Instructional Council
Meeting Agenda
3:00 PM-5:00 PM
November 24, 2015
Jackson 14

Roxanne Kelly, VPI  Kristi Hurt (Sec.)  Jason Aase  Debbie Hill
Jesse Morrow  Martha Joyce  ASUCC Public Relations
David Farrington  Cheryl Yoder  Mandie Pritchard  Mariah Beck
Paula Usrey  Amy Fair  Susan Rochester  Roger Kennedy
Ken Carloni  Mary Morris  Joel King  Dee Winn
Michelle Bergmann  Joan Campbell  Clay Baumgartner  Crystal Sullivan
Marjan Coester  Elizabeth Bastian  Jessica Richardson
ASUCC Senator 6  Mary Stinnett

Approval of Instructional Council Minutes-

New Programs:
To Be Presented By: Clay Baumgartner
- Forest Engineering
- Forest Management
- Forest Operations
- GIS Pathways
- Occupational Skills Training Completion Certificate
- Water Quality Operations Pathway

New Courses:
To Be Presented By: Jason Aase
- Course Outcomes Guide-for new or revised courses

To Be Presented By: 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
- OST 290
- SOILS 206
- SUR 209

To Be Presented By: Joel King
- ES 113
- FRP 159
- FRP 135
• ES 107
• ES 103
• ES 101
• ES 109

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

To Be Presented By: Clay Baumgartner
• AAS, Civil and Surveying Technology
• Engineer and Drafting Technician Completion Certificate
• Drafting Pathways Certificate
• Water Quality Pathways
• AS Surveying and Geomatics

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
• Delete CH, GS, PH
• FRP 123
FRP 163
FRP 230
FRP 240
FRP 121A
FRP 121B
FRP 101
FRP 122
FRP 202
FRP 111
FRP 212
FRP 213
FRP 230

To Be Presented By: Mary Stinnett

- MTH 211

New Program Concepts:

Informational:
Ken Carloni-Inclusions to AAOT Tables

Next Curriculum Committee, Winter Term & Instructional Council Winter Term
Approval of Instructional Council Minutes-
Minutes from May 26, 2015 were approved  M/S/A

New Programs:
To Be Presented By:

New Courses:
To Be Presented By: Sandra Angeli-Gade
- HS 108
  Tabled for next IC meeting-problems in the paperwork.  M/S/A

Program Revisions:
To Be Presented By: Martha Joyce
- Marketing AAS
  The revision is to make the existing 8 course Retail Management Certificate fully contained within the Marketing AAS. Change to include SDP 109 OR BA 206 (Retail management students must take BA 206) BA 211 OR BA 223 (Retail management students must take BA 223) Add SDP 113 as an approved elective. Credits change to 90 total.  M/S/A

Course Revisions:
To be presented by: Tamra Samson
- Registered Nursing Program
  Genetics BI 222, is in the RN program and this change will make Genetics a pre-requisite for the RN program instead of being in the program.  M/S/A
- Practical Nursing Program
  Need to show in the catalog a required GPA of 3.0 for admission in the program. Change MTH requirements from MTH 065 to required MTH 095 to apply. Remove language suggesting chemistry is needed to apply for PN program. Change catalog to show fall start date and a January application date. Credits change from 51 to 47. Changes take effect Fall 2016.  M/S/A

To Be Presented By: Sandra Angeli-Gade
- HS 144
- HS 107
  Both of these revisions are on hold until the next IC meeting in November.  M/S/A
To Be Presented By: Cheryl Yoder

- Martial Art A,B,C
  Change title of this course (s) to self-defense, title is too broad    M/S/A

Informational: Debbie Hill

- Course and program description changes
  Discussion about limiting catalog descriptions to 10 lines, will be an action item for next IC meeting.
  Debbie will submit a list of questions for handling course and program changes and I will go to CCWD for the answers on correct way of handling this.
  Final grades will be due December 17 at midnight, term is over on December 11th. This will be finalized Thursday the 29th of October.

IC meetings are to begin at 3:00 pm on the fourth Tuesday of the month instead of 3:30.

We will add a heading to the Agenda called New Program Concept-all new programs will come to IC for initial approval before any development is done.

Next Curriculum Committee November 10th & Instructional Council November 24th.
MEMORANDUM

ENGINEERING PROGRAM SUBMITTALS
Curriculum Committee/Instructional Council
11/17/2015

SUMMARY

The engineering program includes two primary tracks: 1. Technology and 2. Transfer. The engineering program proposes:

A. Comprehensive update of the technology program to increase enrollment, provide additional educational pathways, and align with industry needs;

B. Create a new Occupational Skills Training certificate, providing more opportunity for more work-site (hands on) learning

C. Update the transfer AS degree with emphasis in Surveying & Geomatics to align with OIT’s articulation agreement,

D. Add MTH 265 Statistics for Math & Scientists (new course offering through math department) to AS degree with emphasis in Engineering

E. Develop, in conjunction with the UCC Science Department and UCC Business Department, AS degrees in Forest Engineering, Forest Management, and Forest Operations.

A summary list of proposed courses, course revisions, program revisions, and new programs is included at Attachment A.

