mathematical notation.

6. Describe the foundational concepts of Geographic Information Systems and working with geospatial data.

7. Demonstrate proficiency in the basic functions of geospatial software (ArcGIS).

8. Employ a conceptual and working knowledge of coordinate systems and map projections to geospatial data.

9. Demonstrate basic proficiency in map creation and design principles, including thematic map display, map projections and cartographic design.

10. Carry out basic spatial data analysis and display the results in the form of maps and tables.

11. Demonstrate how to access different sources of data.

12. Demonstrate the process of creating and editing spatial data.

13. Discuss the fundamental concepts of data quality.

**COURSE OUTLINE**

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Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: GIS 235
Course Title: GIS II Data Analysis and Applications

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

Change course title and credit hours to align with OSU and OIT courses for transfer equivalency.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
X_ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...

Course revision. The engineering program is replacing DRF 116 with this course. The number of credit hours is being increased from 3 to 4. One ILC of additional instruction is being added; the cost will be offset by additional course revenue from extra credit hour. There will be staff time related to updating curriculum.
**List current information and proposed changes**

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**Additional Documentation**

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

X Course Outline - required

__ Other:__
GIS 235
GIS II Analysis and Applications
Department of Engineering, CIS, and CS
Umpqua Community College
Spring 2016

Course No: GIS 235
Course Credit: 4
Lecture Hrs/wk: 3
Lab Hrs/Wk: 2
Lecture/Lab Hrs/Wk: 5
Practicum Hrs/Wk: 1
Clock Hours: 55
Length of Course: 11 wks
Banner enforced Prerequisite: GIS 234
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 4.4
Activity Code: 100
CIPS: 260101

Course Title: GIS II Analysis and Applications
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/17/15
Review Date:

Catalog Description:
Applications-based course. Develop and conduct geospatial analyses using various spatial data structures, techniques and models. Students acquire, clean, integrate, manipulate, visualize and analyze geospatial data through laboratory work. Import feature and nonfeature data into a GIS. Data Conversion. Use of hand-held GPS/GIS units. Use and create web-based GIS applications and services.

Prerequisite:
GIS 234 GIS I Introduction to GIS

Required Text:
Map Use; Reading and Analysis, Kimerling et al, ESRI Academic Press, 7th Ed., 2013.
Course Outcomes:

The material for this course will be presented in the following basic topic areas:

1. Recognize and use basic spatial and cartographic concepts (e.g. scale, projection, and coordinate systems), as well as statistical and surveying principles.
2. Demonstrate facility in the classification and analysis of geospatial data (e.g. satellite images, digital maps and their associated tabular datasets) and the ability to use geographic information science technology (software, data collection instruments and devices).
3. Develop and integrate spatial thinking and the capacity to create visualizations (e.g. images, maps, diagrams, charts, 3D views) of spatial phenomena, including those illustrating natural and human systems and their interactions.
4. Describe and interpret key advanced concepts of geospatial science: advanced statistical concepts; autocorrelation; projections; scale; coordinate systems; ethics.
5. Construct and compose the following advanced tools and skills used by geospatial scientists, at multiple scales: conduct sampling; collect, measure data in the field; Import, export, validate data; classify data and imagery; conduct statistical analyses; create and publish visualizations; apply critical thinking and problem-solving skills; apply programming languages (e.g., Python, Java, R); demonstrate working knowledge of GIS hardware and software; create, update, and maintain GIS databases.
6. Demonstrate a conceptual and working knowledge of spatial analysis operations, including interpolation, transformation, spatial statistics and estimation of error and uncertainty.
7. Synthesize and integrate concepts of GIS theory and methodology, including data models, data structures, topology and spatial analysis.
8. Demonstrate a conceptual and working knowledge of spatial analysis operations, including interpolation, transformation, spatial statistics and estimation of error and uncertainty.
9. Demonstrate intermediate GIS software skills, particularly in ArcGIS, as well as intermediate scientific computing skills.
10. Demonstrate a conceptual and working knowledge of spatial analysis operations, including interpolation, transformation, spatial statistics and estimation of error and uncertainty.
11. Synthesize and integrate concepts of GIS theory and methodology, including data models, data structures, topology and spatial analysis.
12. Prepare and design appropriate GIS data models and organize GIS data.
13. Demonstrate use of ‘Recreational Grade’ (Garmin) for navigation and data collection
   a. Use of metadata forms
   b. Uploading data to a GPS
   c. Use of a data dictionary
15. Post data and web services using ArcGIS Online  
16. Demonstrate use of ArcPad software

### COURSE OUTLINE

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Basic Information

Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: SUR 162
Course Title: Plane Surveying II

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS and AS with Emphasis in Surveying and Geomatics

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

OIT has updated their GME 162. Reduce credit hours (lecture and lab) to align with OIT GME 162, the transfer equivalent.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
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List current information and proposed changes

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Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

X_ Course Outline - required
__ Other:
SUR 162
Plane Surveying II
Umpqua Community College
Fall 2015

Course No: SUR 162
Course Credit: 4
Lecture Hrs/wk: 2
Lab Hrs/Wk: 6
Lecture/Lab Hrs/Wk:
Practicum Hrs/Wk:
Clock Hours: 88
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 6.2
Activity Code: 100
CIPS: 260101

Course Title: Plane Surveying II
Developed By: Clay Baumgartner, PE, FLS
Development Date:
Revision Date: 10/11/15
Review Date:

Catalog Description:
Digital theodolites and data collectors, instrument testing and observational error analysis. Theory of leveling. Solar observations and computations. E.D.M. use and calibration. Field labs including solar observations, traversing, leveling and horizontal curve layout. Introduction to COGO software.

Prerequisite:
SUR 161 and Math 112 or instructor consent.

Required Text:

Required Supplies:
- HP33/HP35 Calculator
- Engineering computation paper
- 5" or larger Protractor
- Engineer’s Scale (1’ long)
- Clipboard for field surveys

Surveying field notebook
- Plumb bob, sheath, gammon reel (optional)
- Pocket tape (optional)
- Vest or tool belt (optional)
- Appropriate Field Clothing
Learning Objectives:

Upon completion of this course students should have:
• Become proficient with field survey equipment including total stations, automatic levels, and data collectors.
• Solved Surveying problems in the field and in the classroom.
• Learned error theory and corrections in the field and classroom.

Course Outline

Week 1

I. Introduction, history & resources
   A. The Surveying Profession
      1. Professional Organizations
      2. Professional Licensing requirements
   B. Calculators, Excel, and other resources

II. Leveling: *Chapters 4 & 5*
    A. Theory & Methods
    B. Field Procedures & Computations
    C. Error Propagation and adjustments

Week 2

III. Measuring Distances: *Chapter 6*
    A. Methods for Measuring Distances
    B. Electronic Distance Measurement
    C. Error Propagation and adjustments

IV. Measuring Directions: *Chapter 7*
    A. Review of Azimuths and Bearings
    B. Magnetic Bearings & Computations

Week 3

V. Traversing & Traverse Computations: *Chapters 9 & 10*
   A. Observation of angles or directions
   B. Open and closed traverses
   C. Field Procedures
Week 4

VI. Computing Area: Chapter 11
   A. Area by Coordinates
   B. Area by Double Meridian Distances
   C. Area of Parcels with circular boundaries
   D. Partitioning of Lands

Week 5

VII. Topographic Mapping: Chapters 17 & 18
    A. Mapping Scales
    B. Data Collection methods
    C. Breaklines
    D. TIN & Contour Lines

Week 6

VIII. Photogrammetry: Chapter 27
      A. Vertical Photography
      B. Stereo Model
      C. Photo and Map Scale
      D. Flight Planning

Week 7

IX. Data Collection
    A. Field Notes
    B. Methodology
    C. Downloading Data
    D. Reading and editing Raw Field Data Files

X. GPS Basics: Chapter 13, 14 & 15
    A. Basic Theory, definitions, history, & sciences
    B. Setting up GPS units for static
    C. Static, and Real Time observations

Week 8

XI. Astronomic Observation: Appendix C
    A. Terminology & Definitions
    B. PZS Triangle
    C. Hour-Angle Method
    D. Field Procedures
    E. Polaris computations
Week 9

XII. Introduction to Least Squares: Chapter 16

XIII. Introduction to Matrices: Appendix E

Week 10

Review

Week 11

Final

Lab Projects

Lab No. 1: Differential Leveling I
Lab No. 2: Differential Leveling II
Lab No. 3: Profile Plotting & Stadia
Lab No. 4: Three Wire Leveling
Lab No. 5: Digital Leveling
Lab No. 6: Traversing
Lab No. 7: Topographic Survey - Traditional methods
Lab No. 8: Topographic Survey - Automated methods
Data Collectors and Computer Applications
Lab No. 9: Determining Height of a remote object
Lab No. 10: Solar & Stellar Observations
Lab No. 11: GPS Surveying
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: SUR 163
Course Title: Route Surveying

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS and AS with Emphasis in Surveying and Geomatics

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

OIT has updated their GME 163. Reduce credit hours (lecture and lab) to align with OIT GME 163, the transfer equivalent. Change name to match OIT course.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
X_ Course Outline - required
__ Other:
Course Title: **Route Surveying**
Developed By: Clay Baumgartner, PE, FLS
Development Date:
Revision Date: 10/11/15
Review Date:

**Catalog Description:**
Digital theodolites and data collectors, instrument testing and observational error analysis. Theory of leveling. Solar observations and computations. E.D.M. use and calibration. Field labs including solar observations, traversing, leveling and horizontal curve layout. Introduction to COGO software.

**Prerequisite:**
SUR 162

**Required Text:**
*“Elementary Surveying, 13th Edition”* by Charles Ghilani and Paul Wolf
*“Surveying-Theory and Practice”* James M. Anderson and Edward M. Mikhail
**Course Outcomes:**

1) Apply theory necessary to solve route survey problems. This will include elements of route selection, calculation of horizontal and vertical curves, and earthwork calculations.

2) Demonstrate hands on experience in road design and layout. The student will use Total Stations and Data collectors for the collection of topographic data in the field and Civil3D software for design of horizontal and vertical alignments.

**Course Coverage:**

This course has two components, a lecture section and a laboratory section. The lecture portion of the class will include problem sets and tests over material covered in class and in the readings. The objective of the lecture section is for you to learn the theory necessary to solve route survey problems. The lab portion of the class is designed to give you practical experience using what you have learned in class. In lab, you will use Civil3D design software and a total station for the construction of a section of road. This will include the construction of a topographic map, a centerline alignment, and a final plan and profile showing your centerline alignment. You will also use your topographic data for earthwork computations along your proposed route.

**Course Content:**

This course covers the following items identified in the NCEES Professional Land Surveying Candidate Handbook as potential exam content for the FS/PLS exams:

25. Perform angular and linear measurements
28. Recover horizontal and vertical control
29. Determine locations of man-made and natural features
30. Perform topographical surveys
31. Perform construction staking
32. Perform route and right-of-way surveys for roads, railroads, or utilities
33. Obtain data with a total station
35. Perform differential leveling
46. Compute coordinate values
47. Verify field notes for completeness and accuracy
50. Compute areas
53. Analyze sources of error
57. Compute volumes
73. Design horizontal alignment for roads
77. Design vertical alignment for roads
82. Establish benchmarks
89. Prepare topographic and contour maps
COURSE OUTLINE:

Week 1:
- Introduction to route surveying
- Review of traverse work and topographic mapping
- Elements of the horizontal curve
- Lab: Equipment review, traverse review, introduction to Carlson and field-to-finish methods

Week 2:
- Field-to-finish methods for data collection
- Deflection Angle Method
- Equal tangent vertical curves
- Lab: Topographic mapping for route design project (Benchmarks and Control)

Week 3:
- Unequal tangent vertical curves
- Vertical curve high, low, and fixed points
- Lab: Topographic mapping for route design project (Data collection along a corridor)

Week 4:
- Earthwork-Volume by end areas and slope staking
- Lab: Topographic mapping for route design project (Download data and generate topographic map)

Week 5:
- Earthwork corrections
- Distribution analysis
- Midterm 1
- Lab: Construct route alignment

Week 6:
- Volume by prismodial method
- Volume through transition areas
- Lab: Entering route alignment in a data collector and layout of alignment in field.

Week 7:
- Slope Staking
- Lab: Continue field layout of route alignment

Week 8:
- Slope Staking
- Reverse curve calculations
- Lab: Prepare final alignment map
Week 9:
- Midterm 2
- Thanksgiving
- Lab: Slope staking

Week 10:
- Compound curve calculations
- Final Review
- Lab: Slope staking cont.
- Final Project – Due date to be announced

Finals Week:
- Final exam – Time and place to be announced.

Some Final Notes:
1) This is an engineering course and neatness is of critical importance. All work that is not typed must be done in neat, manuscript lettering on engineering grid paper using the standard engineering format. Work that is not legible or missing calculations will not be accepted. When you start work in your chosen field others will be using your notes and must be able to read them!
2) The equipment we use in the surveying profession is expensive and delicate. Handle the equipment with care at all times. If you damage it, report it immediately so that others do not waste their time by using faulty equipment.
3) A grade of incomplete will only be issued by prior arrangement with the instructor. Please contact me as soon as you feel that there might be a problem!
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: August 25, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 227
Course Title: Wastewater Treatment

Course Revision Information

Type of change
X Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Prerequisite: Replace MTH 095 (Intermediate Algebra) with MTH 065 (Elementary Algebra) – Instructor Enforced
Co-Requisite: Delete co-requisite requirement for MTH 111 (College Algebra)
Justification: Level of math skills necessary for successful course completion is sufficiently addressed by MTH 065. Requiring MTH 095 and MTH 111 may act as impediments to prospective students who are actively employed in the field and are wishing to enhance their knowledge/skills or who are interested in exploring the topic as a possible career choice.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
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__ Other:

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Additional Documentation
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X_ Course Outline - required
__ Other:
Course Outline

Course No: WQT 227
Course Credit: 3
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 
Practicum Hrs/Wk: 
Clock Hours: 33
Length of Course: 11 wks
Banner enforced Prerequisite: 
Instructor enforced Prerequisite: 
Co-Requisite: 
Load Factor: 3
Activity Code: 100
CIPS: 260101

Course Title: Wastewater Treatment
Developed By: Clay Baumgartner, PE
Development Date: 
Revision Date: 10/11/15
Review Date: 

PREREQUISITES: MTH 065 – Elementary Algebra – Instructor Enforced

TEXT:
“Operation of Wastewater Treatment Plants, A Field Study Training Program”, Volume I, 7th Edition, by California State University, Sacramento

COURSE DESCRIPTION: This course covers the fundamentals of wastewater treatment facilities, including operation and maintenance of facilities.

COURSE OUTCOMES:
1. Demonstrate knowledge of the importance of wastewater treatment and the protection of water quality
2. Recognize the roles and responsibilities of design engineer, the owner of treatment facilities, and the treatment plant operator
3. Identify the federal and state regulatory authorities responsible for wastewater treatment facilities in Oregon
4. Identify certification pathways for wastewater operators in Oregon
5. Demonstrate the basic concepts of centralized wastewater treatment – differentiate collection, treatment and disposal technologies
6. Demonstrate knowledge of preliminary treatment basics, including screening and grit removal
7. Demonstrate knowledge of primary treatment basics, including sedimentation and flotation
8. Demonstrate knowledge of secondary treatment including biological, chemical, and physical processes and solids handling
9. Demonstrate knowledge of disinfection
10. Demonstrate knowledge of effluent disposal and solids disposal
11. Analyze and solve operational problems
12. Employ basic mathematical computations relating to wastewater treatment process control
Course Outline

Course No.: WQT 227
Course Title: Wastewater Treatment

Week One  Treatment Plant Operator and Why Wastes are Treated
Read: Ch. 1, 2

Week Two  Wastewater Treatment Facilities
Read: Ch. 3

Week Three  Racks, Screens and Grit Removal
Read: Ch. 4

Week Four  Sedimentation and Flotation
Read: Ch. 5

Week Five  Trickling Filters
Read: Ch. 6
Midterm Exam

Week Six  Rotating Biological Contactors
Read: Ch. 7

Week Seven  Activated Sludge (Package Plants/Oxidation Ditches)
Read Ch. 8

Week Eight  Wastewater Stabilization Ponds
Read: Ch. 9

Week Nine  Disinfection Processes
Read: Ch. 10

Week Ten  Disinfection Processes (continued) and Review
Read: Ch. 10

Week Eleven  Final Exam
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: August 25, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 228
Course Title: Wastewater Collection

Course Revision Information

Type of change
X Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Prerequisite: Replace MTH 095 (Intermediate Algebra) with MTH 065 (Elementary Algebra) –
Instructor Enforced
Co-Requisite: Delete co-requisite requirement for MTH 111 (College Algebra)
Justification: Level of math skills necessary for successful course completion is sufficiently
addressed by MTH 065. Requiring MTH 095 and MTH 111 may act as
impediments to prospective students who are actively employed in the field and
are wishing to enhance their knowledge/skills or who are interested in exploring
the topic as a possible career choice.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
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Additional Documentation
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X_ Course Outline - required
__ Other:
WASTEWATER COLLECTION SYSTEMS  
WQT 228  
COURSE OUTLINE

Course No: WQT 228  
Course Credit: 3  
Lecture Hrs/wk: 0  
Lab Hrs/Wk: 0  
Lecture/Lab Hrs/Wk:  
Practicum Hrs/Wk:  
Clock Hours: 33  
Length of Course: 11 wks  
Banner enforced Prerequisite:  
Instructor enforced Prerequisite:  
Co-Requisite:  
Load Factor: 3  
Activity Code: 100  
CIPS: 260101

Course Title: Wastewater Collection Systems  
Developed By: Clay Baumgartner, PE  
Development Date:  
Revision Date: 10/11/15  
Review Date:  

PREREQUISITES:  
MTH 065 – Elementary Algebra – Instructor Enforced

COURSE DESCRIPTION:  
Course introduces the basics of wastewater and storm water collection systems. Primary focus will be pipe sizing, general system components, installation, inspection, operation and maintenance techniques. Elementary street construction and inspections are also studied in conjunction with storm drainage. Field trips may be made to existing facilities and work under construction.

COURSE OUTCOMES:  
- Describe regulatory agencies responsible for oversight of drinking water, wastewater and storm water  
- Demonstrate the concepts and principals of hydraulic computations for pressure and gravity systems.  
- Explain basic design, operation and maintenance of wastewater and storm water collection systems  
- Recognize and explain community and agency design standards

COURSE TOPICS:  
- Regulatory Agency – Wastewater (Federal, State, Local)  
- Hydraulics – Gravity System  
- Domestic wastewater flows  
- Wastewater Infiltration and inflow  
- Peaking factors for wastewater flows  
- Ultimate design flows for wastewater  
- Minimum (scouring) velocities  
- Wastewater pumping
- Minimum wastewater pipe sizing
- Manholes
- Basic wastewater components, fittings, and materials
- Wastewater Collection Operators
- Why Collection System Operation and Maintenance
- Wastewater Collection Systems
- Safe Procedures
- Inspecting and Testing Collection Systems
- Pipeline Cleaning and Maintenance Methods
- Underground Repair
- Design Standards
- Regulatory Agency – Storm water (Federal, State, Local)
- Probability of Design Events – Storm water
- Rainfall events
- Runoff characteristics
- Rational Formula
- Street design and storm drainage
- Ditches, catch basins, culverts and manholes
- Pipeline sizing
- Basic storm drainage components, fittings, and materials
- Utility locates
<table>
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<tr>
<th>Week</th>
<th>Topic and Reading</th>
<th>Assessments</th>
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</table>
| #1   | Wastewater Collection Systems:  
Ch. 1 – The Wastewater Collection Operator  
Ch. 2 – Why Wastewater Collection System Operation and Maintenance? | Homework    |
| #2   | Wastewater Collection Systems:  
Ch. 3 – Wastewater Collection Systems | Homework    |
|      |                                                                                 | Quiz 1      |
| #3   | Wastewater Collection Systems:  
Ch. 4 – Safe Procedures | Homework    |
|      |                                                                                 | Quiz 2      |
| #4   | Wastewater Collection Systems:  
Ch. 5 – Inspecting and Testing Collection Systems | Homework    |
|      |                                                                                 | Quiz 3      |
| #5   | Wastewater Collection Systems:  
Ch. 6 – Pipe Cleaning and Maintenance Methods | Homework    |
|      |                                                                                 | Quiz 4      |
| #6   | Wastewater Collection Systems:  
Ch. 7 – Underground Repair | Midterm     |
| #7   | Wastewater Collection Systems:  
Ch. 7 – Underground Repairs | Homework    |
| #8   | Storm Water Collection Systems                                                    | Homework    |
|      |                                                                                 | Quiz 5      |
| #9   | Storm Water Collection Systems                                                    | Quiz 6      |
| #10  | Storm Water Collection Systems                                                    |             |
| #11  | Final Exam                                                                        |             |
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: August 25, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 260
Course Title: Water Treatment

Course Revision Information

Type of change
X Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Prerequisite: Replace MTH 095 (Intermediate Algebra) with MTH 065 (Elementary Algebra) – Instructor Enforced
Co-Requisite: Delete co-requisite requirement for MTH 111 (College Algebra)
Justification: Level of math skills necessary for successful course completion is sufficiently addressed by MTH 065. Requiring MTH 095 and MTH 111 may act as impediments to prospective students who are actively employed in the field and are wishing to enhance their knowledge/skills or who are interested in exploring the topic as a possible career choice.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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<td>A-F</td>
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**if no changes put “same”**

- **Course number**: Same
- **Course title**: Same
- **Credits**: Same
- **Lecture Hrs/Wk**: Same
- **Lec/Lab Hrs/Wk**: Same
- **Lab/Hrs/Wk**: Same
- **Practicum**: Same
- **Banner/Instr. Prerequisites**: MTH 065
- **Co-requisites**: None
- **Length (Weeks)**: Same
- **Terms Offered**: Same
- **Grading Option**: Same
- **Load Factor**: Same

**Additional Documentation**

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- X_ Course Outline - required
- ___ Other:
PREREQUISITES: MTH 065 – Elementary Algebra – Instructor Enforced


COURSE DESCRIPTION: This course covers the fundamentals of water treatment facilities, including operation and maintenance of facilities.

COURSE OUTCOMES:
1. Recognize the importance of water treatment and the protection of water quality
2. Describe the roles and responsibilities of design engineer, the owner of treatment facilities, and the treatment plant operator
3. Identify the federal and state regulatory authorities responsible for water treatment facilities in Oregon
4. Describe certification pathways for water operators in Oregon
5. Identify water sources and water intake systems
6. Describe coagulation, flocculation, sedimentation, filtration, and disinfection processes
7. Recall basics of treatment to control tastes and odors in drinking water, and corrosion control
8. Identify laboratory testing requirements
9. Describe overall plant operation including daily operating procedures, regulation of flows, chemical use and handling, records and reports, plant maintenance, safety and security, emergency conditions and procedures, handling complaints, and energy conservation
10. Employ mathematical computations for water treatment process control
**Course Outline**

**Course No.:** WQT 260  
**Course Title:** Water Treatment

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Reading</th>
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<tr>
<td><strong>Week One</strong></td>
<td>Water Treatment Plant Operator and Water Sources and Treatment</td>
<td>Read: Ch. 1, 2</td>
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<tr>
<td><strong>Week Two</strong></td>
<td>Reservoir Management and Intake Structures</td>
<td>Read: Ch. 3</td>
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<td><strong>Week Three</strong></td>
<td>Coagulation and Flocculation</td>
<td>Read: Ch. 4</td>
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<td>Sedimentation</td>
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<td>Filtration</td>
<td>Read: Ch. 6</td>
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<td>Midterm Assignment Disinfection</td>
<td>Read: Ch. 7</td>
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<td><strong>Week Seven</strong></td>
<td>Corrosion Control</td>
<td>Read Ch. 8</td>
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<td><strong>Week Eight</strong></td>
<td>Taste and Odor Control</td>
<td>Read: Ch. 9</td>
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<td><strong>Week Nine</strong></td>
<td>Plant Operation</td>
<td>Read: Ch. 10</td>
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<td><strong>Week Ten</strong></td>
<td>Laboratory Procedures</td>
<td>Read: Ch. 11</td>
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<td><strong>Week Eleven</strong></td>
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Basic Information

Name of Course Revision Contact: Clay Baumgartner
Date: August 25, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 261
Course Title: Water Distribution

Course Revision Information

Type of change
- Revision
- Reactivation
- Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification

Please give as many details as possible about the revision, including justification for the change.
Prerequisite: Replace MTH 095 (Intermediate Algebra) with MTH 065 (Elementary Algebra) – Instructor Enforced
Co-Requisite: Delete co-requisite requirement for MTH 111 (College Algebra)
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Course Revision Impacts - select all that apply

- Instructional costs (staff, materials, equipment, or facilities) required.
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- Impact to other divisions in terms of classes and staffing
- Other:

Description of Impact

If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
X_ Course Outline - required
__ Other:
WATER DISTRIBUTION
WQT 261
Course Outline

Course No: WQT 261
Course Credit: 4
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 0
Practicum Hrs/Wk: 0
Clock Hours: 44
Length of Course: 11 wks

PREREQUISITES: MTH 065 – Elementary Algebra – Instructor Enforced

TEXT:

COURSE DESCRIPTION:
This course covers water distribution system operation and maintenance and the fundamentals of fluid mechanics.

COURSE OUTCOMES:
1. Demonstrate understanding of water distribution system operation and maintenance
2. Describe the relationship between absolute, gauge and atmospheric pressure.
3. Compute the forces on submerged surfaces.
4. Apply the principals of energy conservation to fluid flow.
5. Analyze the flow of fluids in closed systems.
Umpqua Community College
Roseburg, Oregon

Course Outline

Course No.: WQT 261
Course Title: WATER DISTRIBUTION

Week One
“Water Distribution System Operation and Maintenance”
Read: Chapter 1 and Chapter 2
Complete Chapter 1 and Chapter 2 Homework Posted on Angel

Week Two
“Water Distribution System Operation and Maintenance”
Read: Chapter 3
Complete Chapter 3 Homework Posted on Angel

Week Three
“Water Distribution System Operation and Maintenance”
Read: Chapter 4
Complete Chapter 4 Homework Posted on Angel

Week Four
“Water Distribution System Operation and Maintenance”
Read: Ch. 5
Complete Chapter 5 Homework Posted on Angel

Week Five
“Water Distribution System Operation and Maintenance”
Read: Chapter 6
Complete Chapter 6 Homework Posted on Angel

Midterm “Water Distribution System O&M”, Chapters 1 - 5

Week Six
“Water Distribution System Operation and Maintenance”
Read: Chapter 7
Complete Chapter 7 Homework Posted on Angel

Week Seven
“Water Distribution System Operation and Maintenance”
Read: Chapter 8
Complete Chapter 8 Homework Posted on Angel

Week Eight
Fluid Mechanics
Open source materials to be provided.
Complete homework as posted on Angel

Week Nine
Fluid Mechanics
Open source materials to be provided.
Complete homework as posted on Angel

Week Ten
Fluid Mechanics
Open source materials to be provided.
Course Review

Week Eleven
Final Exam
Basic Information
Name of Course Revision Contact: Clay Baumgartner
Date: September 20, 2015
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Course Number: WQT 290
Course Title: Occupational Skills Training

Course Revision Information

Type of change
X_ Revision
__ Reactivation
_ Deletion

Date, Year, and Term of Proposed Revision: September 2016, Fall 2016, 2016-17 Academic Year

Parent Program: Civil Engineering and Surveying Technology, AAS

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.