The net impacts to the program/college are summarized in Attachment B. The proposed changes will result in a net decrease of 4 credit hours in the engineering program, through restructuring of the curriculum and consolidation of courses/offerings.
ATTACHMENT A. SUMMARY LIST OF PROPOSALS FOR COURSE REVISIONS, NEW COURSES, PROGRAM REVISIONS, AND NEW PROGRAMS

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)
6. AS Engineering (add MTH 265 Statistics for Engineers & Scientists as engineering elective, listed for IC as informational only to add to catalog)

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

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**Net Credit Hour Change:** 9

### COURSES TO BE REMOVED AND SUBSTITUTED IN PROGRAM

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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
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: 103 - 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 (FE)
2. Forestry Management (FM)
3. Forestry Operations (FO)

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 141 Tree & Shrub Identification and NR 241 Dendrology
4. NR 261 Recreation Resource Management (not included in FE and FO Degrees)
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 261 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 261. 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 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 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 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. 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**

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<th>Credits</th>
<th>OSU Course #</th>
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<td>103-107</td>
<td>Total Credits in Program</td>
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</tbody>
</table>

**Additional Courses for Dual Civil Engineering and Forestry Engineering Major**

<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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</thead>
<tbody>
<tr>
<td>(3) See Footnote</td>
<td>CCE 101</td>
<td>Civil &amp; Const Engr Orient</td>
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<tr>
<td>CH 221</td>
<td>General Chemistry II</td>
<td>5</td>
<td>CH 202+205 Lab or CH 232 Lec &amp; 262 Lab</td>
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<tr>
<td>MTH 253</td>
<td>Calculus III</td>
<td>4</td>
<td>MTH 306</td>
<td>Matrix &amp; Power Series Methods</td>
<td>4</td>
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<tr>
<td>MTH 261</td>
<td>Linear Algebra</td>
<td>2</td>
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<tr>
<td>PH 213</td>
<td>Physics III w/Calculus</td>
<td>5</td>
<td>PH213/223</td>
<td>Physics III w/Calculus</td>
<td>4</td>
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<tr>
<td>Total Additional</td>
<td>16</td>
<td>Total Additional</td>
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</tr>
</tbody>
</table>

**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>
<th>Term Offered</th>
<th>Credits</th>
<th>OSU Course No. and Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 221 General Chemistry I</td>
<td>Term 2</td>
<td>5</td>
<td>CH 221 (CH 231) Lab &amp; CH 261 Lab</td>
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<tr>
<td>RWF 112 Computer Aided Drafting (CAD I)</td>
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<td>3</td>
<td>CCE 201 Engineering Graphics &amp; Design</td>
<td>3</td>
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<td>ENGR 111 Engineering Orientation I</td>
<td>Term 2</td>
<td>3</td>
<td>FE 101 Introduction to Forestry Engineering</td>
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<tr>
<td>NR 201 Intro to Natural Resources</td>
<td>Term 2</td>
<td>3</td>
<td>FOR 111 Introduction to Forestry</td>
<td>3</td>
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<tr>
<td>MTH 251 Calculus I</td>
<td>Term 2</td>
<td>5</td>
<td>MTH 251 Differential Calculus</td>
<td>4</td>
</tr>
<tr>
<td>GIS 234 GIS I Intro to Geographic Information Systems</td>
<td>Term 2</td>
<td>4</td>
<td>FE 257 GIS &amp; Forestry Engineering Applications</td>
<td>3</td>
</tr>
<tr>
<td>ENGR 112 Engineering Problem Solving &amp; Technology</td>
<td>Term 2</td>
<td>3</td>
<td>FE 102 Forest Eng Problem Solving &amp; Technology</td>
<td>3</td>
</tr>
<tr>
<td>MTH 252 Calculus II</td>
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<td>4</td>
<td>MTH 252 Integral Calculus</td>
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<tr>
<td>WR 121 English Composition</td>
<td>Term 2</td>
<td>4</td>
<td>WR 121 English Composition</td>
<td>3</td>
</tr>
<tr>
<td>Rec 2 Arts &amp; Letters and Culture Diversity</td>
<td>Term 2</td>
<td>3</td>
<td>Perspectives Electives / See Advisor</td>
<td>3</td>
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<tr>
<td>MTH 243 Intro to Probability &amp; Statistics</td>
<td>Term 3</td>
<td>5</td>
<td>MTH 105</td>
<td>4</td>
</tr>
<tr>
<td>NR 241 or NR 261 Tree &amp; Shrub Identification or Dendrology</td>
<td>Term 3</td>
<td>5</td>
<td>FES 141 Tree &amp; Shrub Identification</td>
<td>3</td>
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<tr>
<td>SP 111 Public Speaking</td>
<td>Term 3</td>
<td>4</td>
<td>COM 111 Public Speaking</td>
<td>3</td>
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<tr>
<td>SUR 161 Plane Surveying I</td>
<td>Term 3</td>
<td>4</td>
<td>WR 095</td>
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<tr>
<td>ECON 201 Economics (Social Science Elective)</td>
<td>Term 4</td>
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<td>ECON 201 - Perspectives Elective - SP&amp;I</td>
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<tr>
<td>ENGR 211 Statics</td>
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<tr>
<td>MTH 254 Vector Calculus I</td>
<td>Term 4</td>
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<tr>
<td>PH 211 Physics I w/Calculus</td>
<td>Term 4</td>
<td>5</td>
<td>PH 211 &amp; PH 221 Rec</td>
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<tr>
<td>ENGR 212 Dynamics</td>
<td>Term 4</td>
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<td>ENGR 212 Dynamics</td>
<td>3</td>
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<tr>
<td>MTH 256 Differential Equations</td>
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<td>MTH 256 Differential Equations</td>
<td>4</td>
</tr>
<tr>
<td>PH 212 Physics II w/Calculus</td>
<td>Term 4</td>
<td>5</td>
<td>PH 212 &amp; PH 222 Rec</td>
<td>4</td>
</tr>
<tr>
<td>SUR 209 Photogrammetry and Intro to Remote Sensing</td>
<td>Term 4</td>
<td>4</td>
<td>FOR 208 Forest Photogrammetry</td>
<td>3</td>
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<tr>
<td>ENGR 213 Strength of Materials</td>
<td>Term 4</td>
<td>4</td>
<td>ENGR 213 Strength of Materials</td>
<td>3</td>
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<tr>
<td>NR 240 Forest Biology</td>
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<td>FE 340 Forest Ecology</td>
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<td>SOL 205 Soil Science Lecture</td>
<td>Term 4</td>
<td>3</td>
<td>SOL 205 Soil Science Lecture</td>
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<tr>
<td>SOL 206 Soil Science Lab</td>
<td>Term 4</td>
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<td>FOR 208 Soil Science Lab</td>
<td>1</td>
</tr>
<tr>
<td>WR 227 Technical Report Writing</td>
<td>Term 4</td>
<td>4</td>
<td>WR 327</td>
<td>3</td>
</tr>
<tr>
<td>HPE 296 Wellness &amp; Health</td>
<td>Term 4</td>
<td>3</td>
<td>HHS 231 &amp; HHS 241</td>
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<tr>
<td>TOTAL DEGREE CREDITS</td>
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<td>107</td>
<td>TOTAL DEGREE CREDITS</td>
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</table>

### 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>
<th>OSU Course No. and Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 222 General Chemistry II</td>
<td>Term 3</td>
<td>5</td>
<td>CH 222</td>
<td>4</td>
</tr>
<tr>
<td>MTH 253 Calculus II</td>
<td>Term 3</td>
<td>5</td>
<td>MTH 253 &amp; MTH 261 + OSU MTH 306</td>
<td>4</td>
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<tr>
<td>MTH 261 Linear Algebra</td>
<td>Term 3</td>
<td>2</td>
<td>MTH 111 Algebra</td>
<td>0</td>
</tr>
<tr>
<td>PH 213 Physics III w/Calculus</td>
<td>Term 3</td>
<td>5</td>
<td>PH 213 &amp; PH 223 Rec</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL DEGREE CREDITS</td>
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<td>16</td>
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</table>

**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.
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 CCE 101 or FE 101 will need to be taken at OSU.
4. Grade of "C" or better in all courses.

Last updated 11/17/2015
<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>
<td>DRF 112</td>
</tr>
<tr>
<td>Chemistry for Engineering Majors</td>
<td>CH 201</td>
<td>CH 221</td>
</tr>
<tr>
<td>Public Speaking or Argument &amp; Critical Discourse</td>
<td>COMM 111* or COMM 114*</td>
<td>SP111 or SP 112</td>
</tr>
<tr>
<td>Intro to Microeconomics</td>
<td>ECON 201*</td>
<td>ECON 201</td>
</tr>
<tr>
<td>Statics</td>
<td>ENGR 211</td>
<td>ENGR 211</td>
</tr>
<tr>
<td>Dynamics</td>
<td>ENGR 212</td>
<td>ENGR 212</td>
</tr>
<tr>
<td>Strength of Materials</td>
<td>ENGR 213</td>
<td>ENGR 213</td>
</tr>
<tr>
<td>Intro to Forest Engineering</td>
<td>FE 101</td>
<td>ENGR 111</td>
</tr>
<tr>
<td>Forest Engineering Problem Solving &amp; Technology</td>
<td>FE 102</td>
<td>ENGR 112</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>Available online at OSU</td>
</tr>
<tr>
<td>GIS &amp; Forest Engineering Applications</td>
<td>FE 257</td>
<td>GIS 234</td>
</tr>
<tr>
<td>Tree &amp; Shrub Identification</td>
<td>FES 141</td>
<td>NR 141 or NR 241?</td>
</tr>
<tr>
<td>Forest Biology</td>
<td>FES 240*</td>
<td>NR 240?</td>
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<tr>
<td>Intro to Forestry</td>
<td>FOR 111</td>
<td>NR 201</td>
</tr>
<tr>
<td>Differential Calculus</td>
<td>MTH 251*</td>
<td>MTH 251</td>
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<tr>
<td>Integral Calculus</td>
<td>MTH 252</td>
<td>MTH 252</td>
</tr>
<tr>
<td>Vector Calculus</td>
<td>MTH 254</td>
<td>MTH 254</td>
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<tr>
<td>Applied Differential Equations</td>
<td>MTH 256</td>
<td>MTH 256</td>
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<tr>
<td>General Physics I with Calculus</td>
<td>PH 211*</td>
<td>PH 211</td>
</tr>
<tr>
<td>General Physics II with Calculus</td>
<td>PH 212*</td>
<td>PH 212</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</td>
<td>WR 327*</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 Forest Engineering major requirements, students should be completing courses to fulfill OSU’s Baccalaureate Core (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 (FE)
2. Forestry Management (FM)
3. Forestry Operations (FO)