Change course title and maximum number of credit hours to align with Occupational Skills Training

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
None
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
X_ Course Outline - required
__ Other:
Course Outline

COURSE TITLE: Occupational Skills Training (OST)
COURSE NO.: WQT 290

Course No: WQT 290
Course Credit: 1 - 28
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 0
Practicum Hrs/Wk: 3 Hrs per credit/Wk
Clock Hours: 33 Hrs per credit
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: .25 per student
Activity Code: 100
CIPS: 260101

Course Title: Occupational Skills Training
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

Credits: 1 - 28

COURSE DESCRIPTION:
Students are expected to learn skills related to their program of study in a work setting. Placements are normally off-campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The OST Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

COURSE OUTCOMES:
1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.
CREDITS AND HOURS:
Variable (1-28) credits; students earn 1 college credit for each 33 hours of work during a term.

PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

COURSE OUTLINE:
Week 1 Occupational Skills Training
Week 2 Occupational Skills Training
Week 3 Occupational Skills Training
Week 4 Occupational Skills Training
Week 5 Occupational Skills Training
Week 6 Occupational Skills Training
Week 7 Occupational Skills Training
Week 8 Occupational Skills Training
Week 9 Occupational Skills Training
Week 10 Occupational Skills Training
Week 11 Occupational Skills Training

.
Courses:

New Courses

1. CIV 290 (new occupational skills training course for engineering technology)
2. GIS 203 (new course at OIT for Surveying and Geomatic Program)
3. GIS 280 (new cooperative occupational skills training for engineering technology)
4. OST 290 (general occupation skills training course)
5. SOILS 206 (split existing NR 205 into 2 courses, SOILS 205 lecture and SOILS 206 lab)
6. SUR 209 (new course for Forestry Program)
7. WQT 280 (new cooperative skills training course for engineering technology)
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**

Name of New Course Contact: Clay Baumgartner  
Contact Title: Chair, Engineering and CIS Department  
Department: Engineering and CIS  
Supervisor: Jesse Morrow  
Program: Civil Engineering and Surveying Technology

**New Course Information**

Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year  
Course Title: Occupational Skills Training  
Course Number: CIV 290  
Number of Credits: Variable, 1-28 Activity Code:  
__X_100 - Lower Division Collegiate  
__210 - CTE Preparatory  
__211 - Stand-alone (Independent) CTE Preparatory  
__220 - CTE Supplemental  
__230 - CTE Apprenticeship  
__310 - English as a Second Language  
__320 - Adult Basic Education  
__330 - General Education Development Test Preparation  
__340 - Adult High School Diploma, High School Completion  
__350 - Post-Secondary Remedial, Reading or Writing  
__351 - Post-Secondary Remedial, Math  
__352 - Post-Secondary Remedial, Electives  
__360 - ACE - Unknown  
__361 - ACE - Health and Fitness  
__362 - ACE – Safety  
__363 - ACE – Workforce  
__510 - Non-Reimbursable – Unknown  
__511 - Non-Reimbursable - Hobby and Recreation  
__512 - Non-Reimbursable - Other/Administrative

**Course Type**

(If your course is a combination of the below options, please define it in ‘other’)

__Lecture (11 hrs/credit)
Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)

__Other: Individualized career training focused on learning on a job site, 33 hrs/credit

Number of Hours: 1 unit for 33 hours on-job site work
See 'course type' above for guidance

Co- and Pre-Requisite Information
Please define any co- or pre-requisite information.
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
__Registration Enforced
X_Instructor Enforced
__Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
Graded course; no pass/no-pass option Load
Factor:

Award Information:
Please select all that apply.

__AA
_X AS
_X AAS
__Below 100-Level
_X_Elective
_X_Certificate
_X_AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy

**CTE and Lower Division Collegiate Proposals Only**

Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
X_Occupational Preparatory (organized degree/cert. program)
X_Occupational Supplementary
__Foundational Requirement
__Discipline Studies
X_Elective

**Required Course Information**

*Please list all programs for which this course will be required*

Occupational Skills Training Certificate
Water Quality Operator, Occupation Skills Training Pathway Certificate
Civil Engineering and Surveying Technology, Applied Surveying Option
Civil Engineering and Surveying Technology, Applied Water Quality Option

**New Course Justification**

*Student Need for Course (Please describe)*

Occupational Skills Training meets the employment training needs of a community and an individual where there is not enough "need" to create on-going programs. The training offers students the ability to earn college credits while providing them the opportunity to design a career path that accommodates their occupational goals, abilities, skills, and interests.

**Course Impacts (Select all that apply)**
__Instructional costs (staff, materials, equipment, or facilities) are required.
Additional instructional costs (staff, materials, equipment, or facilities) are needed.
Impact to other divisions in terms of classes and staffing X_Other

Course Impact Description
For any of the course impacts listed above, please describe.
Occupational skills training students will require monitoring and performance review by existing staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter)
Replacement Course For: N/A

Additional Process Items
Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_Course Outline - required
__Start-Up Budget (if needed)
__Advisory Committee Minutes (if needed)
Course Title: Occupational Skills Training (OST)

Developed By: Clay Baumgartner, PE

Course Syllabus

COURSE TITLE: Occupational Skills Training (OST)
COURSE NO.: CIV 290

Course Title: Occupational Skills Training
Developed By: Clay Baumgartner, PE

COURSE DESCRIPTION:

Students are expected to learn skills related to their program of study in a work setting. Placements are normally off campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The OST Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

COURSE OUTCOMES:

1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.

CREDITS AND HOURS:

Variable (1-28) credits; students earn 1 college credit for each 33 hours of work during a term.
PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

COURSE OUTLINE:

- Week 1 Occupational Skills Training
- Week 2 Occupational Skills Training
- Week 3 Occupational Skills Training
- Week 4 Occupational Skills Training
- Week 5 Occupational Skills Training
- Week 6 Occupational Skills Training
- Week 7 Occupational Skills Training
- Week 8 Occupational Skills Training
- Week 9 Occupational Skills Training
- Week 10 Occupational Skills Training
- Week 11 Occupational Skills Training
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**

**Name of New Course Contact:** Clay Baumgartner  
**Contact Title:** Chair, Engineering and CIS Department  
**Department:** Engineering and CIS  
**Supervisor:** Jesse Morrow  
**Program:** Engineering

**New Course Information**

**Date, Year, and Term of Proposed Implementation:** September 2016, Fall 2016, 2016-17 Academic Year  
**Course Title:** The Digital World and Geospatial Concepts  
**Course Number:** GIS 203  
**Number of Credits:** 4  
**Activity Code:**  
_X_100 - Lower Division Collegiate  
__210 - CTE Preparatory  
__211 - Stand-alone (Independent) CTE Preparatory  
__220 - CTE Supplemental  
__230 - CTE Apprenticeship  
__310 - English as a Second Language  
__320 - Adult Basic Education  
__330 - General Education Development Test Preparation  
__340 - Adult High School Diploma, High School Completion  
__350 - Post-Secondary Remedial, Reading or Writing  
__351 - Post-Secondary Remedial, Math  
__352 - Post-Secondary Remedial, Electives  
__360 - ACE – Unknown  
__361 - ACE - Health and Fitness  
__362 - ACE – Safety  
__363 - ACE – Workforce  
__510 - Non-Reimbursable – Unknown  
__511 - Non-Reimbursable - Hobby and Recreation  
__512 - Non-Reimbursable - Other/Administrative

**Course Type**

*(If your course is a combination of the below options, please define it in ‘other’)*

_X_ Lecture (11 hrs/credit)  
__Lab (30 hrs/credit)
X_Lecture/Lab (20 hrs/credit)  
_Other: Individualized career training focused on learning on a job site, 33 hrs/credit

**Number of Hours:** 3 hrs. lecture, 2 hrs. lec/lab/wk.; 55 hrs/term  
*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**  
*Please define any co- or pre-requisite information.*  
None

**Co- and Pre-Requisite Enforcement**  
*Please choose an enforcement option for the information listed above.*  
__Registration Enforced__  
_Instructor Enforced__  
Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**  
A-F, audit

**Load Factor:**  
4.4

**Award Information:**  
*Please select all that apply.*

__AA__  
_X_ AS  
__X_AAS__  
__Below 100-Level__  
_X_Elective__  
_X_Certificate__  
_X_AAOT__

*If you selected ‘AAOT’ above, please select the area of distribution below.*  
__Arts and Letters__  
__Mathematics__  
_X_Science or Computer Science__  
__Social Science__  
__Speech/Oral Communication__  
__Writing__  
__Cultural Literacy__
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information

Please list all programs for which this course will be required
Civil Engineering and Surveying Technology, AAS; AS with emphasis in Surveying and Geomatics

New Course Justification

Student Need for Course (Please describe)
This is the first of three introductory GIS courses now required by OIT for their transfer Geomatics and Surveying program. The course also transfers to OSU, UO, and PSU. The course will also be one of three core GIS courses included in a new GIS pathways certificate at UCC. GIS is commonly used by many public agencies including BLM, US Forest Service, Natural Resources and Conservation Service, and most public works agencies. There is also potential for this introductory course to be taught as a dual credit course in local high schools.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
X_Other

Course Impact Description

For any of the course impacts listed above, please describe.
Course will replace CIV 215 Contract Documents in the AAS degree for Civil and Surveying Technology. There is not cost impact to College for instruction. There will be some initial course development costs.
Replacement Course For:
CIV 215 Contract Documents
**Additional Process Items**

*Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at [http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces)*

- X Course Outline - required
- __ Start-Up Budget (if needed)
- __Advisory Committee Minutes (if needed)
Course Outline

COURSE TITLE: The Digital Earth and Geospatial Concepts
COURSE NO.: GIS 203

Course No: GIS 203
Course Credit: 4
Lecture Hrs/wk: 3
Lab Hrs/Wk: Lecture/Lab Hrs/Wk: 2
Practicum Hrs/Wk: Clock Hours: 55
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 4.4
Activity Code: 100
CIPS: 260101

Course Title: The Digital Earth and Geospatial Concepts
Developed By: Clay Baumgartner, PE
Development Date: 10/11/15
Revision Date:
Review Date:

COURSE DESCRIPTION:
Introduction to geospatial technologies such as GPS, smartphones, mobile devices, and online mapping and navigation tools used in GIS, remote sensing, and geovisualization. Introduction of how present day information systems attempt to represent the features and attributes of our natural world in digital form. Examination of how these systems can be used to portray and solve geospatial problems. Introduction to the concept, vocabulary, and use of GIS. Concepts and applications in government, business, and the environment.


COURSE OUTCOMES:
1. Recognize and use basic spatial and cartographic concepts (e.g. scale, projection, and coordinate systems), the basic tools and technologies of geospatial analysis, and spatial reasoning principles.
2. Demonstrate facility in the classification and analysis of geospatial data (e.g. satellite images, digital maps and their associated tabular datasets) and the ability to use geographic information science technology (software, data collection instruments and devices).
3. Develop and integrate spatial thinking and the capacity to create visualizations (e.g. images, maps, diagrams, charts, 3D views) of spatial phenomena, including those illustrating natural and human systems and their interactions.
4. Describe and interpret key concepts of geospatial science: Basic statistical principles; principles of computational geometry and location; principles of location measurement and analysis.
5. Construct and compose the following tools and skills used by geospatial scientists, at multiple scales: Select, apply geospatial technologies; acquire data from imagery and online sources; use measurement units and mathematical notation.
6. Recognize and apply concepts and theories of basic physical sciences, including optics (electromagnetic radiation), statics (mass and volume of objects), and dynamics (motion of objects, relative motion of objects in space).
7. Apply scientific methodology and demonstrate the ability to draw conclusions based on observation, analysis, and synthesis, including ability to analyze geospatial data and products and utilize technology.

8. Demonstrate connections with other subject areas, including applications of geospatial technologies in government, business, and the environment.

**COURSE OUTLINE:**

<table>
<thead>
<tr>
<th>Wk</th>
<th>Dates</th>
<th>Topic</th>
<th>Reading</th>
<th>Quiz</th>
<th>test/assign</th>
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<tbody>
<tr>
<td>1</td>
<td></td>
<td>Intro: Geospatial world</td>
<td>Ch. 1</td>
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<td>Pretest</td>
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<td>2</td>
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<td>Where in the world are you? Location, datums, coordinate systems, GCS, map projections, UTM, SPCS</td>
<td>Ch. 2</td>
<td>Quiz 1</td>
<td>Lab 1</td>
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<tr>
<td>3</td>
<td></td>
<td>Matching data to maps: Reprojecting, georeferencing, control points, transformation</td>
<td>Ch. 3</td>
<td>Quiz 2</td>
<td>Lab 2</td>
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<td>4</td>
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<td>Finding your location with GPS</td>
<td>Ch. 4</td>
<td>Quiz 3</td>
<td>Lab 3</td>
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<td>5</td>
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<td>Digital geospatial data and GIS</td>
<td>Ch. 5</td>
<td>Quiz 4</td>
<td>Lab 4</td>
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<td>Midterm Exam.</td>
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<td>Getting there quicker with geospatial technology</td>
<td>Ch. 8</td>
<td>Quiz 5</td>
<td>Lab 5</td>
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<td>7</td>
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<td>Remote sensing - aerial photography</td>
<td>Ch. 9</td>
<td>Quiz 6</td>
<td>Lab 6</td>
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<td>How remote sensing works</td>
<td>Ch. 10</td>
<td>Quiz 7</td>
<td>Lab 7</td>
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<td>Digital landscaping - terrain modeling</td>
<td>Ch. 13</td>
<td>Quiz 8</td>
<td>Lab 8</td>
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<td>Seeing the world in 3D - geovisualization</td>
<td>Ch. 14</td>
<td>Quiz 9</td>
<td>Lab final</td>
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<td>Review for Final Exam</td>
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<td>11</td>
<td></td>
<td>Final Exam</td>
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**Laboratory Schedule and Information**

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<tr>
<th>Lab Topic</th>
<th>Week of</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Labs</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1. Great circle, map projections, latitude/longitude, SPCS</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2. Georeferencing</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>3. GPS, trilateration, geocaching</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>4. USGS digital line graphs, National Land Cover database</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5. Geocoding, network problems, online routing</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>6. Aerial photography, NAIP imagery, online oblique imagery</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>7. Online remotely sensed data, NDVI, true and false color</td>
<td>8</td>
<td></td>
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<tr>
<td>8. Terrain and imagery; 3D terrain and buildings</td>
<td>9</td>
<td></td>
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<tr>
<td>Lab exam</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>
Basic Information
Name of New Course Contact: Clay Baumgartner
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow
Program: Engineering

New Course Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year
Course Title: Cooperative Work Experience
Course Number: GIS 280
Number of Credits: Variable, 1-12
Activity Code:
_X_100 - Lower Division Collegiate
_210 - CTE Preparatory
_211 - Stand-alone (Independent) CTE Preparatory
_220 - CTE Supplemental
_230 - CTE Apprenticeship
_310 - English as a Second Language
_320 - Adult Basic Education
_330 - General Education Development Test Preparation
_340 - Adult High School Diploma, High School Completion
_350 - Post-Secondary Remedial, Reading or Writing
_351 - Post-Secondary Remedial, Math
_352 - Post-Secondary Remedial, Electives
_360 - ACE - Unknown
_361 - ACE - Health and Fitness
_362 - ACE - Safety
_363 - ACE - Workforce
_510 - Non-Reimbursable - Unknown
_511 - Non-Reimbursable - Hobby and Recreation
_512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

_Lecture (11 hrs/credit)
_Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)

Other: Individualized career training focused on learning on a job site, 33 hrs/credit

Number of Hours: 1 unit for 33 hours on-job site work

See 'course type' above for guidance

Co- and Pre-Requisite Information

Please define any co- or pre-requisite information.

Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate

Co- and Pre-Requisite Enforcement

Please choose an enforcement option for the information listed above.

Registration Enforced

Instructor Enforced

Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:

Graded course; no pass/no-pass option

Load Factor:

Award Information:

Please select all that apply.

AA

AS

AAS

Below 100-Level

Elective

Certificate

AAOT

If you selected 'AAOT' above, please select the area of distribution below.

Arts and Letters

Mathematics

Science or Computer Science

Social Science

Speech/Oral Communication

Writing

Cultural Literacy
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
X_Occupational Preparatory (organized degree/cert. program)
X_Occupational Supplementary
__Foundational Requirement
__Discipline Studies
X_Elective

Required Course Information
Please list all programs for which this course will be required
Occupational Skills Training Certificate

New Course Justification
Student Need for Course (Please describe)
Cooperative work experience meets the employment training needs of a community and an individual students. The training offers students the ability to earn college credits while providing them the opportunity to develop work experience that accommodates their occupational goals, abilities, skills, and interests.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
X_Other

Course Impact Description
For any of the course impacts listed above, please describe.
Cooperative work experience training students will require monitoring and performance review by existing staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter)

Replacement Course For:
N/A
**Additional Process Items**

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

- X Course Outline - required
- __ Start-Up Budget (if needed)
- ___Advisory Committee Minutes (if needed)
Course Title: Cooperative Work Experience
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

Course Description:
Students are expected to learn skills related to their program of study in a work setting. Placements are normally off campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The CWE Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

Course Outcomes:
1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.

Credits and Hours:
Variable (1-12) credits; students earn 1 college credit for each 33 hours of work during a term.
PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

ASSESSMENT:
Assessment will be based on: Coordinator Site Visits, the Student Self Evaluation, the Supervisor Evaluation, and Student Time Journals.

COURSE OUTLINE:

Week 1 Cooperative Work Experience
Week 2 Cooperative Work Experience
Week 3 Cooperative Work Experience
Week 4 Cooperative Work Experience
Week 5 Cooperative Work Experience
Week 6 Cooperative Work Experience
Week 7 Cooperative Work Experience
Week 8 Cooperative Work Experience
Week 9 Cooperative Work Experience
Week 10 Cooperative Work Experience
Week 11 Cooperative Work Experience
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: Clay Baumgartner
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow
Program: Occupational Skills Training Certificate

New Course Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year
Course Title: Occupational Skills Training
Course Number: OST 280
Number of Credits: Variable, 1-28
Activity Code:
X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)
Lecture/Lab (20 hrs/credit)
X_Other: Individualized career training focused on learning on a job site, 33 hrs/credit

Number of Hours: 1 unit for 33 hours on-job site work
See 'course type' above for guidance

Co- and Pre-Requisite Information
Please define any co- or pre-requisite information.
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
__Registration Enforced
X_Instructor Enforced
__Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
Graded course; no pass/no-pass option

Load Factor:

Award Information:
Please select all that apply.

__AA
X_AS
X_AAS
__Below 100-Level
X_Elective
X_Certificate
X_AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
X_Occupational Preparatory (organized degree/cert. program)
X_Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
Engineering Technician – Water Quality Operations
Occupational Skills Training Certificate

New Course Justification
Student Need for Course (Please describe)
Occupational Skills Training meets the employment training needs of a community and an individual where there is not enough "need" to create on-going programs. The training offers students the ability to earn college credits while providing them the opportunity to design a career path that accommodates their occupational goals, abilities, skills, and interests.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
X_Other

Course Impact Description
For any of the course impacts listed above, please describe.
Occupational skills training students will require monitoring and performance review by existing staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter)

Replacement Course For:
N/A
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_ Course Outline - required
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)
Course Outline

COURSE TITLE: Occupational Skills Training (OST)

Course No: OST 290
Course Credit: 1 - 28
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 0
Practicum Hrs/Wk: 3 Hrs per credit/Wk
Clock Hours: 33 Hrs per credit
Length of Course: 11 wks
Banner enforced Prerequisite: 
Instructor enforced Prerequisite: 
Co-Requisite: 
Load Factor: .25 per student
Activity Code: 100
CIPS: 260101

Course Title: Occupational Skills Training
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

COURSE DESCRIPTION:
Students are expected to learn skills related to their program of study in a work setting. Placements are normally off campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The OST Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

COURSE OUTCOMES:
1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.

CREDITS AND HOURS:
Variable (1-28) credits; students earn 1 college credit for each 33 hours of work during a term.
PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

ASSESSMENT:
Assessment will be based on: Coordinator Site Visits, the Student Self Evaluation, the Supervisor Evaluation, and Student Time Journals.

COURSE OUTLINE:

Week 1 Occupational Skills Training
Week 2 Occupational Skills Training
Week 3 Occupational Skills Training
Week 4 Occupational Skills Training
Week 5 Occupational Skills Training
Week 6 Occupational Skills Training
Week 7 Occupational Skills Training
Week 8 Occupational Skills Training
Week 9 Occupational Skills Training
Week 10 Occupational Skills Training
Week 11 Occupational Skills Training
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: Clay Baumgartner
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow
Program: Engineering and Natural Resources

New Course Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year
Course Title: Lab for SOIL 205 Soil Science
Course Number: SOIL 206
Number of Credits: 1
Activity Code:
_X_100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
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__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

_Lecture (11 hrs/credit)
_X_Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)
Other:

**Number of Hours:** 3 hrs. lab/wk.; 33 hrs/term
*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**
*Please define any co- or pre-requisite information.*
Co-Requisite: SOIL 205

**Co- and Pre-Requisite Enforcement**
*Please choose an enforcement option for the information listed above.*
- **Registration Enforced**
- **Instructor Enforced**
- Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**
A-F, audit

**Load Factor:**
2.1

**Award Information:**
*Please select all that apply.*

- **AA**
- **AS**
- **AAS**
- **Below 100-Level**
- **Elective**
- **Certificate**
- **AAOT**

*If you selected 'AAOT' above, please select the area of distribution below.*

- **Arts and Letters**
- **Mathematics**
- **Science or Computer Science**
- **Social Science**
- **Speech/Oral Communication**
- **Writing**
- **Cultural Literacy**
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
Yes [ ]
No [ ]

Minutes must be submitted to IC
Yes [ ]
No [ ]

Course on "LDC Course List" with ODE?
Yes [ ]
No (Course has been approved for transfer.) [ ]
To Be [ ]

Course Type:
Occupational Preparatory (organized degree/cert. program) [ ]
Occupational Supplementary [ ]
Foundational Requirement [ ]
Discipline Studies [ ]
Elective [ ]

Required Course Information

Please list all programs for which this course will be required
Civil Engineering and Surveying Technology, AAS; AS with emphasis in Surveying and Geomatics; AS in Natural Resources: Landscape Monitoring

New Course Justification

Student Need for Course (Please describe)
The combination SOIL 205 and SOIL 206 will replace the engineering course CIV 223 Properties & Materials. The combination of SOIL 205 and SOIL 206 will transfer to OSU to satisfy a Baccalaureate Core requirement.

Course Impacts (Select all that apply)

X Instructional costs (staff, materials, equipment, or facilities) are required.
No (Additional instructional costs (staff, materials, equipment, or facilities) are needed.) [ ]
X Impact to other divisions in terms of classes and staffing [ ]
Other [ ]

Course Impact Description

For any of the course impacts listed above, please describe.
Lab for SOIL 205. There is a net reduction in instructional costs as the combination SOIL 205 and SOIL 206 will replace the engineering course CIV 223 Properties & Materials. There will be some initial course development costs.

Replacement Course For:
CIV 223 Properties & Materials
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_ Course Outline - required
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)
Course Description SOIL 206: Laboratory exercises and field trips designed to develop student competency in soil processes, description, analysis, and assessment with a particular emphasis on the role of soils in managed and unmanaged forest ecosystems.

Co-Requisite: SOIL 205

Course Outcomes: Upon completion of SOIL 206, students will be able to:

1. Describe the relationship between the five soil forming factors, soil development, and outcomes of forest management.
2. Explain the environmental functions of soil and how these functions may be affected by management, especially silvicultural operations.
3. Describe how water moves in soils and the controls that influence its availability to plants. Explain the importance of soil moisture to forests at various successional stages.
4. Locate publically available information and maps on soils. Explain how this information is useful to forest managers.
5. Calculate nutrient pools and explain how they are released from the soil and made available to plants.
6. Calculate soil organic matter pools and explain their importance to soil processes.
7. Describe how roots, soil flora/fauna, and mycorrhiza interact with soil and influence soil processes.
8. Describe soils’ role in sustainability and long-term soil productivity.
9. Explain the effects of common forest management activities on soil.
10. Make observations of soil and forest characteristics and interpret observations with regard to forest management objectives.
<table>
<thead>
<tr>
<th>WEEK</th>
<th>LAB EXERCISES</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>Introduction to soils and common field tools and techniques (Field Lab)</td>
</tr>
<tr>
<td></td>
<td>Methods for examining soils (soil pits, auger, and coring). Practice identifying major genetic soils horizons. Introduce field methods for collecting samples and characterizing soils (color, structure, and texture).</td>
</tr>
<tr>
<td>Two</td>
<td>Local soils of SW Oregon (Field Lab)</td>
</tr>
<tr>
<td></td>
<td>Practice identifying soil horizons using color, structure, roots, strength, and texture. Practice determining parent material and soil order. Practice identifying soil forming factors. Examine relationships between soils in the field trip area. Discuss differences between forest soils and agricultural soils.</td>
</tr>
<tr>
<td>Three</td>
<td>Management impacts on soils (Field Lab)</td>
</tr>
<tr>
<td></td>
<td>Introduce bulk density and soil strength. Examine the legacy impact of resource management on soil compaction and erosion. Examine soils in an undisturbed forest.</td>
</tr>
<tr>
<td>Four</td>
<td>Soil physical properties: Texture, density, and strength (Tower Soils Lab)</td>
</tr>
<tr>
<td></td>
<td>Learn about soil physical properties and how to determine them in the field and lab. Learn hand texturing, sieving, jar, and the hydrometer method of soil texture determination. Practice determining soil color, structure, and other characteristics.</td>
</tr>
<tr>
<td>Five</td>
<td>Soil water (Tower Soils Lab)</td>
</tr>
<tr>
<td></td>
<td>Learn how soil moisture and soil physical attributes interact to affect plant uptake. Learn about several ways to measure soil moisture and the limitations of each method. Observe saturated flow, field capacity, available water content, and plant wilting point. Observe patterns of water movement through soils. Examine the dynamics of soil moisture through seasons, soil depth, and as a result of management.</td>
</tr>
<tr>
<td>Six</td>
<td>Soil survey and soil mapping</td>
</tr>
<tr>
<td></td>
<td>Learn basics of soil survey systems (development, pertinent information, etc.). Learn the NRCS system and the kinds of information contained in the soil survey. Practice extracting specific soil information. Generate reports from NRCS Web Soil Survey. Explore Soil Resource Laboratory SoilWeb.</td>
</tr>
<tr>
<td>Seven</td>
<td>Soil chemistry (Tower Soils Lab)</td>
</tr>
<tr>
<td></td>
<td>Learn a few basic measurements related to soil nutrients and chemistry including organic matter and pH. Examine how pH and organic matter vary across soil types and depth. Calculate CEC from two different methods.</td>
</tr>
<tr>
<td>Eight</td>
<td>Soil biology and roots (Field Lab)</td>
</tr>
<tr>
<td></td>
<td>Examine the spatial distribution of roots in a forest soil. Learn the major organisms in forest soils.</td>
</tr>
<tr>
<td>Nine</td>
<td>Wetland soils and species composition (TBA)</td>
</tr>
<tr>
<td></td>
<td>Learn how soils affect the composition of species and the productivity of those species. Learn about hydric soil characteristics and introduce wetland soils.</td>
</tr>
<tr>
<td>Ten</td>
<td>Soils, geomorphology, and Hydrology (TBA)</td>
</tr>
<tr>
<td></td>
<td>Learn how geology, geomorphology, and hydrology affect soil formation. Examine the effect of forest management (harvesting) and other disturbances (fire, mass wasting and windthrow) on soils. Examine the effect of ameliorating treatments on soil disturbance.</td>
</tr>
<tr>
<td>Eleven</td>
<td>Finals</td>
</tr>
</tbody>
</table>
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: Clay Baumgartner
Contact Title: Chair, Engineering and CIS Department
Department: Engineering and CIS
 Supervisor: Jesse Morrow
Program: Engineering

New Course Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year
Course Title: Photogrammetry and Introduction into Remote Sensing
Course Number: SUR 209
Number of Credits: 4
Activity Code:
  _X_100 - Lower Division Collegiate
  _210 - CTE Preparatory
  _211 - Stand-alone (Independent) CTE Preparatory
  _220 - CTE Supplemental
  _230 - CTE Apprenticeship
  _310 - English as a Second Language
  _320 - Adult Basic Education
  _330 - General Education Development Test Preparation
  _340 - Adult High School Diploma, High School Completion
  _350 - Post-Secondary Remedial, Reading or Writing
  _351 - Post-Secondary Remedial, Math
  _352 - Post-Secondary Remedial, Electives
  _360 - ACE – Unknown
  _361 - ACE - Health and Fitness
  _362 - ACE – Safety
  _363 - ACE – Workforce
  _510 - Non-Reimbursable – Unknown
  _511 - Non-Reimbursable - Hobby and Recreation
  _512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

X_ Lecture (11 hrs/credit)
_X_Lab (30 hrs/credit)
_Lecture/Lab (20 hrs/credit)
_Other:

**Number of Hours:** 3 hrs. lecture/wk. and 3 hrs. lab/wk. and 66 hrs/term
See 'course type' above for guidance

**Co- and Pre-Requisite Information**

*Please define any co- or pre-requisite information.*

Pre-Requisite: MTH 111

**Co- and Pre-Requisite Enforcement**

*Please choose an enforcement option for the information listed above.*

_ _Registration Enforced
_ _Instructor Enforced
_ _Combination or Other Enforcement

**If you chose 'Combination or Other Enforcement' above, please describe.**

**Catalog Course Description** – *see attached course outline*

**Grading Option:**
A-F, audit

**Load Factor:**
5.1

**Award Information:**
*Please select all that apply.*

_ _AA
_ _AS
_ _AAS
_ _Below 100-Level
_ _Elective
_ _Certificate
_ _AAOT

**If you selected 'AAOT' above, please select the area of distribution below.**

_ _Arts and Letters
_ _Mathematics
_ _Science or Computer Science
_ _Social Science
_ _Speech/Oral Communication
_ _Writing
_ _Cultural Literacy
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information

Please list all programs for which this course will be required
AS with emphasis in Forestry Engineering, AS with emphasis in Forestry Management, AS with emphasis in Forestry Operations.