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 141 Tree & Shrub Identification and NR 241 Dendrology
4. NR 261 Recreation Resource Management (not included FE or FO 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 261 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 261. 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.

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 261 Recreation Resource Management (OSU Equivalent FES 251). The UCC Science Department is adding NR 261. 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>UCC</th>
<th>Course Title</th>
<th>Credits</th>
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<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
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<td>BI104 or BI 212</td>
<td>Intro to Biology or General Biology</td>
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<tr>
<td>CH 221</td>
<td>General Chemistry I</td>
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<td>CH 231 or CH 261</td>
<td>General Chemistry or General Chemistry Lab</td>
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<td>ECON 201(^1)</td>
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<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>
<tr>
<td>GIS 234</td>
<td>GIS I</td>
<td>4</td>
<td>FE 257</td>
<td>GIS &amp; Forestry Engr Applic</td>
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<tr>
<td>HPE 295</td>
<td>Wellness &amp; Health Assessment</td>
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<td>HHS 231 &amp; 241-248</td>
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<td>Lifetime Fitness - Activities</td>
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<td>NR 240</td>
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<td>FES 240</td>
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<td>NR 241</td>
<td>Dendrology</td>
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<td>NR 261</td>
<td>Recreation Resource Mana</td>
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<td>PH 201</td>
<td>General Physics I</td>
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<td>Principles of Physics I</td>
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<td>SP 111 or SP 112</td>
<td>Fund of Public Speaking or Persuasive Speech</td>
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<td>COMM 111 or COMM 114</td>
<td>Public Speaking or Argument &amp; Crit Discourse</td>
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<td>SUR 161</td>
<td>Surveying I</td>
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<td>Forestry Surveying</td>
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<td>SUR 209</td>
<td>Photogrammetry &amp; Intro into Remote Sensing</td>
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<td>Forestry Photogrammetry &amp; Intro into Remote Sensing</td>
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<td>WR 121</td>
<td>English Composition</td>
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</table>

**Note:**
1. See advisor for OSU university specific requirements for Perspective electives
### Forestry Management, AS

**OSU Advising Guide**

**Prerequisites and Course Availability per Term**

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

**REVISED 10/25/15**

<table>
<thead>
<tr>
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<th>Credits</th>
<th>UCC Course No. and Course Name</th>
<th>Term Offered</th>
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</table>

| **TOTAL DEGREE CREDITS** | **95** | **88** |

**NOTES:**
1. General education requirements 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 11/17/2015
## Transfer Guide: Forestry – Management Option

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

<table>
<thead>
<tr>
<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>
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<td>General Chemistry I &amp; Lab</td>
<td>CH 231 &amp; 261*</td>
<td>CH 221</td>
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<tr>
<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>
<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>
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<td>Forest Photogrammetry</td>
<td>FE 209</td>
<td>SUR 209?</td>
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<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>
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<tr>
<td>Dendrology</td>
<td>FES 241</td>
<td>NR 241?</td>
</tr>
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<td>Recreation Resource Management</td>
<td>FES 251</td>
<td>NR 261?</td>
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<td>Intro to Forestry or Managing Natural Resources for the Future</td>
<td>FOR 111 or NR 201</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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<tr>
<td>College Algebra</td>
<td>MTH 111*</td>
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<td>Elementary Functions</td>
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<tr>
<td>Calculus for Management &amp; Social Science</td>
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<tr>
<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>
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<td>Soil Science Lab</td>
<td>FOR 206*</td>
<td>SOIL 206</td>
</tr>
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<td>Principles of Statistics</td>
<td>ST 201</td>
<td>MTH 243</td>
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<tr>
<td>English Composition</td>
<td>WR 121*</td>
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<tr>
<td>Technical Writing or Science Writing</td>
<td>WR 327* or WR 362*</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 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 (FE)
2. Forestry Management (FM)
3. Forestry Operations (FO)

The core forestry/natural resources courses include:
1. NR 201 Introduction to Natural Resources
2. NR 240 Forest Biology
3. NR 141 Tree & Shrub Identification and NR 241 Dendrology
4. NR 261 Recreation Resource Management (not included in FE and FO AS degrees)
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 261 Recreation Resource Management (OSU Equivalent FES 251), and BA 260 Introduction to Entrepreneurship. The UCC Science Department is adding NR 261. 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 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 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 261 Recreation Resource Management (OSU Equivalent FES 251), and BA 260 Introduction to Entrepreneurship. The UCC Science Department is adding NR 261. 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**

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**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.
### Prerequisites and Course Availability per Term

#### Term Offered

<table>
<thead>
<tr>
<th>UCC Course No. and Course Name</th>
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<td>WR 115 or Placement Test</td>
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<td>SOL 205 Soil Science Lecture</td>
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<td></td>
<td>SOL 205</td>
</tr>
<tr>
<td>SOL 206 Soil Science Lab</td>
<td>x</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### TOTAL DEGREE CREDITS

- **UCC:** 98
- **OSU:** 68

---

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.
2. See advisor for specific course requirements.

---

**Last updated 11/3/2015**
### 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>
</tr>
<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>
</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 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
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>Cartographer &amp; Photogrammetrist</td>
<td>393</td>
<td>17</td>
<td>5</td>
</tr>
<tr>
<td>Civil Engineering Tech</td>
<td>935</td>
<td>26</td>
<td>53</td>
</tr>
<tr>
<td>Drafting (all fields)</td>
<td>2,605</td>
<td>50</td>
<td>53</td>
</tr>
<tr>
<td>Geoscientist</td>
<td>351</td>
<td>19</td>
<td>5</td>
</tr>
<tr>
<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 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 GIS Related Field</td>
<td>4</td>
</tr>
<tr>
<td>GIS 280</td>
<td></td>
<td></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>
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</tbody>
</table>

**Total credits for Program**: 16

**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).*

- [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></td>
<td>MTH 52 or Higher</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Introduction to Algebra for the Trades</td>
<td>4 - 5</td>
</tr>
<tr>
<td></td>
<td>WR 115 or Higher</td>
<td></td>
</tr>
<tr>
<td></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></td>
<td>OST 290 or CIV 290 or WQT 290</td>
<td></td>
</tr>
<tr>
<td></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>
<tr>
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</tbody>
</table>
### UCC New Program Approval

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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<tbody>
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</tr>
</tbody>
</table>

**Total credits for Program**

45 minimum - 56

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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 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).*

- **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
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.

Any occupation can be addressed as long as 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
<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTH20</td>
<td>Pre-algebra or designated placement test score on current indicator chart</td>
<td>0-4</td>
</tr>
<tr>
<td>RD30</td>
<td>College Reading or designated placement test score on current indicator chart</td>
<td>0-4</td>
</tr>
<tr>
<td>WR30</td>
<td>Fundamentals of Composition I or designated placement test score on current indicator chart</td>
<td>0-4</td>
</tr>
<tr>
<td>Total Prerequisite Credits</td>
<td></td>
<td>0-12</td>
</tr>
</tbody>
</table>

General Education Requirements
<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS120</td>
<td>Concepts in Computing I or higher level course or documented computer proficiency</td>
<td>0-4</td>
</tr>
<tr>
<td>MTH63</td>
<td>Applied Technical Math or MTH60 Fundamentals of Algebra I or BT100 Business Math or higher level math</td>
<td>4</td>
</tr>
<tr>
<td>PSY101</td>
<td>Psychology of Human Relations or BT101 Human Relations in Organizations</td>
<td>3</td>
</tr>
<tr>
<td>WR115</td>
<td>Introduction to Expository Writing or BT113 Business English I or higher level composition</td>
<td>3-4</td>
</tr>
<tr>
<td>HE112</td>
<td>Emergency First Aid or HE201 CPR or HE252 First Aid/CPR</td>
<td>1-3</td>
</tr>
<tr>
<td>— — — — — —</td>
<td>Elective credits related to career direction</td>
<td>— — — — — —</td>
</tr>
</tbody>
</table>

Total General Education Credits: 18-32

Work-based Training Courses
<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST109</td>
<td>Skills Training Seminar or BA109 Ready, Set, Work: Techniques for Landing a Job</td>
<td>0-2</td>
</tr>
<tr>
<td>ST101</td>
<td>Occupational Skills Training and/or ST201 Occupational Skills Training</td>
<td>18-28</td>
</tr>
</tbody>
</table>

Total Work-Based Training Courses: 18-30

TOTAL PROGRAM CREDITS: 36-62

Approved Electives
<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ST199</td>
<td>Workshop</td>
<td>variable</td>
</tr>
</tbody>
</table>

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.
3 Any course 100-level or above related to career direction.
4 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.
**INFORMATION FROM CCWD HANBOOK**

**OCCUPATIONAL SKILLS TRAINING**

**WEB LINK**

http://handbook.ccwdwebforms.net/handbook/other-educational-programs-models-strategies/occupational-skills-training

**State Guidelines for new OST programs in Oregon**

**Definition**

The Occupational Skills Training (OST) Certificate program is an individualized career training opportunity focused on learning on a job site. These trainings offer 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. The individual career plan must incorporate work site (hands-on) learning and may also include related classroom instruction as necessary to allow the student to pursue a career path toward gainful employment. The OST meets the employment training needs of a community and an individual where there is not enough “need” to create on-going programs.

Most training goals can be met, providing they meet the following criteria: 1) There is a current labor market need for the job being sought, and 2) there is an appropriate training site available in the community. The program is open-entry/open-exit (Students can start at any time in the term) to maximize educational opportunities.