New Course Justification

Student Need for Course (Please describe)
Required course for Forestry Engineering, Forestry Management, and Forestry Operations degrees at OSU.

Course Impacts (Select all that apply)

x_ Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description

For any of the course impacts listed above, please describe.

Engineering program has proposed a net decrease of 5 credit hours in Civil Engineering & Surveying Technology AAS degree through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours offered through Engineering programs. Will be costs associated with developing curriculum.

Replacement Course For:
**Additional Process Items**

*Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at [http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces)*

- X_ Course Outline - required
- ___ Start-Up Budget (if needed)
- ___ Advisory Committee Minutes (if needed)
OUTLINE
SUR 209  Photogrammetry and Introduction into Remote Sensing

COURSE TITLE: Photogrammetry and Introduction into Remote Sensing
COURSE NO.: SUR 209

Course No: SUR 209
Course Credit: 4
Lecture Hrs/wk: 3
Lab Hrs/Wk: 3
Lecture/Lab Hrs/Wk:
Practicum Hrs/Wk:
Clock Hours: 66
Length of Course: 11 wks
Banner enforced Prerequisite:
Instructor enforced Prerequisite:
Co-Requisite: MTH 112
Load Factor: 5.1
Activity Code: 100
CIPS: 260101

Course Title: Photogrammetry and Introduction into Remote Sensing
Developed By: Clay Baumgartner, PE
Development Date: 10/20/15
Revision Date:
Review Date:

Course Description: Management and conservation of natural resources with the fundamentals of spatial data acquisition from airborne and spaceborne sensors. Introduction to theory of spectral reflectance properties of vegetation, the principles of photographic analysis and aerial photo-interpretation and new advances such as LIDAR.

Co-Requisite: MTH 112

Learning Resources
From the bookstore:
• Aerial photos
• Aerial photo interpretation template
• Blue & red photo pencils or sharpies (ultra-fine)
• Photo Eraser
Other Required tools
• Handheld scientific calculator
• Pocket Stereoscope
Suggested Texts:
• Aerial Photography & Image Interpretation 2nd ed. (Paine & Kiser)
Course Outcomes: Students completing this course will acquire a basic understanding of the techniques available to remotely sense vegetation from airborne and spaceborne platforms. Course objectives also include basic techniques and skills in forest photogrammetry including photo interpretation, photo measurements. Another emphasis will be on field application of LiDAR, satellite imagery and aerial photographs as well as field validation of remotely sensed observations (including issues of scaling). Upon completion of SUR 209, students will be able to:

- Interpret the electromagnetic spectrum, and be able to identify and explain the spectral signature of vegetation.
- Place aerial or satellite images in a geographic coordinate system and transform between them using tools such as ArcGIS or Envi.
- Orient stereoscopic images under a stereoscope and delineate forest stands from it, and determine stand height from aerial photographs. They will further be able to determine stand volume by applying height volume relationships and type timber from interpreting aerial photographs
- Determine stand height, tree height and stand volume also from discrete LiDAR data by extracting ground returns, developing a digital elevation model from it and comparing this model to non-ground returns in a LiDAR dataset
- Independently set up a sampling scheme for ground validation of remotely sensed data and validate measurements taken from both LiDAR and air photos
- Load geospatial data into ArcGIS and do some basic operations (such as buffering/spatial querying) with it
- Explain the spatial and spectral properties of the most common satellite sensors (Landsat and MODIS) and when confronted with a specific remote sensing problem, be able to recommend either one of these technologies and explain why.
<table>
<thead>
<tr>
<th>Week</th>
<th>Reading Assignments</th>
<th>Learning Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Course Introduction</td>
<td>Jeffrey Sachs lecture “Frontiers of Geoscience” and Discussion</td>
</tr>
<tr>
<td></td>
<td>Introduction into Remote Sensing The Electromagnetic Spectrum (Part I)</td>
<td></td>
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<tr>
<td>2</td>
<td>The Electromagnetic Spectrum (Part II)</td>
<td>Lab 1: Electromagnetic spectrum</td>
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<tr>
<td></td>
<td>Resolution in Remote Sensing (Part I - Spatial)</td>
<td>Homework assignment 1</td>
</tr>
<tr>
<td></td>
<td>Resolution in Remote Sensing (Part II - Temporal, Spectral, Radiometric)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>From image to map: Coordinate Systems and Map Projections (Part I)</td>
<td>Lab 2: Basic Image Analysis</td>
</tr>
<tr>
<td></td>
<td>From image to map: Coordinate Systems and Map Projections (Part II)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Global Positioning System (GPS)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Orthorectification</td>
<td>Lab 3: Georeferencing Quiz 2</td>
</tr>
<tr>
<td></td>
<td>Georeferencing and Image Transformations</td>
<td>Homework 2</td>
</tr>
<tr>
<td>5</td>
<td>Images Interpretation and Image Classification</td>
<td>Lab 4: Image Classification</td>
</tr>
<tr>
<td></td>
<td>Horizontal Measurements in Aerial Photographs</td>
<td>Midterm Exam</td>
</tr>
<tr>
<td>6</td>
<td>Vertical Measurements in Aerial Photographs (Part I - Stereovision)</td>
<td>Homework 3</td>
</tr>
<tr>
<td></td>
<td>Vertical Measurements in Aerial Photographs (Part II - Measuring Vegetation Height)</td>
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<td></td>
<td>Aerial Photo Mensuration</td>
<td>Lab 5: Mapping and Horizontal Measurements in Aerial Imagery</td>
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<td></td>
<td></td>
<td>Quiz 3</td>
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<tr>
<td>7</td>
<td>Introduction into Light Detection And Ranging (LiDAR)</td>
<td>Lab 6: Image Interpretation and Stereoscopic measurements</td>
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<tr>
<td></td>
<td>Obtaining Height Models from LiDAR I: Extracting ground Elevations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Obtaining Height Models from LiDAR II: Fitting Surfaces</td>
<td></td>
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<tr>
<td>8</td>
<td>Vegetation Height Estimates from LiDAR</td>
<td>Lab 7: Introduction to LiDAR Quiz 4</td>
</tr>
<tr>
<td></td>
<td>Obtaining Vertical Canopy Structure from LiDAR I: Height Percentiles and Canopy Profiles</td>
<td>Homework assignment 4</td>
</tr>
<tr>
<td></td>
<td>Obtaining Vertical Canopy Structure from LiDAR II: Leaf Area Profiles, Canopy Volumes and Indirect estimates of Vegetation Biomass</td>
<td></td>
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<tr>
<td>9</td>
<td>Error sources when working with LiDAR I</td>
<td>Lab 8: Estimating vegetation heights from LiDAR</td>
</tr>
<tr>
<td></td>
<td>Error sources when working with LiDAR II</td>
<td>Homework Assignment 5</td>
</tr>
<tr>
<td></td>
<td>Errors and Uncertainties</td>
<td>Quiz 5</td>
</tr>
<tr>
<td>10</td>
<td>Sampling Techniques I (Sampling Schemes)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sampling Techniques II (Ground truthing)</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>Final Exam</td>
</tr>
</tbody>
</table>
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**

Name of New Course Contact: Clay Baumgartner  
Contact Title: Chair, Engineering and CIS Department  
Department: Engineering and CIS  
Supervisor: Jesse Morrow  
Program: Engineering

**New Course Information**

Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year  
Course Title: Cooperative Work Experience  
Course Number: WQT 280  
Number of Credits: Variable, 1-12  
Activity Code:  
\_X\_100 - Lower Division Collegiate  
\_210 - CTE Preparatory  
\_211 - Stand-alone (Independent) CTE Preparatory  
\_220 - CTE Supplemental  
\_230 - CTE Apprenticeship  
\_310 - English as a Second Language  
\_320 - Adult Basic Education  
\_330 - General Education Development Test Preparation  
\_340 - Adult High School Diploma, High School Completion  
\_350 - Post-Secondary Remedial, Reading or Writing  
\_351 - Post-Secondary Remedial, Math  
\_352 - Post-Secondary Remedial, Electives  
\_360 - ACE – Unknown  
\_361 - ACE - Health and Fitness  
\_362 - ACE – Safety  
\_363 - ACE – Workforce  
\_510 - Non-Reimbursable – Unknown  
\_511 - Non-Reimbursable - Hobby and Recreation  
\_512 - Non-Reimbursable - Other/Administrative

**Course Type**

(If your course is a combination of the below options, please define it in ‘other’)

\_ Lecture (11 hrs/credit)  
\_ Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)

X_Other: Individualized career training focused on learning on a job site, 33 hrs/credit

**Number of Hours:** 1 unit for 33 hours on-job site work

*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**

*Please define any co- or pre-requisite information.*

Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate

**Co- and Pre-Requisite Enforcement**

*Please choose an enforcement option for the information listed above.*

__Registration Enforced

X_Instructor Enforced

__Combination or Other Enforcement

*If you chose ‘Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**

Graded course; no pass/no-pass option

**Load Factor:**

**Award Information:**

*Please select all that apply.*

__AA

_X_AS

_X_AAS

__Below 100-Level

_X_Elective

_X_Certificate

__AAOT

*If you selected ‘AAOT' above, please select the area of distribution below.*

__Arts and Letters

__Mathematics

__Science or Computer Science

__Social Science

__Speech/Oral Communication

__Writing

__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only

Approved by Advisory Committee?
__Yes
__No

Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
X_Occupational Preparatory (organized degree/cert. program)
X_Occupational Supplementary
__Foundational Requirement
__Discipline Studies
X_Elective

Required Course Information

Please list all programs for which this course will be required

Occupational Skills Training Certificate

New Course Justification

Student Need for Course (Please describe)

Cooperative work experience meets the employment training needs of a community and an individual students. The training offers students the ability to earn college credits while providing them the opportunity to develop work experience that accommodates their occupational goals, abilities, skills, and interests.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
X_Other

Course Impact Description

For any of the course impacts listed above, please describe.

Occupational skills training students will require monitoring and performance review by existing staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter)

Replacement Course For:
N/A
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

X_ Course Outline - required
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)
Course Outline

COURSE TITLE: Cooperative Work Experience (CWE)
COURSE NO.: WQT 280

Course No: WQT 280
Course Credit: 1 - 12
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 
Practicum Hrs/Wk: 3 Hrs per credit/Wk
Clock Hours: 33 Hrs per credit
Length of Course: 11 wks
Banner enforced Prerequisite: 
Instructor enforced Prerequisite: 
Co-Requisite: 
Load Factor: .25 per student
Activity Code: 100
CIPS: 260101

Course Title: Cooperative Work Experience
Developed By: Clay Baumgartner, PE
Development Date:
Revision Date: 10/11/15
Review Date:

COURSE DESCRIPTION:

Students are expected to learn skills related to their program of study in a work setting. Placements are normally off campus within private industry organizations or governmental agencies. On occasion, there may be on-campus placements. The work-site supervisor will guide, direct, instruct, and evaluate the student’s performance. The CWE Coordinator will meet the student’s supervisor on-site to discuss student performance and an end-of-term final evaluation. The student will set learning objectives before beginning work and evaluate his/her progress at the end of the experience.

COURSE OUTCOMES:

1. Student will demonstrate skills on real-world projects.
2. Student will be able to apply his/her knowledge and skills in a work setting, which can be included as part of his/her work history on resumes and applications.
3. Student may learn and utilize new or alternative practices from work-site experience.
4. Student will demonstrate core level work skills, such as teamwork, reliability, responsibility, initiative, following instructions, and essential communication skills.
5. Student will have an increased awareness and understanding of the rewards, drawbacks, and opportunities related to his/her career goals.
6. Student will demonstrate knowledge of workplace culture through appropriate attire, behavior, and communications.

CREDITS AND HOURS:

Variable (1-12) credits; students earn 1 college credit for each 33 hours of work during a term.
PREREQUISITES:
Instructor consent and acceptance of field site. Coordinator will confer with program faculty when appropriate.

ASSESSMENT:
Assessment will be based on: Coordinator Site Visits, the Student Self Evaluation, the Supervisor Evaluation, and Student Time Journals.

COURSE OUTLINE:

Week 1 Cooperative Work Experience
Week 2 Cooperative Work Experience
Week 3 Cooperative Work Experience
Week 4 Cooperative Work Experience
Week 5 Cooperative Work Experience
Week 6 Cooperative Work Experience
Week 7 Cooperative Work Experience
Week 8 Cooperative Work Experience
Week 9 Cooperative Work Experience
Week 10 Cooperative Work Experience
Week 11 Cooperative Work Experience
Degrees/Certificates

Revisions

1. AAS, Civil and Surveying Technology, a) Base, b) Applied Surveying Option, and c) Applied Water Quality Option (*creates base with net reduction in credit hours, creates options with occupational skills training*).
2. Engineering and Drafting Technician Completion Certificate (*update curriculum to match AAS*).
3. Drafting Pathways Certificate (*replace DRF 116 with elective*).
4. Water Quality Pathways (*delete math requirement*).
5. AS Surveying & Geomatics (*update to align with revisions at OIT for articulation*).
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**

**Name of Program Revision Contact:** Clay Baumgartner  
**Contact Title:** Department Chair  
**Department:** Engineering and CIS

**Program Revision Information**

**Date, Year, and Term of Proposed Revision:** September 2016, Fall Quarter  
**Program Title:** Civil Engineering and Surveying Technology Program, AAS  
Civil Engineering and Surveying Technology, AAS, Applied Surveying Option  
Civil Engineering and Surveying Technology, AAS, Applied Water Quality Option

**Revision Type - select all that apply**

- [ ] Credits  
- [ ] Title  
- [ ] Summary  
- [ ] Outcomes  
- [X] Curriculum  
- [ ] Suspension  
- [ ] Reactivate  
- [ ] Delete  
- [ ] Repackage for a new area of concentration or certificate within existing program.  
- [ ] Other: *(please describe)* Creates options for parent degree

**Revised Outcomes (If needed)**

**Revision Description and Justification**

Please give as many details as possible about the revision, including justification for the change. Courses in parent program have been revised to increase educational pathways while maintaining job readiness of graduates. Calculus courses have been added and additional transfer courses incorporated so that students can transfer with AAS + 1 year. We have also developed two "Options" that are more applied and provide 6 months of occupational skills training. Two courses have been exchanged to create a GIS pathways certificate. There is a net reduction of 4 credit hours in engineering courses offered by Department through combining transfer and technology courses.

**Program Impacts - select all that apply**

- [ ] Instructional costs (staff, materials, equipment, or facilities) required.  
- [ ] Additional instructional costs (staff, materials, equipment, or facilities) are needed.  
- [ ] Impact to other divisions in terms of classes and staffing  
- [ ] Other:
Program revision for: Civil Engineering and Surveying Technology, AAS

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Note: Net reduction of 5 credit hours in engineering program course offerings

* Approved Biological Science + Lab electives
  NR/SOILS 205/206 Soil Science 4 cr (recommended for Civil and Surveying focus), or BI 101, BI 102, or BI 103 4 cr (recommended for Water Quality Focus)

** WLD 131 Basic Metallurgy or WLD 140 Blue Print Reading and Sketching can be substituted for CIV 280

** Approved Engineering Electives. Combined credit total of 13 – 17 hours:
  Engr Elective 1. SUR162 Surveying I 4 cr or WQT261 Water Distribution 4 cr; Engr Elective 2. SUR 163 Surveying II 4 cr or WQT 227 Wastewater Treatment 3 cr & WQT 228 Wastewater Collection 3cr; and Engr Elective 3. SUR 242 Land Desc. & Cadastre 3 cr or WQT 260 Water Treatment 3 cr

**** Human Relations Elective Approved in UCC Catalog
Program revision for: **Civil Engineering and Surveying Technology, APPLIED SURVEYING OPTION, AAS**

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| Total Credits in Program | 98-100 | Total Credits in Program | 97 |

** WLD 131 Basic Metallurgy or WLD 140 Blue Print Reading and Sketching can be substituted for CIV 280

****Human Relations Elective Approved in UCC Catalog

Note: 29 credit or 30 percent change from base; 70 percent of core courses in option
Program revision for: **Civil Engineering and Surveying Technology,**
**APPLIED WATER QUALITY OPTION, AAS**

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**Note:** 29 credit or 30 percent change from base; 70 percent of core courses in option

### PROPOSED OPTION

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# Civil Engineering and Surveying Technician, AAS

**Proposed Prerequisites and Course Availability per Term**

(For complete information, see 2016-2017 UCC Catalogue)

**REVISED 10/22/15**

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* WLD 131 Basic Metallurgy and WLD 140 Blue Print Reading and Sketching can be substituted for CWE 280

** Counts at OSU as Biological Science with lab

*** See Following Page for Program Electives

Last updated 11/3/2015
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<tr>
<td>GIS 203 The Digital Earth</td>
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<td>GIS 234 Intro to Geographic Information Systems (GIS)</td>
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<td>MTH 111 Algebra</td>
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<td>GIS 235 GIS Data Integration</td>
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<td>SUR 162 Surveying II</td>
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<td>OST 280 Occupational Skills Training</td>
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<td>Term 5</td>
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<td>CWE 161 CWE Seminar I</td>
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<td>SUR 242 Land Descriptions &amp; Cadastre</td>
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<td>WR 227 Technical Report Writing</td>
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**TOTAL AAS DEGREE CREDITS**

97

* WLD 131 Basic Metallurgy and WLD 140 Blue Print Reading and Sketching can be substituted for CIV 280

Percentage of base 70%
# Applied Water Quality Technology Option

## CIVIL ENGINEERING AND SURVEYING TECHNICIAN, AAS

*Applied Water Quality Technology Option*

### Prerequisites and Course Availability per Term

(for complete information, see 2016-2017 UCC Catalogue)  
REVISED 10/22/15

<table>
<thead>
<tr>
<th>Course No. and Course Name</th>
<th>Term Offered</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
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<td>ENGR 111 Engineering Orientation I</td>
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<td>MTH 65 Elementary Algebra</td>
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<td>GIS 203 The Digital Earth</td>
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<td>WR 121 English Composition, Intro to Argument</td>
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**Term 2**

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**Term 3**

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<tbody>
<tr>
<td>CIV 214 CAD - Civil 3D</td>
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<td>DRF 113 CAD I</td>
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<td>ENGR 245 Engineering Graphics</td>
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<td>DRF 112 CAD I</td>
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<td>MTH 112 Elementary Functions</td>
<td>x</td>
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<td>MTH 111 Algebra</td>
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<td>SUR 161 Surveying I</td>
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**Summer**

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**Term 4**

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<td>WQT 261 Water Distribution</td>
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**Term 5**

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<td>OST 280 Occupational Skills Training</td>
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<td>WQT 227 Wastewater Treatment</td>
<td>x</td>
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<td>MTH 65</td>
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<td>WQT 228 Wastewater Collection</td>
<td>x</td>
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<td>CWE 161 CWE Seminar I</td>
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<td>OST 280 Occupational Skills Training</td>
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**Term 6**

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<td>WQT 260 Water Treatment</td>
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<tr>
<td>WR 227 Technical Report Writing</td>
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<td>WR 121</td>
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</table>

### TOTAL AAS DEGREE CREDITS

99

* WLD 131 Basic Metallurgy and WLD 140 Blue Print Reading and Sketching can be substituted for CWE 280

Percentage of base 71%

Last updated 11/3/2015
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**

Name of Program Revision Contact:  Clay Baumgartner  
Contact Title:  Department Chair  
Department:  Engineering and CIS

**Program Revision Information**

Date, Year, and Term of Proposed Revision:  September 2016, Fall Quarter  
Program Title:  Engineering and Drafting Technician, Completion Certificate

**Revision Type - select all that apply**

- Credits  
- Title  
- Summary  
- Outcomes  
- Curriculum  
- Suspension  
- Reactivate  
- Delete  
- Repackage for a new area of concentration or certificate within existing program.  
- Other: *(please describe)*

**Revised Outcomes *(if needed)***

**Revision Description and Justification**

Please give as many details as possible about the revision, including justification for the change.

Removing one drafting course, DRF 116 Structural Drafting, and one math class, MTH 95 Intermediate Algebra from completion certificate. Adding two GIS courses. Aligns with overall changes being made to the AAS degree in Civil Engineering and Surveying Technology.

**Program Impacts - select all that apply**

- Instructional costs (staff, materials, equipment, or facilities) required.  
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.  
- Impact to other divisions in terms of classes and staffing  
- Other:
Program revision for: Civil Engineering and Surveying Technology, AAS

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<tr>
<td><strong>Course #</strong></td>
<td><strong>Course Title</strong></td>
</tr>
<tr>
<td>CIV114</td>
<td>CAD – Civil3D</td>
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<td>DRF 112</td>
<td>CAD I</td>
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<tr>
<td>DRF 113</td>
<td>CAD II</td>
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<td><strong>DRF 116</strong></td>
<td><strong>Structural Drafting</strong></td>
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<tr>
<td>ENGR 111</td>
<td>Engineering Orientation I</td>
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<td>ENGR 112</td>
<td>Engineering Orientation II</td>
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<td>ENGR 245</td>
<td>Engineering Graphics</td>
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<td>GIS 134</td>
<td>GIS I Intro to GIS</td>
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<td>WR 121</td>
<td>English Composition</td>
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Total Credits in Program: 48

Total Credits in Program: 50
ENGINEERING AND DRAFTING TECHNICIAN, COMPLETION CERTIFICATE
PROPOSED

Prerequisites and Course Availability per Term
(for complete information, see 2016-2017 UCC Catalogue)  REVISED 10/22/15

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<td>ENGR 111 Engineering Orientation I</td>
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<td>GIS 203 The Digital Earth and Geospatial Concepts</td>
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<td>WR 121 English Composition, Intro to Argument</td>
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<tr>
<td>Term 2</td>
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<td>GIS 234 GIS I Introduction to GIS</td>
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<td>ENGR 112 Engineering Orientation II</td>
<td>x</td>
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<td>MTH 111 Algebra</td>
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<td>GIS 235 GIS II Analysis and Applications</td>
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<td>ENGR 245 Engineering Graphics</td>
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<td>MTH 112 Elementary Functions</td>
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<tr>
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<td>SUR 161 Surveying I</td>
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Last updated 11/3/2015
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

Basic Information
Name of Program Revision Contact: Clay Baumgartner
Contact Title: Department Chair
Department: Engineering and CIS

Program Revision Information
Date, Year, and Term of Proposed Revision: September 2016, Fall Quarter
Program Title: Drafting Pathways Certificate

Revision Type - select all that apply
_X_ Credits
__ Title
__ Summary
__ Outcomes
_X_ Curriculum
__ Suspension
__ Reactivate
__ Delete
__ Repackage for a new area of concentration or certificate within existing program.
__ Other: (please describe)

Revised Outcomes (If needed)

Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Removes DRF 116 Structural Drafting and replaces with a Drafting Elective. The elective courses are included in the parent AAS program.

Program Impacts - select all that apply
__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:
Program revision for: Drafting Pathways Certificate

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<td>Course Title</td>
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<td>DRF 113</td>
<td>CAD II</td>
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<td>Engineering Graphics</td>
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<td>MTH 111</td>
<td>Algebra</td>
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Total Credits in Program 17

Total Credits in Program 12

Approved Drafting Electives (courses from Civil Engineering and Surveying Technology, AAS)

1. CIV 114 CAD – Civil3D
2. CIV 280 Cooperative Work Experience (CWE)
3. GIS 280 Cooperative Work Experience (CWE)
4. GIS 234 GIS I Introduction to GIS
5. WLD 140 Blue Print Reading and Sketching
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**
**Name of Program Revision Contact:** Clay Baumgartner  
**Contact Title:** Chair  
**Department:** Engineering and CIS Department

**Program Revision Information**
**Date, Year, and Term of Proposed Revision:** September 2016, Fall 2016, 2016-17 Academic Year  
**Program Title:** Water Quality Technician Pathway Certificate

**Revision Type - select all that apply**
- X Credits  
- __ Title  
- __ Summary  
- __ Outcomes  
- __ Curriculum  
- __ Suspension  
- __ Reactivate  
- __ Delete  
- __ Repackage for a new area of concentration or certificate within existing program.  
- __ Other: *(please describe)*

**Revised Outcomes (If needed)**

**Revision Description and Justification**
*Please give as many details as possible about the revision, including justification for the change.*

Credit Revision: Delete math requirement from certificate  
Justification: Level of math skills necessary for successful employment in water quality field is sufficiently addressed by pre-requisites for course. There sufficient credit hours for a pathways certificate without the math course. Requiring MTH 111 may act as impediment to prospective students who are actively employed in the field and are wishing to enhance their knowledge/skills or who are in non-engineering fields of study and are interested in water quality as a potential career choice.