The OST Certificate is intended to serve as a beginning point for students to prepare for a job or to get a better job while opening the door to further education to expand their employment opportunities. Programs are to be developed based upon the assessed needs of individual students and are not to be pre-packaged programs of study. Occupational Skills Training is not intended to pose an adverse impact to other college or career school programs, but to meet community and workforce needs for small numbers of qualified personnel in a wide variety of career and technical areas. Once a college receives approval for an OST Certificate program, the college is not required to submit a Notice of Intent (NOI) for each individual student plan. OST certificates can be part of a career pathway to another CTE program, an AS, AGS, or AAS degree.

All current OST programs (list) have been approved by the State Board of Education and remain in place as they have been approved. With the growing need for more career and technical training, and the lack of large numbers of jobs or individuals to meet the community needs, community colleges without OST programs asked for “better practice” guidelines to guide their development of OST programs. The following are the proposed guidelines.
Model for OST Design

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Parameters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Credits Allowed</td>
<td>Minimum 36—65</td>
</tr>
<tr>
<td>Financial Aid Eligible?</td>
<td>Yes</td>
</tr>
<tr>
<td>General Education/ Related</td>
<td>Required if program includes 45 or more credits.</td>
</tr>
<tr>
<td>Instruction</td>
<td>May be imbedded in work site component.</td>
</tr>
<tr>
<td>Supervised Work-site Learning</td>
<td>A minimum of 20</td>
</tr>
<tr>
<td>Credits Required</td>
<td></td>
</tr>
<tr>
<td>Minimum Program Time</td>
<td>2-3 Terms</td>
</tr>
</tbody>
</table>

Principles

Existing community college OST programs across Oregon are based on the following principles, which must be adhered to by any community college seeking approval for an OST program:

- Courses included in the program must be collegiate-level work. Developmental courses may be included as prerequisites to the program but are not a part of the certificate programs.
- All components of an individual OST plan must be developed by and under the direct control of the college.
- Each individual student’s OST program shall demonstrate the content rigor and assessment parameters of other college programs.
- All of a community college’s state-approved collegiate level credit courses are eligible to be included in the programs for the individual student plan.
- An OST program will not be used to circumvent local college and state program approval processes.
- Students entering the program could be full time or part time.
- Each plan is developed based upon the assessed goals, needs, interests, abilities and aptitudes of each student.
- Each plan is developed in consultation with the student, faculty, and other interested participants who may be part of the student’s vocational planning team.
- Each plan must have a means of providing regular, ongoing monitoring and evaluation of student progress in partnership with the student, the work site supervisor and other interested participants who may be part of the student’s vocational plan.
- Each student is graded in accordance with their college’s grading policy.
- Each student’s plan should include the following:
  - Occupational Goal
  - Labor Market Review
  - Student Assessment
  - Program of Study describing skills and knowledge needed to enter employment

- A college is expected to articulate each individual student’s OST plan appropriately with existing certificate of completion and Associate degree programs for “next step” planning and future mobility.
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: 41
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 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

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<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>
</tr>
<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>
</tr>
<tr>
<td>WQT 290</td>
<td>Occupational Skills Training</td>
<td>28</td>
</tr>
</tbody>
</table>
Total credits for Program 41

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.

- **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
## Intended Course Learner Outcomes

<table>
<thead>
<tr>
<th>Core Theme:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Correlated Departmental Outcomes</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Correlated Institutional Learner Outcomes</th>
</tr>
</thead>
</table>

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UCC’s Mission: Umpqua Community College provides high quality college degree programs, workforce development, and community learning opportunities.
### Intended Course Learner Outcomes

<table>
<thead>
<tr>
<th>Intended Course Learner Outcomes</th>
<th>Correlated Departmental Outcomes</th>
<th>Correlated Institutional Learner Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Demonstrate a basic understanding of the evolution of biological systems, the origins and diversity of living organisms, the flow of energy and the cycling of nutrients through ecosystems, the effects of positive and negative feedback on living systems, and the forces that generate biodiversity and maintain stability in ecosystems.</td>
<td>1, 4, 10</td>
<td>1, 3</td>
</tr>
<tr>
<td>2. Demonstrate proficiency in the use of word processing, spreadsheet and multimedia software to record, analyze and communicate the results of their investigations.</td>
<td>2, 3, 5, 7, 9, 10</td>
<td>1, 2, 6</td>
</tr>
<tr>
<td>3. Construct a hypothesis, and apply the methodology necessary to gather and analyze data to test that hypothesis.</td>
<td>3, 4, 7, 10</td>
<td>1, 3</td>
</tr>
<tr>
<td>4. Demonstrate proficiency with laboratory equipment and procedures for gathering data.</td>
<td>5, 7, 10</td>
<td>1, 3, 6</td>
</tr>
<tr>
<td>5. Use standard scientific report writing format including internal citations for documenting literature used in writing assignments and labs.</td>
<td>2, 4, 6, 10</td>
<td>1, 2</td>
</tr>
<tr>
<td>6. Participate in online discussions with classmates dealing with technical and/or ethical issues.</td>
<td>2, 4, 6, 7, 8, 9, 10</td>
<td>1, 2, 3, 4, 5, 6, 7</td>
</tr>
</tbody>
</table>