**Program Impacts - select all that apply**
- __ Instructional costs (staff, materials, equipment, or facilities) required.  
- __ Additional instructional costs (staff, materials, equipment, or facilities) are needed.  
- __ Impact to other divisions in terms of classes and staffing  
- __ Other:
Please list changes to program course listing below.

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<td>Wastewater Treatment</td>
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<td>WQT 228</td>
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<td>WQT 260</td>
<td>Water Treatment</td>
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<td>WQT 261</td>
<td>Water Distribution</td>
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**Additional Documentation**

Please check additional forms or documentation you have submitted to Curriculum Committee.

- [ ] Curriculum Revision Form
- [ ] Start-Up and First Year Budget
- [ ] Other:
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

Basic Information
Name of Program Revision Contact: Clay Baumgartner
Contact Title: Department Chair
Department: Engineering and CIS

Program Revision Information
Date, Year, and Term of Proposed Revision: September 2016, Fall Quarter
Program Title: AS with emphasis in Surveying and Geomatics

Revision Type - select all that apply
_X_ Credits
__ Title
__ Summary
__ Outcomes
_X_ Curriculum
__ Suspension
__ Reactivate
__ Delete
__ Repackage for a new area of concentration or certificate within existing program.
__ Other: (please describe)Creates options for parent degree

Revised Outcomes (If needed)

Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Courses in AS degree have been revised to better align with the OIT transfer program. There is a net reduction of 7 credit hours in AS degree.

Program Impacts - select all that apply
__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:
Program revision for: **AS with emphasis in Surveying and Geomatics**

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<td>ENGR 112 Problem Solving &amp; Technology</td>
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<td>GIS 203 The Digital World &amp; Geospatial</td>
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<td><strong>Total Credits in Program</strong></td>
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* For humanities elective credits choose from UCC’s prefixes ART, ENG, MUP, MUS, PHL, R, TA or second year languages. Only 3 humanities credits can be studio/performance based.

** For social science electives choose from the following UCC course prefixes: ANTH, CLA, EC, GEG (except 105), HST, PS, PSY, SOC, SSC, and WS, or other courses designated as Social Science electives by the OIT.
# AS, SURVEYING & GEOMATICS

**PROPOSED**

Prerequisites and Course Availability per Term

(for complete information, see 2016-2017 UCC Catalogue)

<table>
<thead>
<tr>
<th>Course No. and Course Name</th>
<th>Term Offered</th>
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<th>Prerequisites/Notes</th>
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<td>MTH 65 Elementary Algebra</td>
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<td>GIS 203 The Digital Earth</td>
<td>x</td>
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<td>MTH 65 Elementary Algebra</td>
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<td>ENGR 112 Engineering Orientation II</td>
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<td>GIS 234 Intro to Geographic Information Systems (GIS)</td>
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<td>MTH 251 Calculus I</td>
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<td>WR 122 English Composition, Style &amp; Argument</td>
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<td>*Approved Social Science Elective</td>
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<td>DRF 113 CAD I</td>
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<td>x x</td>
<td>4</td>
<td>MTH 251</td>
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<td>SUR 161 Surveying I</td>
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<td>Coreq - MTH 112</td>
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<td><strong>Summer</strong></td>
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<td>SUR 162 Plane Surveying II</td>
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<td>MTH 254 Vector Calculus I</td>
<td>x</td>
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<td>PH 211 General Physics w/Calculus</td>
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<td>MTH 243 Intro to Probability &amp; Statistics</td>
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<td>MTH 111 Algebra</td>
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<td>PH 212 General Physics w/Calculus</td>
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<td><strong>Term 5</strong></td>
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<td>SUR 242 Land Descriptions &amp; Cadastre</td>
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<td>PH 213 General Physics w/Calculus</td>
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<td>SP 111 Fundamentals of Public Speaking</td>
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<td>WR 095</td>
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<td>TOTAL AAS DEGREE CREDITS</td>
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Last updated 11/3/2015
Degrees/Certificates

New

1. Forest Engineering
2. Forest Management
3. Forest Operations
4. GIS Pathways
5. Occupational Skills Training Completion Certificate
6. Water Quality Operations Pathways
Basic Information
Name of Program: Forest Engineering, AS Degree with Emphasis in Forest Engineering
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
- Less than 1 year certificate
- 1 year certificate
- 2 year certificate
- Career Pathway certificate
X Degree

Number of Credits: 105 - 107

New Program/Certificate Title: Forest Engineering, AS Degree with Emphasis in Forest Engineering

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
The UCC Forest Engineering program prepares students for transfer to the bachelor’s degree program at Oregon State University (OSU). The curriculum is intended to meet the requirements for the first two years of course work necessary for application to the Forest Engineering professional program at OSU. Students can also take additional courses at UCC for transfer to the dual Civil and Forest Engineering program at OSU.

Students that finish the coursework will complete at UCC with a two-year AS degree. The two-year degree may also provide a direct career pathway to employment as a Forest Technician or Engineering Technician.

Prospective students should see an engineering faculty advisor, or Counseling and Career Planning Services, to develop your educational plan. Most core courses at UCC are offered only once each academic year, and must be taken in sequence. A well-planned course of study will help ensure a smooth transition to a university.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
This is a transfer degree and LMI market need is not required for program approval. However, graduates for the Forest Engineering program at OSU have close to 100 percent placement. Students that enter the job market after completing the 2-year AS could apply for positions as Forest Technicians or Engineering Technicians.
Target Student Population:
Degree oriented students.

Program Outcomes: (please list numerically)
Associate of Science Degree.

Program Impacts:
X Standard Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs (staff, materials, equipment or facilities) are needed.
__Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):
AS degrees typically include 6 to 10 core program classes and the remainder are foundation and general education courses. The core courses for Forestry transfer degrees are primarily a combination of forestry/natural resource courses and engineering courses. By minor adjustment of the core courses and/or foundation courses, it is possible offer three Forestry AS degrees at UCC in:
1. Forestry Engineering
2. Forestry Management
3. Forestry Operations

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 241 Dendrology
4. NR 271 Recreation Resource Management (not included in Forestry Engineering Degree)
5. SOIL 205 Soil Science Lecture

The core engineering courses included in all three of the proposed Forestry degrees include:
1. GIS 234 GIS I Intro to GIS
2. ENGR 112 Problem Solving & Technology
3. SOIL 206 Soil Science Lab
4. SUR 161 Plane Surveying I
5. SUR 209 Photogrammetry

The Forestry Engineering degree includes more engineering courses. The Forestry Operations degree includes business courses. All courses for the three degrees are currently offered at UCC except for SUR 209 Photogrammetry (OSU Equivalent FE 209) and NR 271 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 271. The engineering program has reduced program offerings in the Engineering Technology program by 5 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program. A UCC Advising Guide is attached, along with a transfer guide prepared by the OSU College of Forestry.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
See notes from Program Impact Description above
Program Standards

Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
The AS degree with emphasis in Forest Engineering is a program that offers students the opportunity to design and pursue a career path that is not currently available as a certificate or degree program at UCC.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program. There are summer internships available locally. UCC and OSU can provide students with assistance in locating summer internships.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
OSU has reviewed the course equivalencies for the transfer courses.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All courses are currently offered at UCC except for SUR 209 Photogrammetry (OSU Equivalent FE 209) and MTH 265 Statistics for Engineers and Scientists (OSU Equivalent ST 314). The engineering program has reduced program offerings in the Engineering Technology program by 5 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program. The UCC Math Department plans to add MTH 265 at UCC, since this is now a math requirement at OSU for most of the branches of engineering. A UCC Advising Guide is attached, along with a transfer guide prepared by the OSU College of Forestry.
### Proposed Courses: Forestry Engineering, AS

<table>
<thead>
<tr>
<th>UCC Course #</th>
<th>Course Title</th>
<th>Credits</th>
<th>OSU Course #</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>DRF 112</td>
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<td>CCE 201</td>
<td>Engr Graphics &amp; Design</td>
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<td>CH 221</td>
<td>General Chemistry I</td>
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<td>CH 201</td>
<td>Chemistry for Engr Majors</td>
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<td>ECON 201(^2)</td>
<td>Intro to Microeconomics</td>
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<td>Intro to Microeconomics</td>
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<td>ENGR 111</td>
<td>Engineering Orientation I</td>
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<td>FE 101</td>
<td>Intro to Forestry Engr</td>
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<td>ENGR 112</td>
<td>Problem Solving &amp; Tech</td>
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<td>Forest Engr Prob Solv</td>
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<td>ENGR 211</td>
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<td>Dynamics</td>
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<td>ENGR 213</td>
<td>Strength of Materials</td>
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<td>Strength of Materials</td>
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<td>GIS 134</td>
<td>GIS I</td>
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<td>FE 257</td>
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<td>HPE 295</td>
<td>Wellness &amp; Health Assess</td>
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<td>HHS 231 &amp; 241-248</td>
<td>Lifelong Fitness for Health &amp; Lifelong Fitness - Activities</td>
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<td>Integral Calculus</td>
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<td>MTH 256</td>
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<td>MTH 243(^3)</td>
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<td>MTH 265</td>
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<td>Introduction to Forestry</td>
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<td>FES 141</td>
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<td>Public Speaking or Argument &amp; Crit Discourse</td>
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<td>SOIL 205</td>
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<td>FE 208</td>
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### Additional Courses for Dual Civil Engineering and Forestry Engineering Major

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<th>OSU Course #</th>
<th>Course Title</th>
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<td>Matrix &amp; Power Series Methods</td>
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### NOTES:

1. MTH 243 transfers for FE major but not for dual FE/CE major. Need statistics with calculus for dual major.
2. Five perspective electives is a general education requirement at OSU. Additional courses could be taken at UCC, depending on maximum total credits for transfer. See advisor for specific course requirements.
3. UCC ENGR 111 Engineering Orientation I will transfer to OSU as either CCE 101 or FE 101 but not both. For dual Civil Engineering and Forestry Engineering majors, either CCE101 or FE 101 will need to be taken at OSU.
<table>
<thead>
<tr>
<th>UCC Course No. and Course Name</th>
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<td>NR 201 Intro to Natural Resources</td>
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<td>GIS 234 GIS I Intro to Geographic Information Systems</td>
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<td>ENGR 112 Engineering Problem Solving &amp; Technology</td>
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<td>WR 121 English Composition</td>
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<td>MTH 243 Intro to Probability &amp; Statistics</td>
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<td>NR 241 Tree &amp; Shrub Identification</td>
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<td>SP 111 Public Speaking</td>
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<td>SUR 161 Plane Surveying I</td>
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<td>PH 211 Physics I w/Calculus</td>
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<td>MTH 251 Co-requisite</td>
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<td>MTH 256 Differential Equations</td>
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<td>4</td>
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<td>PH 212 Physics II w/Calculus</td>
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<tr>
<td>SUR 209 Photogrammetry and Intro to Remote Sensing</td>
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<td>ENGR 213 Strength of Materials</td>
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<tr>
<td>NR 240 Forest Biology</td>
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<td>WR 227 Technical Report Writing</td>
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<td>HPE 295 Wellness &amp; Health</td>
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</table>

**TOTAL DEGREE CREDITS:** 107

**Program Advisor:**

1. Five perspective electives related to humanistic/social science is a general education requirement at OSU. Additional courses could be taken at UCC, depending on minimum total credits for transfer.
2. MTH 243 transfers for FE major but not for dual FE/CE major. Need statistics with calculus for dual major.
3. UCC ENGR 111 Engineering Orientation I will transfer to OSU as either CCE 101 or FE 101 but not both. For dual Civil Engineering and Forestry Engineering majors, either CCE101 or FE 101 will need to be taken at OSU.
4. Grade of "C" or better in all courses.

**Additional Courses for Dual Civil Engineering and Forestry Major**

<table>
<thead>
<tr>
<th>UCC Course No. and Course Name</th>
<th>Term Offered</th>
<th>Credits</th>
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<tbody>
<tr>
<td>CH 222 General Chemistry II</td>
<td>x</td>
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<tr>
<td>MTH 253 Calculus III</td>
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<td>MTH 261 Linear Algebra</td>
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**TOTAL DEGREE CREDITS:** 10
# Forest Engineering

http://www.forestry.oregonstate.edu/academic-programs/undergraduates/forest-engineering

<table>
<thead>
<tr>
<th>Forest Engineering Major Requirements</th>
<th>OSU Course</th>
<th>Umpqua Course</th>
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<tbody>
<tr>
<td>Civil Engineering II: Engineering Graphics &amp; Design</td>
<td>CCE 201</td>
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<td>Chemistry for Engineering Majors</td>
<td>CH 201</td>
<td>CH 221</td>
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<td>COMM 111* or COMM 114*</td>
<td>SP 111 or SP 112</td>
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<td>Statics</td>
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<td>ENGR 212</td>
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<td>FE 208</td>
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<td>Forest Photogrammetry</td>
<td>FE 209</td>
<td>SUR 209?</td>
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<td>GIS &amp; Forest Engineering Applications</td>
<td>FE 257</td>
<td>GIS 234</td>
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<td>Tree &amp; Shrub Identification</td>
<td>FES 141</td>
<td>NR 241?</td>
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<td>NR 240?</td>
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<td>NR 201</td>
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<td>General Physics II with Calculus</td>
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<td>Soil Science Lab</td>
<td>FOR 206*</td>
<td>SOIL 206</td>
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<td>ST 201</td>
<td>MTH 243</td>
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<td>WR 121*</td>
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<td>Technical Writing</td>
<td>WR 327*</td>
<td>WR 227</td>
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</table>

The courses above represent the first two years of a four year degree program. Transfer students should expect to complete the remaining course requirements at OSU. In addition to courses that fulfill the Forest Engineering major requirements, students should be completing courses to fulfill [OSU’s Baccalaureate Core](http://www.forestry.oregonstate.edu/academic-programs/undergraduates/forest-engineering) (general education curriculum). Major requirements that fulfill Baccalaureate Core are marked with an asterisk (*).

Forest Engineering includes a professional program (the junior and senior years) which requires a special application. Prospective students should work with OSU College of Forestry staff for assistance in navigating that process successfully.

**Umpqua Contact:** Clay Baumgartner  
541-440-4683  
Clay.baumgartner@umpqua.edu

**OSU Contact:** College of Forestry Student Services Office  
541-737-1594  
Forestrystudentservices@oregonstate.edu

Updated 8/20/15 NK
Basic Information
Name of Program: Forest Management, AS Degree with Emphasis in Forest Management
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
___Less than 1 year certificate
    1 year certificate
    2 year certificate
    Career Pathway certificate
    X Degree

Number of Credits: 94-95

New Program/Certificate Title: Forest Management, AS Degree with Emphasis in Forest Management

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want): Forest Managers must understand natural resource systems and how to organize the management of forest resources for multiple uses and multiple values. The core curriculum in Forest Management is a broad-based education, including basic courses in mathematics, engineering, statistics, biology and ecology, the physical and social sciences, professional courses in forest biology and ecology and forest management.

The UCC Forest Management program prepares students for transfer to the Forestry bachelor’s degree program at Oregon State University (OSU). The curriculum is intended to meet the requirements for the first two years of coursework necessary for application to the professional program in the College of Forestry – Forest Management Option at OSU.

Prospective students should see a faculty advisor, or Counseling and Career Planning Services, to develop your educational plan. Most core courses at UCC are offered once each academic year and must be taken in sequence. A well-planned course of study will help ensure a smooth transition to a university.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
This is a transfer degree and LMI market need is not required for program approval.

Target Student Population:
Degree oriented students.
**Program Outcomes: (please list numerically)**
Associate of Science Degree

**Program Impacts:**
X_Standard Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs (staff, materials, equipment or facilities) are needed.
__Impact to other divisions in terms of scheduling or staffing.

**Program Impact Description (for any of the program impacts listed above, please describe):**
AS degrees typically include 6 to 10 core program classes and the remainder are foundation and general education courses. The core courses for Forestry transfer degrees are primarily a combination of forestry/natural resource courses and engineering courses. By minor adjustment of the core courses and/or foundation courses, it is possible offer three Forestry AS degrees at UCC in:

1. Forestry Engineering
2. Forestry Management
3. Forestry Operations

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 241 Dendrology
4. NR 271 Recreation Resource Management (not included in Forestry Engineering Degree)
5. SOIL 205 Soil Science Lecture

The core engineering courses included in all three of the proposed Forestry degrees include:
1. GIS 234 GIS I Intro to GIS
2. ENGR 112 Problem Solving & Technology
3. SOIL 206 Soil Science Lab
4. SUR 161 Plane Surveying I
5. SUR 209 Photogrammetry

The Forestry Engineering degree includes more engineering courses. The Forestry Operations degree includes foundation courses. All courses for the three degrees are currently offered at UCC except for SUR 209 Photogrammetry (OSU Equivalent FE 209) and NR 251 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 251. The engineering program has reduced program offerings in the Engineering Technology program by 5 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program.

**Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):**
See notes from Program Impact Description above
Program Standards
Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program From into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
The AS degree with emphasis in Forest Management is a program that offers students the opportunity to design and pursue a career path that is not currently available as a certificate or degree program at UCC.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program. There are summer internships available locally. UCC and OSU can provide students with assistance in locating summer internships.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
OSU has reviewed the course equivalencies for the transfer courses.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All courses are currently offered at UCC except for SUR 209 Photogrammetry (OSU Equivalent FE 209) and NR 251 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 251. The engineering program has reduced program offerings in the Engineering Technology program by 5 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program.
Proposed Courses: **Forest Management, AS**

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<th>OSU Course #</th>
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<td>COMM 111 or COMM 114</td>
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| Total Credits in Program | 94-95 | Total Credits in Program | 87 |

Note:
1. See advisor for OSU university specific requirements for Perspective electives
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</table>

**TOTAL DEGREE CREDITS**: 95

NOTES:
1. General education requirement for perspectives at OSU. Additional courses could be taken at UCC, depending on maximum total credits for transfer. See advisor for specific course requirements.
2. Grade of "C" or better in all courses.

Program Advisor:

Last updated 11/3/2015
### Transfer Guide: Forestry – Management Option

http://www.forestry.oregonstate.edu/academic-programs/undergraduates/forestry-degree-management-option

<table>
<thead>
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<th>Forestry – Management Option Requirements</th>
<th>OSU Course</th>
<th>Umpqua Course</th>
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<tr>
<td>Introductory Biology I</td>
<td>BI 204*</td>
<td>BI 212</td>
</tr>
<tr>
<td>General Chemistry I &amp; Lab</td>
<td>CH 231 &amp; 261*</td>
<td>CH 221</td>
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<td>Public Speaking or Argument &amp; Critical Discourse</td>
<td>COMM 111* or COMM 114*</td>
<td>SP 111 or SP 112</td>
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<tr>
<td>Intro to Microeconomics or Intro to Environmental Economics &amp; Policy</td>
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<td>FE 208</td>
<td>SUR 161</td>
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<td>Forest Photogrammetry</td>
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<td>GIS and Forest Engineering Applications</td>
<td>FE 257</td>
<td>GIS 234</td>
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<td>NR 240?</td>
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<td>Dendrology</td>
<td>FES 241</td>
<td>NR 241?</td>
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<td>Recreation Resource Management</td>
<td>FES 251</td>
<td>NR 271?</td>
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<td>Intro to Forestry or Managing Natural Resources for the Future</td>
<td>FOR 111 or NR 201</td>
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<td>Calculus for Management &amp; Social Science</td>
<td>MTH 241*</td>
<td>MTH 241</td>
</tr>
<tr>
<td>Principles of Physics I</td>
<td>PH 201*</td>
<td>PH 201</td>
</tr>
<tr>
<td>Soil Science</td>
<td>SOIL 205*</td>
<td>SOIL 205</td>
</tr>
<tr>
<td>Soil Science Lab</td>
<td>FOR 206*</td>
<td>SOIL 206</td>
</tr>
<tr>
<td>Principles of Statistics</td>
<td>ST 201</td>
<td>MTH 243</td>
</tr>
<tr>
<td>English Composition</td>
<td>WR 121*</td>
<td>WR 121</td>
</tr>
<tr>
<td>Technical Writing or Science Writing</td>
<td>WR 327* or WR 362*</td>
<td>WR 227</td>
</tr>
</tbody>
</table>

The courses above represent the first two years of a four year degree program. Transfer students should expect to complete the remaining course requirements at OSU. In addition to courses that fulfill the Forestry major requirements, students should be completing courses to fulfill OSU’s Baccalaureate Core (general education curriculum). Major requirements that also fulfill Baccalaureate Core are marked with an asterisk (*).

Forestry includes a professional program (the junior and senior years) which requires a special application. Prospective students should work with OSU College of Forestry staff for assistance in navigating that process successfully.

**Umpqua Contact:** Clay Baumgartner  
541-440-4683  
Clay.baumgartner@umpqua.edu

**OSU Contact:** College of Forestry Student Services Office  
541-737-1594  
Forestrystudentservices@oregonstate.edu

Updated 8/20/15 NK
Basic Information
Name of Program: Forest Operations, AS Degree with Emphasis in Forest Operations
Contact Name and Title: Martha Joyce, Chair, Business Department
Department: Business Department
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation: September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
  __Less than 1 year certificate
  _1 year certificate
  __2 year certificate
  _Career Pathway certificate
X_Degree

Number of Credits: 97-98

New Program/Certificate Title: Forest Operations, AS Degree with Emphasis in Forest Operations

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
Forest Operations is designed as a professional forestry degree that blends elements of forest engineering and forest management with business management and entrepreneurship. This unique degree will prepare graduates to support the needs of an evolving forest sector in Oregon and globally. As they gain experience, graduates will have options to serve as project managers for logging or silvicultural contracting service firms, as consultants, or as company or agency contract administrators that supervise a growing contracting work force.

The UCC Forest Operations program prepares students for transfer to the Forestry bachelor's degree program at Oregon State University (OSU). The curriculum is intended to meet the requirements for the first two years of coursework necessary for application to the professional program in the College of Forestry – Forest Operations Management Option at OSU.

Prospective students should see a faculty advisor, or Counseling and Career Planning Services, to develop your educational plan. Most core courses at UCC are offered once each academic year and must be taken in sequence. A well-planned course of study will help ensure a smooth transition to a university.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
This is a transfer degree and LMI market need is not required for program approval.

Target Student Population:
Degree oriented students.
Program Outcomes: (please list numerically)
Associate of Science Degree

Program Impacts:
X Standard Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs (staff, materials, equipment or facilities) are needed.
__Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):
AS degrees typically include 6 to 10 core program classes and the remainder are foundation and general education courses. The core courses for Forestry transfer degrees include forestry/natural resource courses and engineering courses. By minor adjustment of the core courses and/or foundation courses, it is possible offer three Forestry AS degrees at UCC in:

1. Forestry Engineering
2. Forestry Management
3. Forestry Operations

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 241 Dendrology
4. NR 271 Recreation Resource Management (not included in Forestry Engineering and Forestry Operations)
5. SOIL 205 Soil Science Lecture

The core engineering courses included in all three of the proposed Forestry degrees include:
1. GIS 234 GIS I Intro to GIS
2. ENGR 112 Problem Solving & Technology
3. SOIL 206 Soil Science Lab
4. SUR 161 Plane Surveying I
5. SUR 209 Photogrammetry and Introduction into Remote Sensing

The Forestry Engineering degree includes more engineering courses. The Forestry Operations degree includes core business courses to help prepare students for the business and entrepreneurship aspects of forestry. All courses for the three degrees are currently offered at UCC except for SUR 209 Photogrammetry and Introduction into Remote Sensing (OSU Equivalent FE 209), NR 251 Recreation Resource Management (OSU Equivalent FES 251), and BA 260 Introduction to Entrepreneurship. The UCC Science Department is adding NR 251. The engineering program has reduced program offerings in the Engineering Technology program by 4 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program. BA 260 can be taken online at OSU and could be offered in the future at UCC as enrollment grows.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
See notes from Program Impact Description above
Program Standards
Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program From into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
The AS degree with emphasis in Forest Operations is a program that offers students the opportunity to design and pursue a career path that is not currently available as a certificate or degree program at UCC.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program. There are summer internships available locally. UCC and OSU can provide students with assistance in locating summer internships.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
This is a transfer degree. UCC has worked closely with the OSU College of Forestry in developing the transfer guides for the program.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
OSU has reviewed the course equivalencies for the transfer courses.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All courses are currently offered at UCC except for SUR 209 Photogrammetry and Introduction into Remote Sensing (OSU Equivalent FE 209), NR 251 Recreation Resource Management (OSU Equivalent FES 251), and BA 260 Introduction to Entrepreneurship. The UCC Science Department is adding NR 251. The engineering program has reduced program offerings in the Engineering Technology program by 4 credit hours through restructuring of program. Adding 4 credit hours for SUR 209 does not increase total credit hours currently offered through the Engineering program. BA 260 can be taken online at OSU and could be offered in the future at UCC as enrollment grows.
Proposed Courses:  **Forest Operations, AS**