### Core Theme Two: Supporting Quality Learning and Achievement through Academic Transfer Education
Course No: NR 141  
Course Credit: 3  
Lecture Hrs/wk: 1  
Lab Hrs/Wk:  
Lecture/Lab Hrs/Wk: 4  
Practicum Hrs/Wk:  
Clock Hours: 55  
Length of Course: 11 wks.  
Banner enforced Prerequisite:  
Instructor enforced Prerequisite:  
Co-Requisite:  
Load Factor: 3.8 ILCs  
Activity Code: 100  
CIPS: 260101  

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: 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)
  _44 - Lecture/Lab (20 hrs/credit)
  _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: 3.8 ILCs

Award Information:  
__AA  
_X_AAS  
__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)**

_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 be taught by an adjunct and will require 3.8 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.

UCC New Course Approval – v1.0, 9/26/14
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: **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
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: 2017 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.
UCC New Course Approval

Required Course Information
Associate of Science in Forest Engineering, Forest Management, Forest Operations

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
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, ecosystem management, 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 expertise of 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 monitoring 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 for a Bachelor’s degree (minimum 180 credits total) are all available through OSU’s eCampus, so students can earn their entire BS 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 211</td>
<td>Principles of Biology I</td>
<td>5</td>
</tr>
<tr>
<td>BI 212</td>
<td>Principles of Biology II</td>
<td>5</td>
</tr>
<tr>
<td>BI 213</td>
<td>Principles of Biology III</td>
<td>5</td>
</tr>
<tr>
<td>ECON 201</td>
<td>Macroeconomics</td>
<td>3</td>
</tr>
<tr>
<td>ENG 230</td>
<td>Environmental Literature</td>
<td>4</td>
</tr>
<tr>
<td>G 221</td>
<td>Environmental Geology</td>
<td>4</td>
</tr>
<tr>
<td>HPE 295</td>
<td>Wellness &amp; Health Assessment</td>
<td>3</td>
</tr>
<tr>
<td>HST 20X</td>
<td>World History</td>
<td>3</td>
</tr>
<tr>
<td>MTH 111</td>
<td>College Algebra</td>
<td>5</td>
</tr>
<tr>
<td>Course</td>
<td>Credits</td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>---------</td>
<td></td>
</tr>
<tr>
<td>MTH 112: Elementary Functions (^1)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>NR 240: Forest Biology (^1)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>NR 241: Dendrology (^1)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SOIL 205/206: Soil Science w/ Lab (^1)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>SP 111: Fundamentals of Public Speaking</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>WR 121: English Comp. Intro to Argument</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>WR 227: Technical Report Writing</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

OSU NATURAL RESOURCES CORE EQUIVALENTS:

GIS 234: Introduction to GIS                                         | 4       |
GIS 235: Geographic Information Systems II                          | 4       |
MTH 112: Elementary Functions                                       | 4       |
MTH 243: Intro to Statistics                                         | 4       |
NR 201: Intro to Natural Resources                                  | 3       |
NR 221: Water Resource Science                                      | 4       |
NR 261: Recreation Resource Management                              | 4       |
NR 295: Environmental Dispute Resolution                            | 3       |
SUR 161: Plane Surveying I                                          | 4       |

OSU LANDSCAPE MONITORING OPTION:

BOT 203: Field Botany                                               | 4       |
BOT 204: Field Bot. SW OR and N CA (hyb)                            | 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 \(^2\)                                  | 2       |

NATURAL RESOURCES: LANDSCAPE MONITORING OPTION

94 credits – Recommended Sequence for Students (Students should see an advisor to customize their educational plan)

**Term 1 – Fall**

| Course                                                         | Credits |
|                                                               |---------|
| 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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 212 Principles of Biology II</td>
<td>5</td>
</tr>
<tr>
<td>NR 251 Principles of Fish and Wildlife Conservation</td>
<td>3</td>
</tr>
<tr>
<td>NR 295 Environmental Dispute Resolution</td>
<td>3</td>
</tr>
<tr>
<td>Course ID</td>
<td>Course Title</td>
</tr>
<tr>
<td>-----------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>WR 227</td>
<td>Technical Report Writing</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>Term 3 - Spring</strong></td>
<td></td>
</tr>
<tr>
<td>BI 213</td>
<td>Principles of Biology III</td>
</tr>
<tr>
<td>BOT 203</td>
<td>Field Botany</td>
</tr>
<tr>
<td>MTH 111</td>
<td>College Algebra</td>
</tr>
<tr>
<td>PE 255</td>
<td>Wilderness Survival (optional)</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>Term 4 - Fall</strong></td>
<td></td>
</tr>
<tr>
<td>MTH 243</td>
<td>Intro to Statistics</td>
</tr>
<tr>
<td>NR 240</td>
<td>Forest Biology</td>
</tr>
<tr>
<td>NR 255A</td>
<td>Landscape Monitoring Fall</td>
</tr>
<tr>
<td>SP 111</td>
<td>Fundamentals of Public Speaking</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>Term 5 - Winter</strong></td>
<td></td>
</tr>
<tr>
<td>GIS 234</td>
<td>Introduction to GIS</td>
</tr>
<tr>
<td>ENG 230</td>
<td>Environmental Literature³</td>
</tr>
<tr>
<td>NR 221</td>
<td>Water Resource Science</td>
</tr>
<tr>
<td>NR 243</td>
<td>Historical Ecology of PNW Landscapes</td>
</tr>
<tr>
<td>NR 255B</td>
<td>Landscape Monitoring Winter</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
</tr>
<tr>
<td><strong>Term 6 - Spring</strong></td>
<td></td>
</tr>
<tr>
<td>NR 241</td>
<td>Dendrology</td>
</tr>
<tr>
<td>NR 205/206</td>
<td>Soil Science</td>
</tr>
<tr>
<td>NR 255B</td>
<td>Landscape Monitoring Winter</td>
</tr>
<tr>
<td>NR 242</td>
<td>Ecosystems of SW OR &amp; N CA (hybrid) or</td>
</tr>
<tr>
<td>BOT 204</td>
<td>Flowering Plants of SW OR &amp; N CA (hybrid)</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