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>BA 211</td>
<td>Principles of Accounting I</td>
<td>3</td>
<td>------</td>
<td>Financial Accounting</td>
<td>------</td>
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<tr>
<td>BA 212</td>
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<td>BA 211</td>
<td>Managerial Accounting</td>
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<tr>
<td>BA 213</td>
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<td>BA 213</td>
<td>Business Law</td>
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<td>BI 104 or BI 212</td>
<td>Intro to Biology or General Biology</td>
<td>4</td>
</tr>
<tr>
<td>CH 221</td>
<td>General Chemistry I</td>
<td>5</td>
<td>CH 231</td>
<td>General Chemistry</td>
<td>4</td>
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<tr>
<td>ECON 201</td>
<td>Intro to Microeconomics</td>
<td>3</td>
<td>ECON 201</td>
<td>Intro to Microeconomics</td>
<td>4</td>
</tr>
<tr>
<td>ENGR 112</td>
<td>Problem Solving &amp; Tech</td>
<td>3</td>
<td>FOR 112</td>
<td>Computing Applications</td>
<td>3</td>
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<tr>
<td>GIS 234</td>
<td>GIS I Introduction to GIS</td>
<td>4</td>
<td>FE 257</td>
<td>GIS &amp; Forestry Engr Applic</td>
<td>3</td>
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<tr>
<td>HPE 295</td>
<td>Wellness &amp; Health Assessment</td>
<td>3</td>
<td>HHS 231 &amp; 241-248</td>
<td>Lifetime Fitness for Health - Activities</td>
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<td>MTH 111</td>
<td>College Algebra</td>
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<td>College Algebra</td>
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<td>MTH 112</td>
<td>Elementary Functions</td>
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<td>Elementary Functions</td>
<td>4</td>
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<tr>
<td>MTH 241</td>
<td>Calculus for Management</td>
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<td>Calculus for Management</td>
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<tr>
<td>MTH 243</td>
<td>Intro Probability &amp; Statistics</td>
<td>5</td>
<td>ST 201</td>
<td>Statistics</td>
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<tr>
<td>NR 201</td>
<td>Intro to Natural Resources</td>
<td>3</td>
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<td>Introduction to Forestry</td>
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<tr>
<td>NR 240</td>
<td>Forest Biology</td>
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<tr>
<td>NR 241</td>
<td>Dendrology</td>
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<td>Dendrology</td>
<td>5</td>
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<tr>
<td>PH 201</td>
<td>General Physics I</td>
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<td>PH 201</td>
<td>Principles of Physics I</td>
<td>5</td>
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<tr>
<td>SP 111 or SP 112</td>
<td>Fund of Public Speaking or Persuasive Speech</td>
<td>4 or 3</td>
<td>COMM 111 or COMM 114</td>
<td>Public Speaking or Argument &amp; Crit Discourse</td>
<td>3 or 3</td>
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<td>SOIL 205</td>
<td>Soil Science</td>
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<td>SOIL 205</td>
<td>Soil Science</td>
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<tr>
<td>SOIL 206</td>
<td>Soil Science Lab</td>
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<td>FOR 206</td>
<td>Soil Science Lab</td>
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<tr>
<td>SUR 161</td>
<td>Surveying I</td>
<td>4</td>
<td>FE 208</td>
<td>Forestry Surveying</td>
<td>4</td>
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<tr>
<td>SUR 209</td>
<td>Photogrammetry &amp; Intro into Remote Sensing</td>
<td>4</td>
<td>FE 209</td>
<td>Forestry Photogrammetry &amp; Intro into Remote Sensing</td>
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<tr>
<td>WR 121</td>
<td>English Composition</td>
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<td>WR 121</td>
<td>English Composition</td>
<td>3</td>
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<tr>
<td>WR 227</td>
<td>Technical Writing</td>
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<td>WR 327</td>
<td>Technical Writing</td>
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<tr>
<td>Arts &amp; Letters and Cultural Diversity Elective* - Catalog</td>
<td>3</td>
<td>Literature &amp; Arts Elective</td>
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<td></td>
</tr>
</tbody>
</table>

| Total Credits in Program | 97-98 | Total Credits in Program | 88 |

**Forestry Operations Courses Not Currently Offered at UCC But Available Online Through OSU**

BA 260 Introduction to Entrepreneurship

**Program Advisor:**

**NOTES:**
1. Five perspective electives related to humanities/social science is a general education requirement at OSU. Additional courses could be taken at UCC, depending on maximum total credits for transfer. See advisor for specific course requirements.
2. UCC BA 211 & BA 212 currently transfers as equivalent to OSU BA 211
3. Grade of "C" or better in all courses.
<table>
<thead>
<tr>
<th>UCC Course No. and Course Name</th>
<th>Term Offered</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 221 General Chemistry I: Lab/Lec/Rec</td>
<td>F W S S</td>
<td>5</td>
<td>MTH 111</td>
</tr>
<tr>
<td>NE 201 Intro to Natural Resources</td>
<td>F W S S</td>
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<tr>
<td>MTH 111 College Algebra</td>
<td>F W S S</td>
<td>5</td>
<td>MTH 95</td>
</tr>
<tr>
<td>WR 121 English Composition: Intro to Argument</td>
<td>F W S S</td>
<td>4</td>
<td>WR 115 or Placement Test</td>
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<tr>
<td></td>
<td></td>
<td>17</td>
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</tr>
<tr>
<td>BI 212 Principles of Biology</td>
<td>F W</td>
<td>5</td>
<td>CH 221</td>
</tr>
<tr>
<td>GIS 234 GIS I Intro to Geographic Information Systems</td>
<td>F W S S S</td>
<td>4</td>
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<tr>
<td>ENGR 112 Engineering Problem Solving &amp; Technology</td>
<td>F W S S S</td>
<td>3</td>
<td>ENGR 111</td>
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<tr>
<td>MTH 112 Elementary Functions</td>
<td>F W S S S</td>
<td>4</td>
<td>MTH 111</td>
</tr>
<tr>
<td></td>
<td></td>
<td>16</td>
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<tr>
<td>MTH 243 Intro to Probability &amp; Statistics</td>
<td>F W S S S</td>
<td>5</td>
<td>MTH 105</td>
</tr>
<tr>
<td>NR 241 Tree &amp; Shrub Identification</td>
<td>F W S S S</td>
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<tr>
<td>SP 111 Public Speaking</td>
<td>F W S S S</td>
<td>4</td>
<td>WR 095</td>
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<tr>
<td>SUR 161 Plane Surveying</td>
<td>F W S S S</td>
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<td>MTH 112</td>
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<tr>
<td>BA 211 Principles of Accounting I</td>
<td>F W S S</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Perspectives Arts &amp; Letters &amp; Cultural Diversity - See Advisor</td>
<td>F W S S</td>
<td>3</td>
<td>WR 121-123 &amp; MTH 111</td>
</tr>
<tr>
<td>ECON 201 Economics (Social Sciences)</td>
<td>F W</td>
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<td>ECON 201 - Perspectives Elective - SP&amp;I</td>
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<td>PH 201 General Physics</td>
<td>F W</td>
<td>5</td>
<td>MTH 111</td>
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<tr>
<td>BA 212 Principles of Accounting II</td>
<td>F W S S</td>
<td>3</td>
<td>BA 211 with C or better</td>
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<tr>
<td>HPE 209 Health &amp; Wellness</td>
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<td>MTH 111</td>
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<td>SUR 209 Photogrammetry and Intro to Remote Sensing</td>
<td>F W</td>
<td>4</td>
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<td>WR 227 Technical Report Writing</td>
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<tr>
<td>BA 213 Principles of Accounting II</td>
<td>F W</td>
<td>3</td>
<td>BA 212 with C or better</td>
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<tr>
<td>BA 226 Business Law</td>
<td>F W</td>
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<tr>
<td>NR 240 Forest Biology</td>
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<td>SOIL 205 Soil Science Lecture</td>
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<td>15</td>
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<tr>
<td>TOTAL DEGREE CREDITS</td>
<td></td>
<td>88</td>
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</tr>
</tbody>
</table>
### Transfer Guide: Forestry – Operations Management Option

[http://www.forestry.oregonstate.edu/academic-programs/undergraduates/forestry-degree-operations-option](http://www.forestry.oregonstate.edu/academic-programs/undergraduates/forestry-degree-operations-option)

<table>
<thead>
<tr>
<th>Forestry - Operations Management Requirements</th>
<th>OSU Course</th>
<th>Umpqua CC Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Accounting</td>
<td>BA 211</td>
<td>BA 211 &amp; 212</td>
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<tr>
<td>Managerial Accounting</td>
<td>BA 213</td>
<td>BA 213</td>
</tr>
<tr>
<td>Business Law</td>
<td>BA 230</td>
<td>BA 226</td>
</tr>
<tr>
<td>Introduction to Entrepreneurship</td>
<td>BA 260</td>
<td>Available online at OSU</td>
</tr>
<tr>
<td>Introductory Biology I</td>
<td>BI 204*</td>
<td>BI 212</td>
</tr>
<tr>
<td>General Chemistry I &amp; Lab</td>
<td>CH 231 &amp; 261*</td>
<td>CH 221</td>
</tr>
<tr>
<td>Public Speaking or Argument &amp; Critical Discourse</td>
<td>COMM 111* or COMM 114*</td>
<td>SP 111 or SP 112</td>
</tr>
<tr>
<td>Intro to Microeconomics or Intro to Environmental Economics &amp; Policy</td>
<td>ECON 201* or AEC 250*</td>
<td>ECON 201</td>
</tr>
<tr>
<td>Forest Surveying</td>
<td>FE 208</td>
<td>SUR 161</td>
</tr>
<tr>
<td>Forest Photogrammetry</td>
<td>FE 209</td>
<td>SUR 209*</td>
</tr>
<tr>
<td>GIS and Forest Engineering Applications</td>
<td>FE 257</td>
<td>GIS 234</td>
</tr>
<tr>
<td>Forest Biology</td>
<td>FES 240*</td>
<td>NR 240?</td>
</tr>
<tr>
<td>Dendrology</td>
<td>FES 241</td>
<td>NR 241?</td>
</tr>
<tr>
<td>Intro to Forestry or Managing Natural Resources for the Future</td>
<td>FOR 111 or NR 201</td>
<td>NR 201</td>
</tr>
<tr>
<td>Computing Applications in Forestry</td>
<td>FOR 112</td>
<td>ENGR 112</td>
</tr>
<tr>
<td>College Algebra</td>
<td>MTH 111*</td>
<td>MTH 111</td>
</tr>
<tr>
<td>Elementary Functions</td>
<td>MTH 112*</td>
<td>MTH 112</td>
</tr>
<tr>
<td>Calculus for Management &amp; Social Science</td>
<td>MTH 241*</td>
<td>MTH 241</td>
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<td>Principles of Physics I</td>
<td>PH 201*</td>
<td>PH 201</td>
</tr>
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<td>Soil Science</td>
<td>SOIL 205*</td>
<td>SOIL 205</td>
</tr>
<tr>
<td>Soil Science Lab</td>
<td>FOR 206*</td>
<td>SOIL 206</td>
</tr>
<tr>
<td>Principles of Statistics</td>
<td>ST 201</td>
<td>MTH 243</td>
</tr>
<tr>
<td>English Composition</td>
<td>WR 121*</td>
<td>WR 121</td>
</tr>
<tr>
<td>Technical Writing or Science Writing</td>
<td>WR 327* or WR 362*</td>
<td>WR 227</td>
</tr>
</tbody>
</table>

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Forestry includes a professional program (the junior and senior years) which requires a special application. Prospective students should work with OSU College of Forestry staff for assistance in navigating that process successfully.

**Umpqua Contact:** Martha Joyce  
541-440-4605  
martha.joyce@umpqua.edu

**OSU Contact:** College of Forestry Student Services Office  
541-737-1594  
Forestrystudentservices@oregonstate.edu
Basic Information
Name of Program: Engineering Program, GIS Pathways Certificate
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
- Less than 1 year certificate
- 1 year certificate
- 2 year certificate
- X Career Pathway certificate
- Degree

Number of Credits: 16

New Program/Certificate Title: GIS Pathway Certificate

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
The GIS pathways certificate is to provide students with the technical skills and geospatial content to employ geospatial information system (GIS) in support of their career and education goals in: science, business, engineering, surveying, and resource management, public safety, and urban and regional planning. GIS 203, GIS 234, GIS 235, and SUR 161 transfer to many Oregon four-year colleges and support current graduates and working professionals as they update their technical skills. The core GIS classes are required in the Civil Engineering and Surveying Technology AAS degree and the AS degree with emphasis in Surveying and Geomatics.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
GIS technology overlaps into a wide variety of career paths. The certificate will complement many degrees and make graduates more employable. There is also potential for employees to receive training in GIS to further their career options. A summary of some of the career paths that use GIS.

<table>
<thead>
<tr>
<th>Title</th>
<th>Statewide Employment</th>
<th>SW Oregon Employment</th>
<th>Ave. Annual Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2010 Positions</td>
<td>Annual Openings</td>
<td>2010 Positions</td>
</tr>
<tr>
<td>Cartographer &amp; Photogrammetrist</td>
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<td>17</td>
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<td>Civil Engineering Tech</td>
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<td>53</td>
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<td>Drafting (all fields)</td>
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<tr>
<td>Geoscientist</td>
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<td>19</td>
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<td>Surveying &amp; Mapping Technician</td>
<td>885</td>
<td>31</td>
<td>51</td>
</tr>
</tbody>
</table>
Target Student Population:
Certificate oriented students, transfer students and existing professionals seeking to improve their knowledge, skills, and professional credentials.

Program Outcomes: (please list numerically)
The graduate will:
• collect and input data into a GIS system using: GPS Unit, Digitizing, Geocoding.
• design and generate various cartographic/map products for planning or presentations.
• create, manage, and update spatial data.
• manage information in a GIS database.
• perform routine data analysis-buffer, query, union, intersect

Program Impacts:
X Standard Instructional Costs (staff, materials, equipment or facilities) are required.
Additional instructional costs (staff, materials, equipment or facilities) are needed.
X Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):
All proposed classroom classes are taught as components of other programs. The parent program is the Civil Engineering and Surveying Technology, AAS. The GIS courses are also included in the AS degree with emphasis in Geomatics and Surveying. Two of the courses are included in the AS degree with emphasis in Natural Resources. One of the GIS courses is included in the AS degree with emphasis in Engineering.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
None. All proposed classroom classes are taught as components of other programs. The parent program is the Civil Engineering and Surveying Technology, AAS.
Program Standards
Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program From into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
To successfully compete and enter the water and wastewater treatment plant and system operators field, it is necessary to have both specialized education and direct in-field experience. In southwestern Oregon, no other educational resources are available that provide the graduate with both the necessary education and in-facility experience. The proposed degree program provides both.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
Through involvement with Engineering Advisory Committee.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
The proposed program aligns closely with the educational and experience requirements necessary to enter the GIS field. The courses transfer to OSU and OIT. This field of employment will continue to have a steady demand for entry level employees as community growth and employee retirements occur. Providing a pathway for graduates to enter the field will remain an important community college role.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
The program provides the academic knowledge necessary for introductory GIS skills. The courses transfer to OSU and OIT

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All proposed classroom classes are currently being taught as components of other programs.
Proposed Courses – please attach course outlines

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>GIS 203</td>
<td>The Digital World and Geospatial Concepts or Cooperative Work Experience in GIS Related Field</td>
<td>4</td>
</tr>
<tr>
<td>GIS 234</td>
<td>GIS I Introduction to Geographic Information Systems</td>
<td>4</td>
</tr>
<tr>
<td>GIS 235</td>
<td>GIS II Analysis and Applications</td>
<td>4</td>
</tr>
<tr>
<td>SUR 161</td>
<td>Plane Surveying I</td>
<td>4</td>
</tr>
<tr>
<td>Additional Process Items</td>
<td></td>
<td></td>
</tr>
<tr>
<td>--------------------------</td>
<td>--</td>
<td></td>
</tr>
</tbody>
</table>

*Please check all of the additional forms and documents you have completed and submitted to Curriculum Committee. Links to fillable versions of these forms can be found at [http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces).*

- **X Required:** Labor Market Information (LMI) Form (not needed for Career Pathway Certificate)
- **Required:** Course Outlines for all courses
- **Specialized Form:** Advisory Committee
- **Specialized Form:** Start Up Budget
Basic Information
Name of Program: Occupational Skills Training Certificate
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
__ Less than 1 year certificate
X 1 year certificate
__ 2 year certificate
__ Career Pathway certificate
__ Degree

Number of Credits: 45 - 56

New Program/Certificate Title: Occupational Skills Training Certificate

Program Description *(This is the description that will appear in the catalog, so make sure it is exactly what you want)*
The Occupational Skills Training (OST) one-year certificate program provides a combination of academic study and hands-on training. Students earn approximately half of their program credits through training at local business/agency sites. The OST certificate can apply to nearly any occupation provided that the following criteria are met:
- Jobs are currently available in the selected field
- There are appropriate training sites in neighboring communities
- The occupational goal is appropriate to the 1 year certificate program

A copy of the information from the program at RCC is attached.

Labor Market Need *(Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates)*:
In alignment with State of Oregon Guidelines for new OST programs, labor market information will be included as part of the individual student OST plan.
(Reference: http://handbook.ccwdwebforms.net/handbook/other-educational-programs-models-strategies/occupational-skills-training#)

Target Student Population:
Non-degree oriented students.

Program Outcomes: (please list numerically)
1) Complete an individualized training curriculum and employment plan, describing the skills and knowledge necessary to become competitively employable
2) Demonstrate an increase in occupational skills through hands-on training provided by an employer and through general education and occupation-related classroom instruction.

3) Demonstrate basic communication, human relations, and critical thinking and problem-solving abilities in the work place.

Program Impacts:
- X Standard Instructional Costs (staff, materials, equipment or facilities) are required.
- __Additional instructional costs (staff, materials, equipment or facilities) are needed.
- __Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):
All proposed classroom classes are currently being taught as components of other programs. Occupational skills training students will require monitoring and performance review by existing part-time staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter). Additional sustaining activities will be limited to coordinating with local agencies participating in the occupational skills training, participating in local professional operator organizations, and recruiting program participants through these activities.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
Occupational skills training students will require monitoring and performance review by existing part-time staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter).
Program Standards

Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program Form into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
The OST program offers students the opportunity to design and pursue a career path that is not currently available as a certificate or degree program at UCC.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
Through involvement with local businesses and agencies in a variety of occupations, the community college will develop occupational skills training programs where graduates obtain hands-on experience under the guidance of actively employed professionals.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
The proposed program aligns closely with the educational and experience requirements of a variety of career fields. Prerequisite to selecting and receiving approval for a given career field, the prospective student must ascertain, with the assistance of college staff, that employment opportunities exist in the propose field.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
The student successfully completing this program will demonstrate competitive proficiency in the functional skills of their training occupation through hands-on training provided by an employer and through general education and occupation-related classroom instruction.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All proposed classroom classes are currently being taught as components of other programs. Occupational skills training students will require monitoring and performance review by existing staff which will result in very modest program costs. Additional sustaining activities will be limited to coordinating with local agencies participating in the occupational skills training, participating in local professional operator organizations, and recruiting program participants through these activities.
**Proposed Courses – please attach course outlines**

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>GENERAL EDUCATION REQUIREMENTS</strong></td>
<td></td>
</tr>
<tr>
<td>MTH 52 or Higher</td>
<td>Introduction to Algebra for the Trades</td>
<td>4 - 5</td>
</tr>
<tr>
<td>WR 115 or Higher</td>
<td>Intro to Expository Writing</td>
<td>4</td>
</tr>
<tr>
<td>Elective</td>
<td>Approved Human Relations</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>WORK BASED TRAINING</strong></td>
<td></td>
</tr>
<tr>
<td>OST 290 or CIV 290 or WQT 290</td>
<td>Occupational Skills Training</td>
<td>20-28</td>
</tr>
<tr>
<td></td>
<td><strong>OCCUPATIONAL RELATED COURSES</strong></td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td>100 Level or Above Elective Courses Related to Career Direction</td>
<td>7-15</td>
</tr>
<tr>
<td>CWE 161</td>
<td>CWE Seminar I</td>
<td>1</td>
</tr>
</tbody>
</table>
### Additional Process Items

Please check all of the additional forms and documents you have completed and submitted to Curriculum Committee. Links to fill-able versions of these forms can be found at [http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces).

- **Required:** Labor Market Information (LMI) Form (not needed for Career Pathway Certificate)
- **Required:** Course Outlines for all courses
- **Specialized Form:** Advisory Committee
- **Specialized Form:** Start Up Budget

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total credits for Program</td>
<td>45 minimum - 56</td>
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</tbody>
</table>

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**UCC New Program Approval**

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**UCC New Program Approval – v1.0, 9/26/14**  
**Page 5**
Occupational Skills Training  
Certificate of Completion

Major Code: 309999

About the Program

The Occupational Skills Training (OST) one-year certificate program provides a combination of academic study and hands-on training in any one of a variety of specific occupations. Students earn approximately half their program credits through training at local business sites. Almost any occupation can be addressed provided the following conditions are met: 1) There are jobs currently available in the selected field; 2) there is an appropriate training site available in the community; 3) the occupational goal is appropriate to the program length of one year; and 4) there is no overlap with existing RCC programs (trainings may overlap for students in special circumstances as approved by program personnel). RCC program staff will assist students in assessing possible occupations.

Customized learning goals for hands-on training are developed for each student by program faculty. These goals are chosen with care to ensure students' preparation for entry-level employment in the specific occupation of choice. Student progress is evaluated by RCC faculty with input from training site supervisors. Required academic coursework includes general education courses to increase knowledge of basic skills common to all work environments. Students are also required to take elective coursework related to their chosen occupational goals. Credits earned in this program may be applied to the Associate of General Studies degree. The OST program by itself is not financial aid eligible.

The curriculum in RCC courses is derived from a set of identified learning outcomes that are relevant to the discipline. For a list of learning outcomes for this discipline or program, see www.roguecc.edu/Programs/LearningOutcomes.

Entry Requirements

Students must submit a completed Occupational Skills Training (OST) application to program staff to be considered for acceptance into the program. As part of their training program, students are required to take a placement test to determine skill level and readiness in math, reading and writing. Students must begin with courses within their skill levels as determined by the placement test scores. In addition, students may also enroll in classes that would increase their employability and success. Criminal background checks and/or professional liability insurance are required for some occupations.

Advanced Standing

Coursework from accredited colleges and universities will be accepted in accordance with college policies. Individual courses may be challenged based on the student's life experience or knowledge. Arrangements may be made on an individual basis with the instructor teaching the course to determine specific challenge procedures.

Graduation Requirements

A certificate in Occupational Skills Training will be awarded to students who complete all courses in this program with a grade of "C" or better. Certain required courses are graded on a pass/no pass basis only. A grade of "P" for these courses indicates a student earned a "C" or better grade.

Prerequisites

Course No.  Course Title  Credits
MTH20  Pre-algebra or designated placement test score on current indicator chart  0-4
RD30  College Reading or designated placement test score on current indicator chart  0-4
WR30  Fundamentals of Composition II or designated placement test score on current indicator chart  0-4

Total Prerequisite Credits  0-12

General Education Requirements

Course No.  Course Title  Credits
CS120  Concepts in Computing I or higher level course or documented computer proficiency  0-4
MTH60  Applied Technical Math or MTH60 Fundamentals of Algebra I or BT160 Business Math or higher level math  4
PSY101  Psychology of Human Relations or BT101 Human Relations in Organizations  3
WR115  Introduction to Expository Writing or BT113 Business English I or higher level composition  3-4
HE112  First Aid or HE201 CPR or HE252 First Aid/CPR  1-3

Total General Education Credits  18-32

Work-based Training Courses

Course No.  Course Title  Credits
ST109  Skills Training Seminar or BA109 Ready, Set, Work: Techniques for Landing a Job  0-2
ST101  Occupational Skills Training  18-28
ST201  Occupational Skills Training  18-30

Total Work-Based Training Courses  18-32
TOTAL PROGRAM CREDITS  36-62

Approved Electives

Course No.  Course Title  Credits
ST199  Workshop  variable

Total Approved Electives  18-30

Approved Electives  18-32

For more information contact the Individualized Career Training Department:
Grants Pass or Medford ....................................... 541-956-7027
Toll free in Oregon ........................................ 800-411-6508, Ext. 7027
email ..................................... jburkes@roguecc.edu
Web address ......................................... www.roguecc.edu/ICT
TTY ..................................... Oregon Telecom Relay Service, 711

This advising guide is for advising purposes only. Please see current college catalog for additional information on specific college policies and graduation requirements.

In compliance with state and federal laws, Rogue Community College does not discriminate on the basis of race, religion, color, national origin, age, sex, veterans' status, sexual orientation, marital status or disability in employment, or in any of its educational programs or in the provision of benefits and services to students.
Basic Information
Name of Program: Water Quality Operator, Occupational Skills Training Pathway Certificate
Contact Name and Title: Clay Baumgartner, Chair, Engineering and CIS Department
Department: Engineering and CIS
Supervisor: Jesse Morrow

Program-Specific Information
Date, Year, and Term of Proposed Implementation:
September 2016, Fall 2016, 2016-17 Academic Year

Program Award:
_ Less than 1 year certificate
_ 1 year certificate
_ 2 year certificate
X Career Pathway certificate
_ Degree

Number of Credits: 56

New Program/Certificate Title: Water Quality Operator, Occupational Skills Pathway Certificate

Program Description (This is the description that will appear in the catalog, so make sure it is exactly what you want)
One year of water quality specialized course work and on-the-job occupational skills training provides the skill set necessary for entry-level positions in the water quality operator field.

Labor Market Need (Brief description; you will also need to complete an LMI worksheet, EXCEPT for Career Pathways Certificates):
Statewide:
Employment in this occupation in 2012 was at about the statewide average for all occupations. The total number of job openings is projected to be at about the statewide average number of job openings for all occupations through 2022. This occupation is expected to grow at a somewhat slower rate than the statewide average growth rate for all occupations through 2022. Reasonable employment opportunities exist for trained workers. Statewide, a 7.7% growth rate is projected through 2022.

Southwestern Oregon (Coos, Curry, and Douglas County):
The State of Oregon’s Employment Department data and projections indicate that in 2012, 107 persons were employed in the field and, by 2022, 6 new positions would be added and, annually, 4 positions would be replaced. If Lane, Josephine, and Jackson Counties are included, overall 2012 employment increases to 249 positions with a total of 15 new positions added by 2022. Annually, 9 positions would be replaced.

Additional Information:
Congress authorized the Clean Water Act in 1972 and the Safe Drinking Water Act in 1974. A large influx of Federal monies became available to the states to construct new treatment facilities and to expand and improve existing facilities in the mid to late 1970’s. During that period, a large number of new employees were hired into career positions. Now, in 2015, 40 years later, those 20-something new hires
are reaching retirement age. There is a large “bubble” of career retirements that will occur in the water and wastewater treatment fields. Discussions with local agencies managers indicate that upward of 50% of the existing staff will retire in the next 5 years, a problem not unique to Douglas County. While the State Employment Department numbers take some of these retirements into account, it appears that the replacement estimates may be understated.

Target Student Population:
Certificate oriented students and existing professionals seeking to improve their knowledge, skills, and professional credentials.

Program Outcomes: (please list numerically)
1) Use Word, Excel, and PowerPoint
2) Describe water quality operations for wastewater collection and treatment and water distribution and treatment
3) Demonstrate basic operational skills for either wastewater collection, wastewater treatment, water distribution, or water treatment facilities
5) Communicate and write effectively
6) Think critically to solve process performance problems
7) Work effectively on a team

Program Impacts:
X_STANDARD Instructional Costs (staff, materials, equipment or facilities) are required.
__Additional instructional costs (staff, materials, equipment or facilities) are needed.
__Impact to other divisions in terms of scheduling or staffing.

Program Impact Description (for any of the program impacts listed above, please describe):
All proposed classroom classes are currently being taught as components of other programs. Occupational skills training students will require monitoring and performance review by existing part-time staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter) which will be covered by tuition. Additional sustaining activities will be limited to coordinating with local agencies participating in the occupational skills training, participating in local professional operator organizations, and recruiting program participants through these activities.

Additional Instructor Requirements (FT/PT, number, qualification, ability to recruit):
Occupational skills training students will require monitoring and performance review by existing part-time staff which will result in very modest program costs (approximately 0.25 ILC’s per student per quarter).
Program Standards

Using new or parent program information, create a short description that provides the requested data. These descriptions will be entered exactly as they appear in the New Program From into the official record with the State of Oregon. The maximum number of characters for each standard is 4,000.

Standard A – Need:
The community college provides clear evidence of the need for the program.
To successfully compete and enter the water and wastewater treatment plant and system operators field, it is necessary to have both specialized education and direct in-field experience. In southwestern Oregon, no other educational resources are available that provide the graduate with both the necessary education and in-facility experience. The proposed degree program provides both.

Standard B – Collaboration:
The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.
Through involvement with both professional organizations that represent water and wastewater operators and local agencies that provide these services, the community college will develop occupational skills training programs where graduates obtain in-facility experience under the guidance of actively employed professionals.

Standard C – Alignment:
The program is aligned with the appropriate education, workforce development, and economic development activities.
The proposed program aligns closely with the educational and experience requirements necessary to enter the water and wastewater operator field. This field of employment will continue to have a steady demand for entry level employees as community growth and employee retirements occur. Providing a pathway for graduates to enter the field will remain an important community college role.

Standard D – Design:
The program leads to student achievement of academic and technical knowledge, skills, and related proficiencies.
The program provides the academic knowledge necessary to operate and maintain water and wastewater facilities by requiring completion of the first year Engineering Technician Program followed by four water/wastewater treatment related classes. Occupational skill training requires in-facility experience under the guidance of actively employed professionals.

Standard E – Capacity:
The community college identifies and has the resources to develop, implement, and sustain the program.
All proposed classroom classes are currently being taught as components of other programs. Occupational skills training students will require monitoring and performance review by existing part-time staff equivalent to cooperative work experience. Sustaining activities will include coordinating with local agencies participating in the occupational skills training and participating in local professional operator organizations.
Proposed Courses – please attach course outlines

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH 95</td>
<td>Intermediate Algebra</td>
<td>4</td>
</tr>
<tr>
<td>WR 121</td>
<td>English Composition, Intro to Argument</td>
<td>4</td>
</tr>
<tr>
<td>*</td>
<td>Human Relations Elective</td>
<td>3</td>
</tr>
<tr>
<td>WQT 261</td>
<td>Water Distribution</td>
<td>4</td>
</tr>
<tr>
<td>WQT 260</td>
<td>Water Treatment</td>
<td>3</td>
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<tr>
<td>WQT 227</td>
<td>Wastewater Treatment</td>
<td>3</td>
</tr>
<tr>
<td>WQT 228</td>
<td>Wastewater Collection</td>
<td>3</td>
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<tr>
<td>WQT 290</td>
<td>Occupational Skills Training</td>
<td>28</td>
</tr>
<tr>
<td>**</td>
<td>Approved Biological Science w/ Lab</td>
<td>4</td>
</tr>
<tr>
<td>*</td>
<td>Listed in catalog</td>
<td></td>
</tr>
<tr>
<td>**</td>
<td>BI 101, BI 102, BI 103, or Soils 205/206</td>
<td></td>
</tr>
</tbody>
</table>

| Total credits for Program | 56 |

**Additional Process Items**

*Please check all of the additional forms and documents you have completed and submitted to Curriculum Committee. Links to fill-able versions of these forms can be found at [http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces).*

- **Required**: Labor Market Information (LMI) Form (not needed for Career Pathway Certificate)
- **Required**: Course Outlines for all courses
- **Specialized Form**: Advisory Committee
- **Specialized Form**: Start Up Budget
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: JOEL KING
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Supervisor: ROGER KENNEDY
Program: FIRE SCIENCE

New Course Information
Date, Year, and Term of Proposed Implementation: FA 2016
Course Title: EMERGENCY MEDICAL SERVICES RESCUE
Course Number: 3
Number of Credits: 3
Activity Code:
__100 - Lower Division Collegiate
__X_210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE - Unknown
__361 - ACE - Health and Fitness
__362 - ACE - Safety
__363 - ACE - Workforce
__510 - Non-Reimbursable - Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

__X_ Lecture (11 hrs/credit)
__Lab (30 hrs/credit)
_X_Lecture/Lab (20 hrs/credit)
__Other:

Number of Hours: 33
See 'course type' above for guidance

Co- and Pre-Requisite Information
Please define any co- or pre-requisite information.

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
STANDARD
Load Factor:
3.4
Award Information:
Please select all that apply.
__AA
__AS
_X_AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
_X_Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
FIRE SCIENCE AND EMS

New Course Justification
Student Need for Course (Please describe)
EMS 113 WILL REACH A GREATER NUMBER OF STUDENTS BY REMOVING THE REQUIREMENT FOR ARDOUS STUDENT PARTICIPATION IN DIFFICULT OR DANGEROUS ENVIRONMENTS.

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.

Replacement Course For:
FRP 201 A, FRP 201 B, FRP 201 C
**Additional Process Items**

*Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at [http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces)*

- [X] Course Outline - required
- [ ] Start-Up Budget (if needed)
- [ ] Advisory Committee Minutes (if needed)
COURSE TITLE:  EMERGENCY MEDICAL SERVICES RESCUE
Approved by:  Roger Kennedy, BS, Public Safety Chair
Recommended by:  Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
Covers the elementary procedures of rescue practices, systems, components, support and control or rescue operations including basic rescue tools.  Introduces techniques and tools of patient extrication emphasizing application to traffic accidents and low angle rescue.

COURSE OBJECTIVES:
To introduce the students to proper techniques for rescue scenes, safe work zones, incident management and basic vehicle approach and stabilization.  To demonstrate various hand and powered tools used make entry to entrapped patients. To reinforce use of personal protective equipment and creating and maintaining scene safety. To provide extrication scene and extraction techniques to provide the rescue with the skills necessary to rapidly access, extrication and remove the patient to safety.

LEARNER OUTCOMES:
The students will:
- Demonstrate establishing a safe work zone, an appropriate landing zone.
- Managing traffic around an emergency scene.
- Identify the various positions of the ICS system needed to successfully control a rescue scene.
- Demonstrate the ability to use hand tools to breach windows, doors and sheet metals.
- Demonstrate the ability to operate powered hydraulic cutting/ spreading tools.
- Demonstrate the ability to use reciprocating saws/ air powered chisels and lifting systems.
- Demonstrate the ability to handle rope and webbing, tie knots, and set up webbing and other anchor points needed to provide low angle rescue using a strokes basket
- Identify proper techniques to perform confined space, trench and water rescues.

REQUIRED TEXT/ MATERIALS:

COURSE OUTLINE:

Week 1    Size up, controlling the scene
Week 2    Rope and Knots
Week 3    Stabilizing and accessing the vehicle
Week 4    Hand tools to make access and extricate patients
Week 5    Powered hydraulic tools
Week 6    Compressed air tools
Week 7    Low angle rescue, water rescue
Week 8    Confined space, trench rescue
Week 9    Vehicle extrication scenarios
Week 10   Low angle rescue scenarios
Week 11   Final Examinations
UCC New Course Approval

Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: JOEL KING
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Supervisor: ROGER KENNEDY
Program: FIRE SCIENCE

New Course Information
Date, Year, and Term of Proposed Implementation: FA 2016
Course Title: FIRE BEHAVIOR AND COMBUSTION
Course Number: FRP 159
Number of Credits: 3
Activity Code:
__100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE - Unknown
__361 - ACE - Health and Fitness
__362 - ACE - Safety
__363 - ACE - Workforce
__510 - Non-Reimbursable - Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

__X_Lecture (11 hrs/credit)
__Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)

Other:

Number of Hours: 33
See 'course type' above for guidance

Co- and Pre-Requisite Information
Please define any co- or pre-requisite information.

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
STANDARD

Load Factor:
3

Award Information:
Please select all that apply.

__AA
__AS
__X_AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__X_Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
FIRE SCIENCE

New Course Justification
Student Need for Course (Please describe)
To meet the standards outlined by the FESHE Model this class must be offered

Course Impacts (Select all that apply)
X__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.
The AAS Fire Science Degree is currently 96 credits. The proposed AAS Fire Science Degree is also 96 credits. The overall impact will be minimal.
Replacement Course For:
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

_X_ Course Outline - required
__ Start-Up Budget (if needed)
__ Advisory Committee Minutes (if needed)
COURSE TITLE: FIRE BEHAVIOR AND COMBUSTION
Developed by: (FESHE Curriculum Associate of Science Core)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course explores the theories and fundamentals of how and why fires start, spread and how fires are controlled.

COURSE OBJECTIVES:
- Identifies the fundamental theories of fire behavior and combustion.
- Differentiate the various types of extinguishing agents

LEARNER OUTCOMES:
At the conclusion of this course the successful student firefighter will be able to:
- Identify physical properties of the three states of matter.
- Categorize the components of fire.
- Explain the physical and chemical properties of fire.
- Describe and apply the process of burning.
- Define and use basic terms and concepts associated with the chemistry and dynamics of fire.
- Discuss various materials and their relationship to fires as fuel
- Demonstrate knowledge of the characteristics of water as a fire suppression agent.
- Articulate other suppressing agents and strategies.
- Compare other methods and techniques of fire extinguishment
REQUIRED TEXT/ MATERIALS:

COURSE OUTLINE:

Week 1  Introduction to Matter, Laws of Energy
Week 2  Units of Measurement
Week 3  Chemical Reactions
Week 4  Fire and the Physical World, Heat and its Effect
Week 5  Properties of Solids
Week 6  Common properties of Liquids and Gases
Week 7  Fire Behavior
Week 8  Fire Extinguishment
Week 9  Extinguishing Agents
Week 10  Hazardous Materials, Hazards by Classifications
Week 11  Final Examinations
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: JOEL KING
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Supervisor: ROGER KENNEDY
Program: FIRE SCIENCE

New Course Information
Date, Year, and Term of Proposed Implementation: FA 2016
Course Title: HAZARDOUS MATERIALS CHEMISTRY
Course Number: FRP 135
Number of Credits: 2
Activity Code:
__100 - Lower Division Collegiate
_X_210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__220 - CTE Supplemental
__230 - CTE Apprenticeship
__310 - English as a Second Language
__320 - Adult Basic Education
__330 - General Education Development Test Preparation
__340 - Adult High School Diploma, High School Completion
__350 - Post-Secondary Remedial, Reading or Writing
__351 - Post-Secondary Remedial, Math
__352 - Post-Secondary Remedial, Electives
__360 - ACE – Unknown
__361 - ACE - Health and Fitness
__362 - ACE – Safety
__363 - ACE – Workforce
__510 - Non-Reimbursable – Unknown
__511 - Non-Reimbursable - Hobby and Recreation
__512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

_X_ Lecture (11 hrs/credit)
__Lab (30 hrs/credit)
_Lecture/Lab (20 hrs/credit)
__Other:

**Number of Hours:** 22  
*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**  
*Please define any co- or pre-requisite information.*  
FRP 123 HAZARDOUS MATERIALS AWARENESS AND OPERATIONS

**Co- and Pre-Requisite Enforcement**  
*Please choose an enforcement option for the information listed above.*  
_Registration Enforced  
_Instructor Enforced  
_Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:** STANDARD

**Load Factor:** 2

**Award Information:**  
*Please select all that apply.*

__AA  
__AS  
_X_AAS  
_Below 100-Level  
_Elective  
_Certificate  
__AAOT

*If you selected ‘AAOT’ above, please select the area of distribution below.*

__Arts and Letters  
__Mathematics  
__Science or Computer Science  
__Social Science  
_Speech/Oral Communication  
__Writing  
__Cultural Literacy
UCC New Course Approval

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee? NO
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__X_Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
FIRE SCIENCE

New Course Justification
Student Need for Course (Please describe)
To meet the standards outlined by the FESHE Model this class must be offered

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.

Replacement Course For:
**Additional Process Items**

*Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at [http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces)*

- _X_ Course Outline - required
- __ Start-Up Budget (if needed)
- __Advisory Committee Minutes (if needed)
COURSE TITLE: HAZARDOUS MATERIALS CHEMISTRY
Developed by (FESHE Associate Degree Non-Core)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPITIONS:
This course provides basic chemistry relating to the categories of hazardous including recognition, identification, reactivity, and health hazards encountered by emergency services.

COURSE OBJECTIVES:
The students demonstrate a basic understanding of hazardous materials chemistry and proficiency using the DOT guidebooks.

LEARNER OUTCOMES:
• Identify and describe common elements of the Periodic Table.
• Distinguish between elements, compounds and mixtures.
• Explain the difference between ionic and covalent bonding.
• Define the basic chemical and physical properties of gases, liquids and solids.
• Describe the basic chemical and physical properties of gases, liquids and solids.
• Discuss the nine US department of transportation hazard classes and their respective divisions.
• Demonstrate the utilization of guidebooks, MSDS, and other reference materials to determine an initial course of action.

TEXTBOOK:
COURSE OUTLINE:

Week 1   Introduction, Matter and Energy
Week 2   Chemical Forms of Matter, Principles of Chemical Reactions
Week 3   Chemistry of Some Common Elements
Week 4   Flammable Gases and Liquids
Week 5   Chemistry of Some Hazardous Organic Compounds
Week 6   Chemistry of Some Corrosive Materials
Week 7   Chemistry of Some Water-Reactive Materials
Week 8   US Department of Transportation Hazard Classes
Week 9   Hazardous Materials in Fixed Facilities
Week 10  Response Guidelines
Week 11  Final Examinations
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**
- **Name of New Course Contact:** JOEL KING
- **Contact Title:** FIRE SCIENCE COORDINATOR
- **Department:** PUBLIC SAFETY
- **Supervisor:** ROGER KENNEDY
- **Program:** FIRE SCIENCE

**New Course Information**
- **Date, Year, and Term of Proposed Implementation:** FA 2016
- **Course Title:** LEGAL ASPECTS OF EMERGENCY SERVICES
- **Course Number:** ES 107
- **Number of Credits:** 2

**Activity Code:**
- _100 - Lower Division Collegiate
- _X_ 210 - CTE Preparatory
- _211 - Stand-alone (Independent) CTE Preparatory
- _220 - CTE Supplemental
- _230 - CTE Apprenticeship
- _310 - English as a Second Language
- _320 - Adult Basic Education
- _330 - General Education Development Test Preparation
- _340 - Adult High School Diploma, High School Completion
- _350 - Post-Secondary Remedial, Reading or Writing
- _351 - Post-Secondary Remedial, Math
- _352 - Post-Secondary Remedial, Electives
- _360 - ACE – Unknown
- _361 - ACE - Health and Fitness
- _362 - ACE – Safety
- _363 - ACE – Workforce
- _510 - Non-Reimbursable – Unknown
- _511 - Non-Reimbursable - Hobby and Recreation
- _512 - Non-Reimbursable - Other/Administrative

**Course Type**
*(If your course is a combination of the below options, please define it in ‘other’)*

- _X_ Lecture (11 hrs/credit)
- _Lab (30 hrs/credit)*
__Lecture/Lab (20 hrs/credit)
__Other:

**Number of Hours:** 22  
*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**  
*Please define any co- or pre-requisite information.*

**Co- and Pre-Requisite Enforcement**  
*Please choose an enforcement option for the information listed above.*
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description** – *see attached course outline*

**Grading Option:**  
STANDARD

**Load Factor:**  
3

**Award Information:**  
*Please select all that apply.*

__AA
__AS
_X_AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

*If you selected 'AAOT' above, please select the area of distribution below.*
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
UCC New Course Approval

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?  NO
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__X_Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
FIRE SCIENCE

New Course Justification
Student Need for Course (Please describe)

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.

Replacement Course For:
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fillable versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

_X_ Course Outline - required
__ Start-Up Budget (if needed)
__Advisory Committee Minutes (if needed)
COURSE TITLE: LEGAL ASPECTS OF EMERGENCY SERVICES
Developed by: (FESHE Curriculum Associate Non-Core Class)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course addresses Federal, State and local laws that regulate emergency services and includes a review of national standards and consensus standards.

COURSE OBJECTIVES:
The student will be able to analyze Federal, State and local laws and consensus standards as they pertain fire and emergency services.

LEARNER OUTCOMES:
- Define the different types of laws.
- Discuss Federal, State, and local laws and liabilities applicable to emergency services.
- Explain the purpose of national codes and standards.
- Discuss applicable court decisions that have influenced emergency services.
- Recognize the legal issues and concerns affecting emergency services.

TEXT:
COURSE OUTLINE:

Week 1  The legal system of the United States
Week 2  Civil Versus Criminal
Week 3  Tort Liability
Week 4  Negligence
Week 5  Judicial System
Week 6  Federal Laws and the Fire Service
Week 7  Employee Relations
Week 8  Fire Prevention and Fire Codes
Week 9  Mutual Aid
Week 10  Volunteers/ Contracts
Week 11  Final Examinations
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: JOEL KING
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Supervisor: ROGER KENNEDY
Program: FIRE SCIENCE

New Course Information
Date, Year, and Term of Proposed Implementation: FA 2016
Course Title: OCCUPATIONAL SAFETY AND HEALTH
Course Number: ES 103
Number of Credits: 2
Activity Code:
- _100 - Lower Division Collegiate
- _X_210 - CTE Preparatory
- _211 - Stand-alone (Independent) CTE Preparatory
- _220 - CTE Supplemental
- _230 - CTE Apprenticeship
- _310 - English as a Second Language
- _320 - Adult Basic Education
- _330 - General Education Development Test Preparation
- _340 - Adult High School Diploma, High School Completion
- _350 - Post-Secondary Remedial, Reading or Writing
- _351 - Post-Secondary Remedial, Math
- _352 - Post-Secondary Remedial, Electives
- _360 - ACE - Unknown
- _361 - ACE - Health and Fitness
- _362 - ACE - Safety
- _363 - ACE - Workforce
- _510 - Non-Reimbursable - Unknown
- _511 - Non-Reimbursable - Hobby and Recreation
- _512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

- _2_ Lecture (11 hrs/credit)
- _Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)

Number of Hours: 22
See 'course type' above for guidance

Co- and Pre-Requisite Information
Please define any co- or pre-requisite information.

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.

__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
STANDARD
Load Factor:
2.4

Award Information:
Please select all that apply.

__AA
__AS
_X_AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

If you selected 'AAOT' above, please select the area of distribution below.
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?  NO
Minutes must be submitted to IC
  _Yes
  _No

Course on "LDC Course List" with ODE?
  _Yes
  _No (Course has been approved for transfer.)
  _To Be

Course Type:
  _X_Occupational Preparatory (organized degree/cert. program)
  __Occupational Supplementary
  __Foundational Requirement
  __Discipline Studies
  __Elective

Required Course Information
*Please list all programs for which this course will be required*
FIRE SCIENCE

New Course Justification
Student Need for Course (*Please describe*)

Course Impacts (*Select all that apply*)
  _Instructional costs (staff, materials, equipment, or facilities) are required.
  _Additional instructional costs (staff, materials, equipment, or facilities) are needed.
  _Impact to other divisions in terms of classes and staffing
  _Other

Course Impact Description
*For any of the course impacts listed above, please describe.*

Replacement Course For:
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fillable versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

_X_ Course Outline - required
__ Start-Up Budget (if needed)
__Advisory Committee Minutes (if needed)
Course No: ES 103
Course Credit: 3
Lecture Hrs. /wk.: 3
Lab Hrs. /wk.: 0
Lecture/Lab Hrs. /wk.: 0
Practicum Hrs. /Wks.: 0
Clock Hours: 33
Length of Course: 11 weeks
Banner enforced Prerequisite: None
Instructor enforced Prerequisite: None
Co-Requisite: None
Load Factor: 3
Activity Code: 210 CTE Preparatory
CIPS: 430203

COURSE TITLE: OCCUPATIONAL SAFETY AND HEALTH FOR EMERGENCY SERVICES
Developed by: (FESHE Curriculum Associate Non-Core)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course introduces the basic concepts of occupational health and safety as it relates to emergency service organizations. Topics include risk and hazard evaluation and control procedures for emergency services organizations.

COURSE OBJECTIVES:
Understand the significance of occupational health and safety.
Describe and analyze the components of risk identification, risk evaluation, and incident management.

LEARNER OUTCOMES:
- Describe the history of occupational health and safety.
- Identify occupational health and safety programs for industry and emergency services today.
- Compare the difference between standards and regulations.
- List and describe the components of risk identification, risk evaluation, and incident management.
- Describe the relevance for safety in the work place including the importance of PPE.
- Apply the knowledge of an effective safety plan to pre-incident planning, response and training activities.
- Explain the components of an accountability system in emergency services operations.
- Discuss the need for and the process used for post-incident analysis.
- Describe the components of a wellness/fitness plan.
- Describe the components and value of critical incident management programs.
• Describe the responsibilities of individual responders, supervisors, safety offices and incident commanders, safety program managers, safety committees and fire department managers as they relate to health and safety programs.

• Identify and analyze the major causes involved in line-of-duty firefighter deaths related to health wellness, and vehicle operations.

TEXT:

COURSE OUTLINE:

OCCUPATIONAL SAFETY AND HEALTH FOR EMERGENCY SERVICES

Week 1   History of Occupational Safety and Health
Week 2   Safety- Related Regulations and Standards
Week 3   Risk Management
Week 4   Safety Program Development and Management
Week 5   Employee Fitness/ Wellness Programs
Week 6   Pre-Incident Safety
Week 7   Safety at Fire Emergencies
Week 8   Safety at EMS Emergencies
Week 9   Safety at Specialized Incidents
Week 10  Post- Incident Safety Management
Week 11  Final Examinations
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

**Basic Information**
- **Name of New Course Contact:** JOEL KING
- **Contact Title:** FIRE SCIENCE COORDINATOR
- **Department:** PUBLIC SAFETY
- **Supervisor:** ROGER KENNEDY
- **Program:** FIRE SCIENCE

**New Course Information**
- **Date, Year, and Term of Proposed Implementation:** FA 2016
- **Course Title:** PRINCIPLES OF EMERGENCY SERVICES
- **Course Number:** ES 101
- **Number of Credits:** 3

**Activity Code:**
- _100 - Lower Division Collegiate
- _X_210 - CTE Preparatory
- _211 - Stand-alone (Independent) CTE Preparatory
- _220 - CTE Supplemental
- _230 - CTE Apprenticeship
- _310 - English as a Second Language
- _320 - Adult Basic Education
- _330 - General Education Development Test Preparation
- _340 - Adult High School Diploma, High School Completion
- _350 - Post-Secondary Remedial, Reading or Writing
- _351 - Post-Secondary Remedial, Math
- _352 - Post-Secondary Remedial, Electives
- _360 - ACE – Unknown
- _361 - ACE - Health and Fitness
- _362 - ACE – Safety
- _363 - ACE – Workforce
- _510 - Non-Reimbursable – Unknown
- _511 - Non-Reimbursable - Hobby and Recreation
- _512 - Non-Reimbursable - Other/Administrative

**Course Type**
(If your course is a combination of the below options, please define it in ‘other’)

- _X_ Lecture (11 hrs/credit)
- __Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
__Other:

**Number of Hours:** 33
*See 'course type' above for guidance*

**Co- and Pre-Requisite Information**
*Please define any co- or pre-requisite information.*

**Co- and Pre-Requisite Enforcement**
*Please choose an enforcement option for the information listed above.*
__Registration Enforced
__Instructor Enforced
__Combination or Other Enforcement

*If you chose 'Combination or Other Enforcement' above, please describe.*

**Catalog Course Description – see attached course outline**

**Grading Option:**
STANDARD

**Load Factor:**
3

**Award Information:**
*Please select all that apply.*

__AA
__AS
__X_AAS
__Below 100-Level
__Elective
__Certificate
__AAOT

*If you selected ‘AAOT’ above, please select the area of distribution below.*
__Arts and Letters
__Mathematics
__Science or Computer Science
__Social Science
__Speech/Oral Communication
__Writing
__Cultural Literacy
UCC New Course Approval

CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?
___Yes
___No

Minutes must be submitted to IC
___Yes
___No

Course on "LDC Course List" with ODE?
___Yes
___No (Course has been approved for transfer.)
___To Be

Course Type:
___X_Occupational Preparatory (organized degree/cert. program)
___Occupational Supplementary
___Foundational Requirement
___Discipline Studies
___Elective

Required Course Information
*Please list all programs for which this course will be required*
FIRE SCIENCE

New Course Justification
Student Need for Course *(Please describe)*

Course Impacts *(Select all that apply)*
___Instructional costs (staff, materials, equipment, or facilities) are required.
___Additional instructional costs (staff, materials, equipment, or facilities) are needed.
___Impact to other divisions in terms of classes and staffing
___Other

Course Impact Description
*For any of the course impacts listed above, please describe.*

Replacement Course For:
**Additional Process Items**

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at [http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces](http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces)

- [X] Course Outline - required
- [ ] Start-Up Budget (if needed)
- [ ] Advisory Committee Minutes (if needed)
COURSE TITLE: PRINCIPLES OF EMERGENCY SERVICES
Developed by (FESHE Curriculum Associate Core)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course provides an overview to fire protection and emergency services. This course compares the function of public and private EMS and fire protection services. This course introduces the student to local government laws and regulation affecting the fire service, fire service nomenclature and specific fire protection functions. This course will also introduce the students to basic fire chemistry and physics, firefighting strategy and tactics, life safety initiatives, and fire protection systems.

COURSE OBJECTIVES:
- Examines the history of EMS and fire services.
- Describes the component and development of fire and emergency services
- Recognize careers in fire and emergency services

LEARNER OUTCOMES:
The students will:
- Illustrate and explain the history and culture of the fire service.
- Analyze the basic component of fire as a chemical chain reaction, the major phases of fire and examine the main factors that influence fire spread and fire behavior.
- Differentiate between fire service training and education and explain the value of higher education to the professionalization of the fire serviced.
- List and describe the major organizations that provide emergency response service and illustrate how they interrelate.
- Identify fire protection and emergency service careers in both public and private services.
- Define the role of national, state and local support organizations in fire and emergency services.
• Discuss and describe the scope, purpose, and organizational structure of fire and emergency services.
• Describe the common types of fire and emergency service facilities, equipment, and apparatus.
• Compare and contrast effective management concepts for various emergency situations.
• Identify the primary responsibilities of fire prevention personnel including code enforcement, public information, and public and private protection systems.
• Recognize the components of career preparation and goal setting
• Describe the importance of wellness and fitness as it relates to emergency services.

REQUIRED TEXT/ MATERIALS:
Introduction to Fire Protection and Emergency Services, 5th edition (2015); Robert Klinoff,

COURSE OUTLINE:

Week 1     Careers in the Fire Protection and Emergency Services
Week 2     History of Fire Protection and Emergency Services
Week 3     Fire Prevention and Public Fire Education
Week 4     Scientific Terminology
Week 5     Building Design and Construction
Week 6     Fire Detection and Suppression Systems
Week 7     Role of Public and Private Support Organizations
Week 8     Role of Federal, National and International Organizations
Week 9     Fire and Emergency Services Equipment and Facilities
Week 10    Management
Week 11    Final Examinations
Please enter information for the new course you are proposing below. Your careful attention to completion of all fields is appreciated. Thank you!

Basic Information
Name of New Course Contact: JOEL KING
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Supervisor: ROGER KENNEDY
Program: FIRE SCIENCE

New Course Information
Date, Year, and Term of Proposed Implementation: FA 2016
Course Title: PRINCIPLES OF FIRE AND EMERGENCY SERVICE ADMINISTRATION
Course Number: ES 109
Number of Credits: 3
Activity Code:
_100 - Lower Division Collegiate
_X_210 - CTE Preparatory
_211 - Stand-alone (Independent) CTE Preparatory
_220 - CTE Supplemental
_230 - CTE Apprenticeship
_310 - English as a Second Language
_320 - Adult Basic Education
_330 - General Education Development Test Preparation
_340 - Adult High School Diploma, High School Completion
_350 - Post-Secondary Remedial, Reading or Writing
_351 - Post-Secondary Remedial, Math
_352 - Post-Secondary Remedial, Electives
_360 - ACE - Unknown
_361 - ACE - Health and Fitness
_362 - ACE - Safety
_363 - ACE - Workforce
_510 - Non-Reimbursable - Unknown
_511 - Non-Reimbursable - Hobby and Recreation
_512 - Non-Reimbursable - Other/Administrative

Course Type
(If your course is a combination of the below options, please define it in ‘other’)

_X_Lecture (11 hrs/credit)
_302_Lab (30 hrs/credit)
Lecture/Lab (20 hrs/credit)
Other:

Number of Hours: 33
See 'course type' above for guidance

Co- and Pre-Requisite Information
Please define any co- or pre-requisite information.

Co- and Pre-Requisite Enforcement
Please choose an enforcement option for the information listed above.
Registration Enforced
Instructor Enforced
Combination or Other Enforcement

If you chose 'Combination or Other Enforcement' above, please describe.

Catalog Course Description – see attached course outline

Grading Option:
STANDARD
Load Factor:
3
Award Information:
Please select all that apply.

AA
AS
X_AAS
Below 100-Level
Elective
Certificate
AAOT

If you selected 'AAOT' above, please select the area of distribution below.
Arts and Letters
Mathematics
Science or Computer Science
Social Science
Speech/Oral Communication
Writing
Cultural Literacy
CTE and Lower Division Collegiate Proposals Only
Approved by Advisory Committee?  NO
Minutes must be submitted to IC
__Yes
__No

Course on "LDC Course List" with ODE?
__Yes
__No (Course has been approved for transfer.)
__To Be

Course Type:
__X_Occupational Preparatory (organized degree/cert. program)
__Occupational Supplementary
__Foundational Requirement
__Discipline Studies
__Elective

Required Course Information
Please list all programs for which this course will be required
FIRE SCIENCE

New Course Justification
Student Need for Course (Please describe)

Course Impacts (Select all that apply)
__Instructional costs (staff, materials, equipment, or facilities) are required.
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__Impact to other divisions in terms of classes and staffing
__Other

Course Impact Description
For any of the course impacts listed above, please describe.

Replacement Course For:
Additional Process Items

Please check all of the additional forms and documents you have completed and submit along with this form Curriculum Committee. Links to fill-able versions of these forms can be found at http://new.umpqua.edu/resources-and-services/faculty-and-staff/committees-taskforces

_X_ Course Outline - required  
__ Start-Up Budget (if needed)  
__Advisory Committee Minutes (if needed)
COURSE TITLE: PRINCIPLES OF FIRE AND EMERGENCY SERVICE ADMINISTRATION
Developed by: (FESHE Curriculum Associate Degree Core Class)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course introduces the student to the organization and management of a fire and emergency services department and the relationship of government agencies to the fire service. Emphasis is placed on fire and emergency service, ethics, and leadership from the perspective of the company officer.

COURSE OBJECTIVES:
The students will:
- Describe the basic theories of public sector management.
- Recognize the importance of ethics and communication skills.
- Articulate and demonstrate the importance of the public policy process, responsibility, and authority.

LEARNER OUTCOMES:
At the conclusion of this course the successful student firefighter will be able to:
- Acknowledge career development opportunities and strategies for success.
- Recognize the need for effective communication skills both written and verbal.
- Identify and explain the concepts of span of control, effective delegation and division of labor.
- Select and implement the appropriate disciplinary action based upon an employee’s conduct.
- Explain the history of management and supervision methods and procedures.
- Discuss the various levels of leadership, roles, and responsibilities within the organization
- Describe the traits of effective versus ineffective management styles.
- Identify the importance of ethics as it relates to fire and emergency services.
- Identify the roles of the National Incident Management System and Incident Management System (ICS).
REQUIRED TEXT/ MATERIALS:

COURSE OUTLINE:

Week 1     New Challenge and Opportunities
Week 2     Communication Process, Management Principles
Week 3     Management Principles, Management and Supervision
Week 4     Tools for Employee Development
Week 5     Leadership
Week 6     Managing Resources Emergency and Non-Emergency
Week 7     Safety Assessment
Week 8     Ethics
Week 9     Incident Management Systems
Week 10    Records Management
Week 11    Final Examinations
Course Title: **Flowering Plants of Southwestern Oregon and Northern California**
Developed By: Ken Carloni, Ph.D.
Development Date: Jan. 2012
Revision Date: Nov. 2015
Review Date:

**COURSE DESCRIPTION:**

This is a hybrid course taught partly online and partly during a six-day field tour of Southwestern Oregon and Northern California. Resources for learning botanical terminology, plant evolution, diversity and classification, common plant family characteristics, and regional plant communities will be delivered online. The use of cameras and field notebooks for documenting plant identification, location and habitat will be emphasized. The field tour will highlight the use of botanical keys to identify native flowering trees, shrubs, and wildflowers while touring through regional plant communities. The tour will leave from the UCC campus, and will likely include stops in the Siskiyou Mountains, Smith River, Redwood State and National Parks, Trinidad State Beach, the Trinity River, the Mt. Hood/McCloud River area, McArthur-Burney Falls State Park, Lava Beds National Monument, Crater Lake National Park, the North Umpqua River, and other sites of botanical interest before returning to UCC. Students should be reasonably fit and prepared to hike several miles over the course of the tour on easy to moderately difficult trails, and to camp at improved campsites each night. This is an extended spring term course and grades will be awarded after the tour during the following summer term. A fee is required to cover transportation, food and camping.
COURSE OUTCOMES:

Students who successfully complete this course will be able to:

1. Demonstrate a basic understanding of botanical classification, plant evolution, plant communities, fire ecology, and pollination ecology of SW. Oregon and N. California.
2. Name and describe the vegetative and reproductive organs of flowering plants.
3. Use botanical keys to identify flowering plants of the region.
4. Demonstrate proficiency in the use of hand lenses, cameras, and multimedia software to observe and document the identity, location and habitats of plant species encountered on the tour route.
5. Keep an accurate field notebook documenting the identity, location and habitats of plant species encountered on the tour route.

COURSE OUTLINE:

- Classification of flowering plants
- Terminology of reproductive and vegetative structures
- Major flowering plant families of SW. Oregon and N. California
- Using dichotomous keys
- Ecological roles of flowering plant species in their habitats
- Role of flowering plants in forest succession
- Documenting flowering plants in the field
- Habitats and ecoregions of SW. Oregon and N. California
- Field tour of the region.
Basic Information
Name of Course Revision Contact: Ken Carloni
Date: Nov. 2015
Contact Title: Dept. Chair
Department: Science
Course Number: BOT 204
Course Title: Flowering Plants of Southwestern Oregon and Northern California

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program: Science/Natural Resources

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
This revision changes the course number of BOT 203A to BOT 204, and makes minor revisions to the title, description and objectives to reflect the evolution of the course over its first 4 years.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
Since this revision simply renames an existing course and makes minor adjustments to the course description, outcomes and outline, there will be no substantive impacts to the Science Dept.
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.

_X_ Course Outline - required
__ Other:
Basic Information
Name of Course Revision Contact: Ken Carloni
Date: Nov. 2015
Contact Title: Dept. Chair
Department: Science
Course Number: NR 230
Course Title: Forest Ecosystems

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: Fall 2016

Parent Program: Science/Natural Resources

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
This revision simply changes the course number of the original course from NR 240 to NR 230 to distinguish it from the newly developed version of NR 240 that now aligns with OSU’s FES 240.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
No impact.
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.

_X_ Course Outline - required
___ Other:
PROGRAM AREA: ARTS AND SCIENCES

ASSOCIATE OF SCIENCE IN NATURAL RESOURCES: LANDSCAPE MONITORING OPTION

CAREER DESCRIPTION: The Associate of Science degree in Natural Resources aims to give students a comprehensive educational foundation for careers related to natural resource science and technology. This program prepares students for jobs in conservation science, wildlife biology, fisheries science, botany, forestry, watershed management and other fields related to natural resource science and conservation. Our Landscape Monitoring Option introduces the theory and practice of landscape monitoring, and offers broad laboratory and field training in measuring and analyzing ecological conditions at the microsite, community, and landscape levels. The program takes advantage of the diversity of resources available on nearby public lands, and the local professionals who manage those lands, to provide a mix of classroom, lab, and field experiences not found at any other institution. See https://www.umpqua.edu/natural-resources

ACCEPTANCE REQUIREMENTS: Students are required to take college placement tests to determine skill level and readiness for college-level courses. Coursework from accredited high schools, colleges and universities will be accepted in accordance with college policies and with the approval of the Science Department Chair.

PROGRAM OUTCOMES: Students who graduate with an Associate of Science degree in Natural Resources will be well-trained for entry-level jobs in the natural resource economy. The program is specifically designed for seamless transfer to the Oregon State University College of Forestry's Bachelor of Science degree in Natural Resources. Students will receive a solid grounding in the fundamentals of writing, math and science, and will apply those concepts and skills in the lab and in the field. Training will emphasize current methods and technologies employed by agency field specialists. Transfer agreements between OSU and the UCC Science and Engineering Depts. also allow course transfers into many other options within the OSU Natural Resources BS and into BS degrees in Forest Engineering, Forest Management, Forest Operations, and others.

GRADUATION REQUIREMENTS: A minimum of 90 credits. All program courses must be passed with a C or better. See UCC Advising Services to review AS requirements at UCC, and see the Science Dept. Chair for transfer to university programs. Beyond the AS degree, up to 124 total credits may be taken at Umpqua Community College. The remaining 60 Upper Division online credits needed to graduate (minimum 180 credits total) are all available through OSU's eCampus so students can earn their entire Bachelor of Science degree in Natural Resources from OSU entirely at UCC. Students transferring to OSU after having completed their Associate of Science degree in Natural Resources – Landscape Monitoring, will be granted the following course equivalencies toward the Bachelor of Science in Natural Resources at OSU:

CURRICULUM

OSU BACCALAUREATE CORE EQUIVALENTS:

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<tr>
<td>BI 211: Principles of Biology I(^1)</td>
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<td>ECON 201: Macroeconomics</td>
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<td>ENG 230: Environmental Literature</td>
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<td>G 221: Environmental Geology(^3)</td>
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<td>HPE 295: Wellness &amp; Health Assessment</td>
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<td>HST 20X: World History</td>
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<td>MTH 111: College Algebra</td>
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\(^1\)不能用于满足AS要求
\(^2\)不能用于满足AS要求
\(^3\)不能用于满足AS要求
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<td>NR 240</td>
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<td>NR 241</td>
<td>Dendrology</td>
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<td>SOIL 205/206</td>
<td>Soil Science w/ Lab</td>
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<td>SP 111</td>
<td>Fundamentals of Public Speaking</td>
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<td>WR 121</td>
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<tr>
<td>WR 227</td>
<td>Technical Report Writing</td>
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**OSU NATURAL RESOURCES CORE EQUIVALENTS:**

- BOT 203: Field Botany                              | 4       |
- BOT 204: Field Bot. SW OR and N CA (hyb)           | 4       |
- CH 112: Fundamentals of Chemistry                  | 5       |
- GIS 234: Introduction to GIS                       | 3       |
- GIS 235: Geographic Information Systems II        | 3       |
- MTH 243: Intro to Statistics                       | 4       |
- NR 201: Intro to Natural Resources                | 3       |
- NR 261: Recreation Resource Management            | 4       |
- NR 295: Environmental Dispute Resolution          | 3       |
- SUR 161: Plane Surveying I                        | 4       |

**OSU LANDSCAPE MONITORING OPTION:**

- NR 221: Water Resource Science                     | 4       |
- NR 242: Ecosystems of SW OR and N CA (hyb)         | 4       |
- NR 243: Historical Ecology of PNW Landscapes      | 3       |
- NR 251: Principles of Fish & Wildlife Cons.       | 3       |
- NR 255A: Landscape Monitoring Fall                 | 2       |
- NR 255B: Landscape Monitoring Winter               | 2       |
- NR 255C: Landscape Monitoring Spring               | 2       |
- PE 255: Wilderness Survival                        | 2       |

**NATURAL RESOURCES: LANDSCAPE MONITORING OPTION**

9X credits – Recommended Sequence for Students (Students should see an advisor to customize their educational plan)

**Term 1 – Fall**

- BI 211 Principles of Biology I                      | 5       |
- CH 112 Fundamentals of Chemistry                    | 5       |
- NR 201 Intro to Natural Resources                   | 3       |
- WR 121 English Comp. Intro to Argument              | 4       |
- Total                                              | 17      |

**Term 2 - Winter**

- BI 212 Principles of Biology II                     | 5       |
- NR 251 Principles of Fish and Wildlife Conservation | 3       |
- NR 295 Environmental Dispute Resolution             | 3       |
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**Term 3 - Spring**

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**Term 4 - Fall**

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<td>NR 243</td>
<td>Historical Ecology of PNW Landscapes</td>
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**Term 6 - Spring**

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**NOTES:**

1. Also meets OSU NR Core requirements
2. Not required but strongly recommended
3. May be taught in a different term

Scheduling requirements may prevent all courses from being offered every term. Consultation with an advisor is critical to student's selection of courses. Please see an advisor for a degree planning worksheet for a program.
UCC Course Revision

Basic Information
Name of Course Revision Contact: Roger Kennedy
Date: November 3, 2015
Contact Title: EMS Program Coordinator
Department: EMT
Course Number: EMS 175
Course Title: Intro to EMS

Course Revision Information

Type of change
_ X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: Spring 2016

Parent Program:

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Removal of corequisite

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.

-X_ Course Outline - required

__ Other:
COURSE TITLE: Intro to Emergency Medical Services
Developed by: Roger Kennedy
Revision Date: November 3, 2015

COURSE DESCRIPTION:
This course covers the role and responsibilities of the paramedic, emergency medical services systems, medical-legal considerations, major incident response, hazardous materials awareness, history and trends, organization, funding, and role of ambulance and rescue services in medical care; leadership, personal and career development.

LEARNER OUTCOMES:
Upon completion of this course, the student should be able to:

- Define EMS System
- List the 15 components of EMS Systems and the 14 attributes
- Recall important milestones in the evolution of EMS
- Describe the federal role in EMS
- Describe the role of state government in EMS
- Identify laws and legislation associated with EMS
- Describe the levels of prehospital care providers
- Describe medical oversight
- Identify various configurations of EMS delivery systems
- Summarize the recommendations and findings in “EMS Education Agenda for the Future”
- State the role of public education and prevention in EMS
- Describe the role of EMS in disasters
- State role of communications and communications technology in EMS
- Identify the fundamentals of emergency medical dispatching
- Describe the sources of EMS funding
UCC Course Outline

- Describe the role of information systems and evaluation in EMS
- Summarize the role of research in EMS
- Completion of FEMA ICS 100, 200, 700

REQUIRED TEXT/MATERIALS:

OUTLINE:

Week 1  Introduction to Emergency Medical Systems
Week 2  History of Emergency Medical Systems; Human Resources
Week 3  Educational Systems; Transportation
Week 4  Medical Oversight
Week 5  Public Access and communications
Week 6  Clinical care and Hospital Emergency Medicine
Week 7  System Finances; Legislation and Regulation
Week 8  Public education and injury prevention; EMS and disaster response
Week 9  Information systems and evaluation
Week 10 Research
Basic Information
Name of Course Revision Contact: JOEL KING
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: CH, GS, PH
Course Title: SCIENCE ELECTIVE

Course Revision Information

**Type of change**
- _ _ Revision
- __ Reactivation
- _x_ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
*Please give as many details as possible about the revision, including justification for the change.*
Students going onto the paramedic degree will take chemistry as a prerequisite to anatomy and physiology. The Fire Science degree program provides the students several opportunities to understand and apply basic physics, chemistry and general science concepts. The removal of this science elective allows for new technical courses to be added to the program.

Course Revision Impacts - *select all that apply*

- Instructional costs (staff, materials, equipment, or facilities) required.
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- Impact to other divisions in terms of classes and staffing
- Other:

Description of Impact
*If your revision will have one of the impacts listed above, please describe...*
This will reduce the number of students enrolling in CIS 120 by approximately 4 to 6 students per year.
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.

__ Course Outline - required
__ Other:
Basic Information
Name of Course Revision Contact: JOEL KING
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP 123
Course Title: HAZARDOUS MATERIALS

Course Revision Information

Type of change
__X__ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change. This course becomes the prerequisite to take Hazardous Materials Chemistry

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
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Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

_x_ Course Outline - required

__ Other:
COURSE TITLE: HAZARDOUS MATERIALS AWARENESS & OPERATIONS
Approved by: Roger Kennedy BS, Public Safety Department Chair
Developed by: Joel King, BS, EMT-P

COURSE DESCRIPTION:
Hazardous Materials is designed for entry level firefighters, first responders, as well as industrial fire brigade or safety team members. This course covers how to recognize and handle emergencies involving hazardous materials, within the scope of an Awareness and Operations level responder. It includes; hazard recognition, responding, intervening, and stabilizing the situation.

COURSE OBJECTIVES:
This class will provide the students with the knowledge and skills to safely operate at a hazardous materials incident. The course will teach students how to use the DOT Emergency Response Guidebook. The students learn how to isolate and deny entry at the scene and how to control minor leaks and spills. This course leads to DPSST/ NFPA certification at the Hazardous Materials Awareness and Operations levels.

LEARNER OUTCOMES:
The students will:
- Recognize situations involving hazardous materials.
- Identify the hazardous materials involved
- Access and utilize the DOT Emergency Response Guidebook to establish initial isolation distance and initial actions
- List the elements involved in a Hazardous Materials Incident Response.
- Demonstrate procedures to handle minor incidents.
- List the competencies required by the Oregon Department of Public Safety Standards and Training (DPSST) for Hazardous Materials Awareness and Operations Levels.
REQUIRED TEXT/MATERIALS:
Emergency Response Guide; 2008 Edition, Department of Transportation

COURSE OUTLINE:

Week 1  Introduction and Awareness Overview
Week 2  Detection of Hazardous Materials, Identification and Hazard Assessment
Week 3  Conclusion, Identification and Hazard Assessment
Week 4  Operations Introduction, Surveying the Scene
Week 5  Personal Protective Equipment, Hazardous Materials Control
Week 6  Hazard and Risk Assessment, Introduction to Incident Command
Week 7  Field Decontamination, Incident Termination Procedures, State Incident Forms
Week 8  Radiological Emergencies, Safety at Hazardous Materials Incidents
Week 9  Hands on Exercise, Confinement, Containment, and Decontamination
Week 10 Instrumentation and Monitoring
Basic Information
Name of Course Revision Contact:  JOEL KING
Date:  NOVEMBER 2015
Contact Title:  FIRE SCIENCE COORDINATOR
Department:  PUBLIC SAFETY
Course Number:  FRP 163
Course Title:  FIRE SERVICE INSTRUCTOR

Course Revision Information

Type of change
___ Revision
___ Reactivation
X  Deletion

Date, Year, and Term of Proposed Revision:  FA 2016

Parent Program:  FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change. Certification as a Fire Service Instructor 1 does not benefit the student’s career search. The course is often taught as a non-credit class by fire department personnel. Deletion of this course will allow credits to be assigned to proposed courses.

Course Revision Impacts - select all that apply

___ Instructional costs (staff, materials, equipment, or facilities) required.
___ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
___ Impact to other divisions in terms of classes and staffing
___ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
NONE
**List current information and proposed changes**

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**Additional Documentation**

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

__ Course Outline - required  
__ Other:
Basic Information
Name of Course Revision Contact: JOEL KING
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP 230
Course Title: FIRE SERVICE HYDRALICS AND WATER SUPPLY

Course Revision Information

Type of change
  _X_ Revision
  __ Reactivation
  __ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
This is a minor course description change. The change will bring this class into align with the FESHE Modell

Course Revision Impacts - select all that apply

  __ Instructional costs (staff, materials, equipment, or facilities) required.
  __ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
  __ Impact to other divisions in terms of classes and staffing
  __ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
_X_ Course Outline - required
__ Other:
COURSE TITLE: FIRE PROTECTION HYDRAULICS AND WATER SUPPLY
Developed by: (FESHE Model Associate of Science Core Class)
Approved by: Roger Kennedy BS, Public Safety Department Chair
Recommended by: Joel King BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course provides a foundation of theoretical knowledge in order to understand the principles of the used of water in fire protection and to apply hydraulic principles to analyze and to solve water supply problems.

COURSE OBJECTIVES:
- The students will apply water hydraulic principles
- Demonstrate knowledge of water hydraulics as it relates to fire protection.

LEARNER OUTCOMES:
The student will:
- Apply the application of mathematics and physics to the movement of water in fire suppression activities.
- Identify the design principles of fire service pumping apparatus
- Analyze community fire flow demand criteria.
- Demonstrate, through problem solving, a thorough understanding of the principles of forces that affect water, both a rest and in motion.
- List and describe the various types of water distribution systems.
- Discuss the various types of fire pumps.
TEXTBOOK:

COURSE OUTLINE:
FIRE PROTECTION HYDRAULICS AND WATER SUPPLY

Week 1    Water as an Extinguishing Agent
Week 2    Math review
Week 3    Water at Rest
Week 4    Water in Motion
Week 5    Water Distribution Systems
Week 6    Fire Pumps
Week 7    Fire Streams
Week 8    Friction Loss
Week 9    Engine Pressures
Week 10   Standpipe and Sprinkler Systems
Week 11   Final Examinations
Basic Information
Name of Course Revision Contact: JOEL KING
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP 240
Course Title: WATER DISTRIBUTION

Course Revision Information

Type of change
___ Revision
___ Reactivation
___ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change. The content of FRP 240 is also taught in FRP 230. This deletion removes that duplication and will make room for new courses within the Fire Science Program.

Course Revision Impacts - select all that apply

___ Instructional costs (staff, materials, equipment, or facilities) required.
___ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
___ Impact to other divisions in terms of classes and staffing
___ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
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List current information and proposed changes

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Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

__ Course Outline - required
__ Other:
Basic Information
Name of Course Revision Contact: JOEL KING
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP 280
Course Title: FIRE RELATED SKILLS

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
No changes to the course description. The student is allowed to take FRP 280 for either a 1 or 2 credits per term. The student will be allowed up to 6 credits of FRP 280. This credit reduction in FRP 280 allows credit adjustment in other classes including new course offerings. The principle course change is FRP 121 B which currently uses FRP 280 credits to complete.

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
_X_ Course Outline - required
__ Other:
Basic Information
Name of Course Revision Contact:  Fill in your information here
Date:  NOVEMBER 2015
Contact Title:  FIRE SCIENCE COORDINATOR
Department:  PUBLIC SAFETY
Course Number:  FRP 121 A
Course Title:  ELEMENTARY FIRE SCIENCE

Course Revision Information

Type of change
  _X_ Revision
  ___ Reactivation
  ___ Deletion

Date, Year, and Term of Proposed Revision:  FA 2016

Parent Program:

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
Currently FRP 121 prepares the student to be on the fire ground under direct supervision.
Without additional training the student will not certify as a NFPA firefighter 1. That additional
training is provided by students taking additional fire fighter training at local fire departments.
We currently attempt to compensate those instructors by using FRP 280 credits. This practice
does not recognize or direct the training the students get during this time.

Course Revision Impacts - select all that apply

  ___ Instructional costs (staff, materials, equipment, or facilities) required.
  ___ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
  ___ Impact to other divisions in terms of classes and staffing
  ___ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
_X_ Course Outline - required
__ Other:
COURSE TITLE: ELEMENTARY FIRE SCIENCE PART 1
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
Elementary Fire Science covers basic firefighting skills of a firefighter including the following: Principles of Fire Behavior, Fire Streams, Ventilation, Breathing Apparatus, Search and Rescue Practices, Ropes and Knots, Portable Fire Extinguishers, Ladders, Fire Hose, Salvage Covers, Small Hand Tools, and Firefighter Safety. This class is part 1 or a two part class leading to NFPA/ DPSST firefighter certification.

COURSE OBJECTIVES:
The student will develop an understanding of the professional standards required to become a career firefighter. Moreover, the conditions required to work under direct supervision on or in the fire ground in emergency situations and the responsibilities of present day public safety employees.

LEARNER OUTCOMES:
The student will demonstrate the necessary skills, abilities and knowledge to complete the following tasks:

- Select, quickly apply and remove personal protective equipment.
- Raise, climb, work from and lower ground ladders.
- Roll, throw and carry various hose rolls and folds.
- Develop, apply and control various fire streams.
- Provide horizontal and vertical ventilation using natural and mechanical techniques.
- Tie use and untie various size ropes.
- Use various hand tools such as axes, pike poles and prying tools.
- Protect property through use of salvage covers and other salvage techniques.
- Communicate on portable and hand held radios using proper radio procedures.
- Determine methods of fire control based upon fire behavior patterns.
REQUIRED TEXT/MATERIALS:
*Essentials of Fire Fighting, 6th edition*, by International Fire Service Training Association (IFSTA); Workbook to accompany *Essentials of Fire Fighting*.

Tools/Equipment/Apparel (required of the student): All Fire Science and Paramedic students will be in uniform as prescribed by program director.

Fire Protective Equipment including helmets and gloves may be needed

**OUTLINE:**

Elementary Fire Science Part 1

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Basic Information
Name of Course Revision Contact: Fill in your information here
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP 121 B
Course Title: ELEMENTARY FIRE SCIENCE

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program:

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
This course, in addition to FRP 121 A will provide the student with the skills and knowledge necessary to attain NFPA firefighter 1 certification. The student will gain the hands on skill and experience to make vehicle and structure fire attacks. The student will perform search and rescue in hostile environments. The course description.

Course Revision Impacts - select all that apply

_X_ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
The cost of this course will increase as a result of the credit increase.
The cost of the program increase as a result of this new class.
List current information and proposed changes

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Additional Documentation

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

.Validate Course Outline - required

Other:
Basic Information
Name of Course Revision Contact: JOEL KING
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: CIS120
Course Title: INTRODUCTION TO COMPUTER INFORMATION SYSTEMS

Course Revision Information

Type of change
- _ Revision
- __ Reactivation
- __x_ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change. Most students have substantial computer experience by entry into college. This introduction to computers class does not serve the needs of the firefighter or firefighter /paramedic. CIS 120 is not required by the AAS Paramedicine degree program.

Course Revision Impacts - select all that apply

- __ Instructional costs (staff, materials, equipment, or facilities) required.
- __ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- __ Impact to other divisions in terms of classes and staffing
- __ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
This will reduce the number of students enrolling in CIS 120 by approximately 4 to 6 students per year.
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
__ Course Outline - required
__ Other:
Basic Information
Name of Course Revision Contact: JOEL KING
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: WR 122
Course Title: English Composition: Style and Argument

Course Revision Information

Type of change
___ Revision
___ Reactivation
_X_ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change. Writing for fire and emergency services is non-fictional to the point routinely descriptive technical report writing. WR 122 is not necessary for success as a firefighter/paramedic. WR 122 is not required by the Associate of Applied Science Paramedicine Degree.

Course Revision Impacts - select all that apply

___ Instructional costs (staff, materials, equipment, or facilities) required.
___ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
_X_ Impact to other divisions in terms of classes and staffing
___ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
This will reduce the number of students enrolling in WR 122 by approximately 4 to 6 students per year.
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### Additional Documentation

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- Course Outline - required
- Other:
Basic Information
Name of Course Revision Contact:  Fill in your information here
Date:  NOVEMBER 2015
Contact Title:  FIRE SCIENCE COORDINATOR
Department:  PUBLIC SAFETY
Course Number:  FRP 101
Course Title:  FIREFIGHTER SAFETY AND SURVIVAL

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision:  FA 2016

Parent Program:  FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
This change aligns UCC with the FESHE Model for Associate Degree in Fire Science. The course description will only require minor revision. The credit change will allow for easier granting of credit between schools.

Course Revision Impacts - select all that apply

_x_ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
The cost of this course will increase as a result of the credit increase.
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**Additional Documentation**

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- X Course Outline - required
  - Other:
COURSE TITLE: PRINCIPLES OF EMERGENCY SERVICES
Developed by (FESHE Curriculum Associate Core)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course provides an overview to fire protection and emergency services. This course compares the function of public and private EMS and fire protection services. This course introduces the student to local government laws and regulation affecting the fire service, fire service nomenclature and specific fire protection functions. This course will also introduce the students to basic fire chemistry and physics, firefighting strategy and tactics life safety initiatives, and fire protection systems.

COURSE OBJECTIVES:
- Examines the history of EMS and fire services.
- Describes the component and development of fire and emergency services
- Recognize careers in fire and emergency services

LEARNER OUTCOMES:
The students will:
- Illustrate and explain the history and culture of the fire service.
- Analyze the basic component of fire as a chemical chain reaction, the major phases of fire and examine the main factors that influence fire spread and fire behavior.
- Differentiate between fire service training and education and explain the value of higher education to the professionalization of the fire serviced.
- List and describe the major organizations that provide emergency response service and illustrate how they interrelate.
- Identify fire protection and emergency service careers in both public and private services.
- Define the role of national, state and local support organizations in fire and emergency services.
- Discuss and describe the scope, purpose, and organizational structure of fire and emergency services.
- Describe the common types of fire and emergency service facilities, equipment, and apparatus.
- Compare and contrast effective management concepts for various emergency situations.
- Identify the primary responsibilities of fire prevention personnel including code enforcement, public information, and public and private protection systems.
- Recognize the components of career preparation and goal setting
- Describe the importance of wellness and fitness as it relates to emergency services.

**REQUIRED TEXT/ MATERIALS:**
*Introduction to Fire Protection and Emergency Services*, 5th edition (2015); Robert Klinoff,

**COURSE OUTLINE:**

- **Week 1**  Careers in the Fire Protection and Emergency Services
- **Week 2**  History of Fire Protection and Emergency Services
- **Week 3**  Fire Prevention and Public Fire Education
- **Week 4**  Scientific Terminology
- **Week 5**  Building Design and Construction
- **Week 6**  Fire Detection and Suppression Systems
- **Week 7**  Role of Public and Private Support Organizations
- **Week 8**  Role of Federal, National and International Organizations
- **Week 9**  Fire and Emergency Services Equipment and Facilities
- **Week 10**  Management
- **Week 11**  Final Examinations


**Basic Information**

**Name of Course Revision Contact:** Fill in your information here  
**Date:** NOVEMBER 2015  
**Contact Title:** FIRE SCIENCE COORDINATOR  
**Department:** PUBLIC SAFETY  
**Course Number:** FRP 202  
**Course Title:** FIRE PROTECTION SYSTEMS

**Course Revision Information**

**Type of change**

_ _ _ X _ Revision  
__ Reactivation  
__ Deletion

**Date, Year, and Term of Proposed Revision:** FA 2016

**Parent Program:** FIRE SCIENCE

**Course Revision Description and Justification**

*Please give as many details as possible about the revision, including justification for the change.*

This change aligns UCC with the FESHE Model for Associate Degree in Fire Science. The course description will only require minor revision.

**Course Revision Impacts - select all that apply**

_ _ Instructional costs (staff, materials, equipment, or facilities) required.  
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.  
__ Impact to other divisions in terms of classes and staffing  
__ Other:

**Description of Impact**

*If your revision will have one of the impacts listed above, please describe...*

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List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.

_X_ Course Outline - required
__ Other:
**COURSE TITLE:**  FUNDAMENTALS OF FIRE PREVENTION  
Developed by: (FESHE Curriculum Associate of Science Core)  
Approved by:  Roger Kennedy, BS, Public Safety Chair  
Recommended by:  Joel King, BS, Fire Science Coordinator  

**COURSE DESCRIPTION:**  
This course explores the fundamental knowledge relating to the field of fire prevention. Topics include: history and philosophy of fire prevention; organization and operation of a fire prevention bureau; use and application of codes and standards; plans review; fire inspections; and life safety education; fire investigation.  

**COURSE OUTCOMES:**  
- Identify laws, codes, ordinances, and regulations as they relate to fire prevention.  
- Understand code enforcement as it impacts life and property loss.  

**LEARNER OUTCOMES:**  
At the conclusion of this course the successful student firefighter will be able to:  
- Define the national fire problem and role of fire prevention.  
- Identify and describe fire prevention organizations and associations.  
- Define laws, rules, regulations, and codes and identify those relevant to fire prevention of the authority having jurisdiction.  
- Describe inspection practices and procedures.  
- List opportunities in professional development for fire prevention personnel.  
- Describe the history and philosophy of fire prevention.
REQUIRED TEXT/ MATERIALS:

Course Outline:

Week 1  National Fire Problem and the Role of Fire Prevention
Week 2  Fire Prevention Organizations and Associations
Week 3  Nation Laws, Rules, Regulations and Codes
Week 4  Fire Prevention Bureau Functions
Week 5  Data Collection and Analysis, Plans Review
Week 6  Fire Inspections,
Week 7  Fire Investigations
Week 8  Roles and Responsibilities of Fire Prevention Personnel
Week 9  Professional Certification
Week 10  Profession Development
Week 11  Final Examinations
Basic Information
Name of Course Revision Contact: Fill in your information here
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP 202
Course Title: FIRE PROTECTION SYSTEMS

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
This change aligns UCC with the FESHE Model for Associate Degree in Fire Science. The course description will only require minor revision.

Course Revision Impacts - select all that apply

_ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
NONE
**List current information and proposed changes**

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**Additional Documentation**

Please check additional forms or documentation you have submitted to Curriculum Committee.

_X_ Course Outline - required
__ Other:
COURSE TITLE: FIRE PROTECTION SYSTEMS
Developed by: (FESHE Model Associate of Science Core)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course provides information relating to the features of design and operation of fire alarm systems, water-based fire suppression systems, special hazard fire suppression systems, water supply for fire protection and portable fire extinguishers.

COURSE OBJECTIVES:
- Identify and describe various types and uses of fire protection systems.
- Describe the basic elements of a public water supply system as it relates to fire protection.

LEARNER OUTCOMES:
At the conclusion of this course the successful student firefighter will be able to:
- Explain the benefits of fire protection systems in various types of structures.
- Describe the basic elements of public water supply systems including sources, distribution networks, piping and hydrants.
- Explain why water is a commonly used extinguishing agent.
- Identify the different types and components of sprinkler, standpipe and foam systems.
- Review residential and commercial sprinkler legislation.
- Identify the different types on non-water based fire suppression systems.
- Explain the basic components of a fire alarm system.
- Identify the different types of detectors and explain how the detect fire.
- Describe the hazards of smoke and list the four factors that can influence smoke movement in a building.
- Discuss the appropriate application of fire protection systems.
- Explain the operation and appropriate application for the different types of portable fire protection systems.
REQUIRED TEXT/MATERIALS:

COURSE OUTLINE:

Week 1  Introduction to Fire Protection systems
Week 2  Water Supply for fire Protection systems
Week 3  Sprinkler systems
Week 4  Residential Sprinkler Systems
Week 5  Stand Pipe Systems, Foam Systems, Water Mist Systems
Week 6  Non Water Based fire Suppression Systems
Week 7  Fire Alarm Systems
Week 8  Testing and Maintenance of Fire Alarm Systems
Week 9  Smoke Management Systems
Week 10 Portable Fire Extinguishers
Week 11 Final Examinations
Basic Information
Name of Course Revision Contact: Fill in your information here
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY DEPARTMENT
Course Number: FRP 111
Course Title: BUILDING CONSTRUCTION FOR FIRE PROTECTION

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change. This change aligns UCC with the FESHE Model for Associate Degree in Fire Science. The course description will only require minor revision. The credit change will allow for easier granting of credit between schools.

Course Revision Impacts - select all that apply

_X_ Instructional costs (staff, materials, equipment, or facilities) required.
__ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
The cost of this course will increase as a result of the credit increase.
List current information and proposed changes

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Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.
_X_ Course Outline - required
___ Other:
COURSE TITLE: BUILDING CONSTRUCTION FOR FIRE PROTECTION
Developed by: (FESHE Curriculum Associate of Science Core)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course provides the components of building construction related to firefighter life and safety. The elements of construction and design to structure are shown to be key factors when inspecting buildings, preplanning fire operations and operating at emergencies.

COURSE OBJECTIVES:
- Identify various classification of building construction
- Understand theoretical concepts of how fire impacts major types of building construction

LEARNER OUTCOMES:
At the conclusion of this course the successful student firefighter will be able to:
- Describe building construction as it relates to firefighter safety, building codes, fire prevention, code inspections and firefighter strategy and tactics.
- Classify major types of building construction in accordance with a local/model building code.
- Explain the different type of loads and stresses that are place on a building and their interrelationships.
- Identify the function of each principal structural component in typical building design.
- Classify occupancy designation of the building code.
- Identify the indicators of potential structural failure as they relate to firefighter safety.
- Identify the role of GIS as it relates to building construction
REQUIRED TEXT/ MATERIALS:
Building Construction; Methods and Materials for the Fire Service 2nd Edition (2012); Michael Smith, Brady Publishing (Pearson)

Outline
FRP 111 Building Construction for Fire Protection

Week One  History of Building Construction, Fire Risks and Protection, Pre-fire Planning
Week Two  Building and Occupancy Classifications, Building Materials Characteristics
Week Three  Loads, Carrying Capacity, Structural Design and Construction Methods
Week Four  Principles of Fire Resistances, Standards of Construction
Week Five  Fire Behavior, Flame Spread, Smoke Control, Fire Suppression Systems
Week Six  Wood Construction, Types of Construction, Fire Stopping, fire Barriers
Week Seven  Ordinary Construction,
Week Eight  Noncombustible Construction, Steel Construction, Concrete Construction
Week Nine  High Rise Construction, Protection Systems, Lobby Control, Elevators
Week Ten  Structural Collapse, Ventilation
Week Eleven  Final Examination
Basic Information
Name of Course Revision Contact: JOEL KING Fill in your information here
Date: 11/04/2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP212
Course Title: FIRE INVESTIGATION

Course Revision Information

Type of change
_X_ Revision
___ Reactivation
___ Deletion

Date, Year, and Term of Proposed Revision: FALL 2016

Parent Program:

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
THERE ARE MINOR COURSE DESCRIPTIONS AND LEARNER OUTCOME CHANGES
THAT BRINGS UCC INTO ALIGNMENT WITH THE FESHE CURRICULUM

Course Revision Impacts - select all that apply

___ Instructional costs (staff, materials, equipment, or facilities) required.
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Description of Impact
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**Additional Documentation**

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

_ X _ Course Outline - required

__ Other:
Course No: FRP 212
Course Credit: 3
Lecture Hrs. /wk.: 3
Lab Hrs. /wk.: 0
Lecture/Lab Hrs. /wk.: 0
Practicum Hrs. /Wks.: 0
Clock Hours: 33
Length of Course: 11 weeks
Banner enforced Prerequisite: None
Instructor enforced Prerequisite: None
Co-Requisite: None
Load Factor: 3
Activity Code: 210 CTE Preparatory
CIPS: 430203

COURSE TITLE: FIRE INVESTIGATION
(FESHE Curriculum Associate Degree Non-Core)
Approved by: Roger Kennedy, BS, Public Safety Chair
Recommended by: Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTIONS:
This course is intended to provide the student with the fundamentals and technical knowledge needed for proper fire scene interpretations, including recognizing and conducting origin and cause. Preservation of evidence and documentation, scene security, motives of the fire setter, and types of fire causes.

COURSE OBJECTIVES:
The students will:
Demonstrate the importance of documentation, evidence collection and scene security process needed for successful resolution. Understand and demonstrate the process of conducting fire origin and cause. Identify the processes of proper documentation.

LEARNER OUTCOMES:
- Identify the responsibilities of a firefighter when responding to the scene of a fire.
- Describe the implications of constitutional amendments as they apply to fire investigations.
- Identify key case law decisions that have affected fire investigations.
- Define the common terms used in fire investigations.
- Explain the basic elements of fire dynamics and how they affect cause determination.
- Compare the types of building construction of fire progression.
- Describe how fire progression is affected by fire protection systems and building design.
- Discuss the basic principles of electricity as an ignition source.
- Recognize potential health and safety hazards.
- Describe the process of conducting investigations using the scientific method.
- Identify cause and origin and differentiate between accidental and incendiary.
- Explain the procedures used for investigating vehicle fires.
- Identify the characteristics of an incendiary fire and common motives of the fire setter.
TEXTBOOK:

COURSE OUTLINE:
Week 1    Emergency Responder Responsibilities and Observations
Week 2    Constitutional Law
Week 3    Case Studies
Week 4    Fire Investigations Terminology
Week 5    Basic Elements of Fire Dynamics
Week 6    Building Construction
Week 7    Fire Protection Systems
Week 8    Fire Scene Investigation, Determining Point of Origin
Week 9    Types of Fire Causes, Vehicle Fires
Week 10   Fire Setters
Week 11   Final Examinations
Basic Information
Name of Course Revision Contact: JOEL KING Fill in your information here
Date: 11/04/2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP213
Course Title: FIREIFGHTING STRATEGIES AND TACTICS

Course Revision Information

Type of change

_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: FALL 2016

Parent Program:

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
THERE ARE MINOR COURSE DESCRIPTIONS AND LEARNER OUTCOME CHANGES THAT BRINGS UCC INTO ALIGNMENT WITH THE FESHE CURRICULUM

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
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__ Impact to other divisions in terms of classes and staffing
__ Other:

Description of Impact
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**Additional Documentation**

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

__ Course Outline - required
__ Other:
COURSE TITLE:  FIREFIGHTING STRATEGIES AND TACTICS
Developed by: (FESHE Curriculum Associate Degree Non-Core)
Approved by:  Roger Kennedy, BS, Public Safety Chair
Recommended by:  Joel King, BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course provides the principles of fire ground control through utilization of personnel, equipment and extinguishing agents. This course explores fire service history, fire related laws, fire codes and national standards that effect developing and implementing firefighting tactics and strategies.

COURSE OBJECTIVES:
This course identifies the incident priorities, goals, objectives and response size up methods used by incident commanders to develop firefighting strategies and tactics.
This course reviews the Incident Command System, fire suppression systems, and fire suppression techniques used to provide fire extinguishment and protection of exposures.
This course also explores the importance of pre-incident surveys, pre-incident plans and critical incident reviews.

LEARNER OUTCOMES:
At the conclusion of this class successful students will:
- Discuss fire behavior as it relates to strategies and tactics.
- Explain the main component of pre-fire planning and identify the step needed for a pre-fire plan review.
- Identify the basics of building construction and how the interrelate to pre-fire planning and strategy and tactics.
- Describe the steps taken during size-up.
- Examine the signification of fire ground communications
- Identify and/or develop appropriate tactics that support the goals established by the strategies.
Plan for the effective use of personnel and equipment at the fire ground scene.
Apply fundamental principles of tactics and strategies to reduce potential loss of life and property.
Identify the roles of the National Incident Management System (NIMS) and Incident Management System (ICS) as it relates to strategy and tactics
Demonstrate the various roles and responsibilities in ICS/NIMS

REQUIRED TEXT MATERIALS:

OUTLINE:
Firefighting Strategies and Tactics

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Basic Information
Name of Course Revision Contact: JOEL KING
Date: NOVEMBER 2015
Contact Title: FIRE SCIENCE COORDINATOR
Department: PUBLIC SAFETY
Course Number: FRP 230
Course Title: FIRE SERVICE HYDRALICS AND WATER SUPPLY

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: FA 2016

Parent Program: FIRE SCIENCE

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
This is a minor course description change. The change will bring this class into align with the FESHE Modell

Course Revision Impacts - select all that apply

__ Instructional costs (staff, materials, equipment, or facilities) required.
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<tr>
<td>Load Factor</td>
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</table>

Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

_X_ Course Outline - required
__ Other:
COURSE TITLE: FIRE PROTECTION HYDRAULICS AND WATER SUPPLY
Developed by: (FESHE Model Associate of Science Core Class)
Approved by: Roger Kennedy BS, Public Safety Department Chair
Recommended by: Joel King BS, Fire Science Coordinator

COURSE DESCRIPTION:
This course provides a foundation of theoretical knowledge in order to understand the principles of the used of water in fire protection and to apply hydraulic principles to analyze and to solve water supply problems.

COURSE OBJECTIVES:
- The students will apply water hydraulic principles
- Demonstrate knowledge of water hydraulics as it relates to fire protection.

LEARNER OUTCOMES:
The student will:
- Apply the application of mathematics and physics to the movement of water in fire suppression activities.
- Identify the design principles of fire service pumping apparatus
- Analyze community fire flow demand criteria.
- Demonstrate, through problem solving, a thorough understanding of the principles of forces that affect water, both at rest and in motion.
- List and describe the various types of water distribution systems.
- Discuss the various types of fire pumps.
COURSE OUTLINE:
FIRE PROTECTION HYDRAULICS AND WATER SUPPLY

Week 1    Water as an Extinguishing Agent
Week 2    Math review
Week 3    Water at Rest
Week 4    Water in Motion
Week 5    Water Distribution Systems
Week 6    Fire Pumps
Week 7    Fire Streams
Week 8    Friction Loss
Week 9    Engine Pressures
Week 10   Standpipe and Sprinkler Systems
Week 11   Final Examinations
Basic Information
Name of Course Revision Contact:  Dee Winn
Date:  November 3, 2015
Contact Title:  Instructor
Department:  Mathematics
Course Number:  211
Course Title:  Fundamentals of Elementary Mathematics I

Course Revision Information

Type of change
_X_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision:

Parent Program:  Mathematics

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change. Change pre-requisite from “MTH 095 or MTH 098 with a grade of C or better” to “MTH 095 with a grade of C or better”
After conferring with the pre-service instructors in Oregon at the Fall 2015 TOTOM (Teachers of Teachers of Mathematics) and noting the change in teaching licensure (that a student may use the MTH 211 sequence towards earning a teaching certificate for Middle School level mathematics), it was decided that state-wide, MTH 95 meets the needs of students preparing for their certification, and MTH 98 no longer meets their needs.

Course Revision Impacts - select all that apply

___ Instructional costs (staff, materials, equipment, or facilities) required.
___ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
___ Impact to other divisions in terms of classes and staffing
___ Other:

Description of Impact
If your revision will have one of the impacts listed above, please describe...
No Impact (sorry, there was no choice for this)
### List current information and proposed changes

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<td>Load Factor</td>
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</table>

**Additional Documentation**  
*Please check additional forms or documentation you have submitted to Curriculum Committee.*  
__ Course Outline - required  
__ Other:
UCC Program Revision

Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

Basic Information
Name of Program Revision Contact: Ken Carloni, Ph.D.
Contact Title: Dept. Chair
Department: Science

Program Revision Information
Date, Year, and Term of Proposed Revision: Winter 2016
Program Title: Natural Resources: Landscape Monitoring Option

Revision Type - select all that apply

- X_ Credits
- _ Title
- _ Summary
- _ Outcomes
- _X_ Curriculum
- _ Suspension
- _ Reactivate
- _ Delete
- _ Repackage for a new area of concentration or certificate within existing program.
- _ Other: (please describe)

Revised Outcomes (if needed)
none

Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change.
This revision makes minor changes to the courses required for the degree to more closely align with the OSU MOU that establishes the Degree Program Partnership for Natural Resources: Landscape Monitoring Option. The program replaces 3 credit Forest Ecosystems (renumbered to NR 230) with 4 credit NR 240 Forest Biology with lab. It also allows students to choose either BOT 204 Flowering Plants of SW Oregon and N California (hybrid), NR 242 Ecosystems of SW Oregon and N California (hybrid), or NR 141 Tree and Shrub Identification (hybrid). This will lower the number of program credits from 95 to 93.

Program Impacts - select all that apply

- _ Instructional costs (staff, materials, equipment, or facilities) required.
- _ Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- _ Impact to other divisions in terms of classes and staffing
- _X_ Other: This revision lowers the number of program credits from 95 to 93, thereby slightly lowering the cost of instruction for the program.
Please list changes to program course listing below.

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<tr>
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<td>NR 240</td>
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<td>NR 242</td>
<td>Ecosystems of SW OR &amp; N CA (hybrid)</td>
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<td>NR 205</td>
<td>Soil Science</td>
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</table>
### Additional Documentation

Please check additional forms or documentation you have submitted to Curriculum Committee.

- __Curriculum Revision Form__
- __Start-Up and First Year Budget__
- __Other:__
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**
**Name of Program Revision Contact:** Roger Kennedy  
**Contact Title:** EMS Program Coordinator  
**Department:** EMT

**Program Revision Information**
**Date, Year, and Term of Proposed Revision:** September 2016, FALL  
**Program Title:** AAS in Paramedicine

**Revision Type - select all that apply**
- Credits
- Title
- Summary
- Outcomes
- X_ Curriculum
- Suspension
- Reactivate
- Delete
- Repackage for a new area of concentration or certificate within existing program.
- Other: *(please describe)*

**Revised Outcomes (If needed)**

**Revision Description and Justification**
Please give as many details as possible about the revision, including justification for the change.

To accept new courses being offered in Emergency Services

**Program Impacts - select all that apply**
- Instructional costs (staff, materials, equipment, or facilities) required.
- Additional instructional costs (staff, materials, equipment, or facilities) are needed.
- Impact to other divisions in terms of classes and staffing
- Other:
Please list changes to program course listing below.

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<td>EMT Part 2</td>
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<td>Emergency Communications</td>
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Total credits for Program

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</table>

**Additional Documentation**

*Please check additional forms or documentation you have submitted to Curriculum Committee.*

- __ Curriculum Revision Form
- __ Start-Up and First Year Budget
- __ Other:
Please enter your information for the program revision you are proposing below. Your careful attention to the completion of all fields is appreciated. If you are unsure about how to enter something, please contact your Department Chair or Dean.

**Basic Information**
Name of Program Revision Contact: Joel King  
Contact Title: Fire Science Coordinator  
Department: Fire Science

**Program Revision Information**
Date, Year, and Term of Proposed Revision: November 2015 Fall Term  
Program Title: FIRE SCIENCE

**Revision Type - select all that apply**
_X_ Credits  
_X_ Title  
__Summary  
_X_ Outcomes  
__Curriculum  
__Suspension  
__Reactivate  
_X_ Delete  
_X_ Repackage for a new area of concentration or certificate within existing program.  
__Other: (please describe)

**Revised Outcomes (if needed)**
Learner outcomes are provided with each course description provided.

**Revision Description and Justification**
Please give as many details as possible about the revision, including justification for the change.  
The National Fire Academy produced a model curriculum for Fire Science Associate Degree programs. It is known as the Fire and Emergency Service Higher Education Model (FESHE Model). The FESHE Model consists of core and non-core courses. Many of these courses align with classes already offered at UCC. Some FESHE Model classes are not currently offered. Other UCC Fire Science classes do not align with this model at all. The FESHE Model is quickly becoming the standard model among colleges offering Fire Science programs. The purpose of these changes is to bring UCC’s Fire Science program into alignment with this model. As we make room for new class titles within the associate degree we are afforded the opportunity to remove classes that are no longer necessary to the success of the student.

**Program Impacts - select all that apply**
__Instructional costs (staff, materials, equipment, or facilities) required.  
__Additional instructional costs (staff, materials, equipment, or facilities) are needed.  
_X_ Impact to other divisions in terms of classes and staffing  
__Other:
Please list changes to program course listing below.

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<th>PROPOSED</th>
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<td>FRP101</td>
<td>FIREFIGHTER SAFETY AND SURVIVAL</td>
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<td>FRP111</td>
<td>BUILDING CONST. FOR FIRE SUPPRESSION</td>
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<td>FRP121</td>
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<td>FR 123</td>
<td>HAZARDOUS MATERIALS AWARENESS/OPERATIONS</td>
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<td>FRP132</td>
<td>FIRE PUMP CONSTRUCTION</td>
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<td>FRP133</td>
<td>NATURAL COVER FIRE PROT.</td>
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<td>FRP 163</td>
<td>NFPA FIRE INSTRUCTOR 1</td>
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<td>FRP201 A ES 113</td>
<td>FIRE RESCUE PRACTICES ROUGH TERRAIN NOT CURRENTLY OFFERED</td>
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<td>Course Title</td>
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<td>FRP 201 B  ES 113</td>
<td>FIRE RESCUE PRACTICES SWIFT WATER NOT CURRENTLY OFFERED</td>
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<td>FRP 201 C  ES 113</td>
<td>FIRE RESCUE PRACTICES VEHICLE EXTRICATION NOT CURRENTLY OFFERED</td>
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<td>FIRE PROTECTION SYSTEMS</td>
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<td>FRP 212</td>
<td>FIRE INVESTIGATION</td>
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<td>FRP 213</td>
<td>FIREFIGHTING TACTICS AND STRATEGIES</td>
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<td>FRP 230</td>
<td>FIRE SERVICE HYDRAULICS</td>
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<td>WATER DISTRIBUTION SYSTEMS</td>
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<td>ES 101</td>
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<td>INTRO TO COMPUTER INFORMATION SYSTEMS</td>
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<td>PSY 101</td>
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<tr>
<td>ES 109</td>
<td>CURRENTLY NOT OFFERED</td>
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Total credits for Program: 96
Additional Documentation
Please check additional forms or documentation you have submitted to Curriculum Committee.

- Curriculum Revision Form
- Start-Up and First Year Budget
-x Other: NFA FESHE Model Curriculum
INCLUSIONS AND EDITS TO AAOT CATALOG TABLES

AREA 3: SCIENCE/MATH/COMPUTER SCIENCE

Courses WITH labs

Add:
NR 141: Tree and Shrub Identification (3)
NR 240: Forest Biology (4)
NR 242: Ecosystems of SW OR and N CA (4)

Edit:
Change BOT 203A: Ecosystems of SW Oregon and N California to BOT 204 [new course number only]
Change CH 112: Chemistry for Health Occupations to CH 112: Fundamentals of Chemistry [name change only]
Change NR 205: Soil Science to SOIL: 205/206 (4)
Change NR 241: Field Dendrology to NR 241: Dendrology [strike “Field”]

Courses WITHOUT labs

Add:
GIS 235: GIS Analysis and Applications (3)
NR 261 Recreation Resource Management (4)
NR 251: Principles of Fish and Wildlife Conservation (3)

Edit:
Change NR 240: Forest Ecosystems to NR 230 [new course number only]
Change GIS 134: Introduction to GIS to GIS 234 [new course number only]