**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.
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-Required Information  
Please define any co- or pre-requisite information.  
Pre-req MTH 252

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:  
S

Load Factor:  
4.0

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
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 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:

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:
__100 - Lower Division Collegiate
__210 - CTE Preparatory
__211 - Stand-alone (Independent) CTE Preparatory
__X 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
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 No: CIV 290
Course Credit: 1 - 28
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: 220
CIPS: 150201

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  
**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’)*

_ 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_AAS

__AS

__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.
Engineering program has proposed a net decrease of 4 credit hours in Civil Engineering & Surveying Technology AAS degree through restructuring of program after addition of this course – no net additional cost for instruction. Will be costs associated with developing curriculum.

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: 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>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intro: Geospatial world</td>
<td>Ch. 1</td>
<td></td>
<td>Pretest</td>
<td></td>
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<tr>
<td>2</td>
<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>
<td></td>
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<tr>
<td>3</td>
<td>Matching data to maps: Reprojecting, georeferencing, control points, transformation</td>
<td>Ch. 3</td>
<td>Quiz 2</td>
<td>Lab 2</td>
<td></td>
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<td>4</td>
<td>Finding your location with GPS</td>
<td>Ch. 4</td>
<td>Quiz 3</td>
<td>Lab 3</td>
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<tr>
<td>5</td>
<td>Digital geospatial data and GIS</td>
<td>Ch. 5</td>
<td>Quiz 4</td>
<td>Lab 4</td>
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<tr>
<td>5</td>
<td>Midterm Exam.</td>
<td></td>
<td></td>
<td>Midterm</td>
<td></td>
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<tr>
<td>6</td>
<td>Getting there quicker with geospatial technology</td>
<td>Ch. 8</td>
<td>Quiz 5</td>
<td>Lab 5</td>
<td></td>
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<tr>
<td>7</td>
<td>Remote sensing - aerial photography</td>
<td>Ch. 9</td>
<td>Quiz 6</td>
<td>Lab 6</td>
<td></td>
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<tr>
<td>8</td>
<td>How remote sensing works</td>
<td>Ch. 10</td>
<td>Quiz 7</td>
<td>Lab 7</td>
<td></td>
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<tr>
<td>9</td>
<td>Digital landscaping - terrain modeling</td>
<td>Ch. 13</td>
<td>Quiz 8</td>
<td>Lab 8</td>
<td></td>
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<tr>
<td>10</td>
<td>Seeing the world in 3D - geovisualization</td>
<td>Ch. 14</td>
<td>Quiz 9</td>
<td>Lab final</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Review for Final Exam</td>
<td></td>
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<tr>
<td>11</td>
<td>Final Exam</td>
<td></td>
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</tr>
</tbody>
</table>

**Laboratory Schedule and Information**

<table>
<thead>
<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>
</tr>
<tr>
<td>8. Terrain and imagery; 3D terrain and buildings</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Lab exam</td>
<td>10</td>
<td></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: GIS 280  
Number of Credits: Variable, 1-12  
Activity Code:

- _100 - Lower Division Collegiate  
- _210 - CTE Preparatory  
- _211 - Stand-alone (Independent) CTE Preparatory  
- _X_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?
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 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 Outline

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

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
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 290
Number of Credits: Variable, 1-28
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’)

  __ 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

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:
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: 220
CIPS: 240102

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’)*

_X_ Lecture (11 hrs/credit)  
_X_ Lab (30 hrs/credit)
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.
_X_ 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:
A-F, audit

Load Factor:
2.1

Award Information:
Please select all that apply.

__AA
_X_A
_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; 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. Engineering program has proposed a net decrease of 4 credit hours in Civil Engineering & Surveying Technology AAS degree through restructuring of program after addition of this course – no net additional cost for instruction. Will be costs associated with developing curriculum.

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: 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.
<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>
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<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
- _X_AS
- __AAS
- __Below 100-Level
- _X_Elective
- __Certificate
- __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
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

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 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: 150201

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>
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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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<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>
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<tr>
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<td>From image to map: Coordinate Systems and Map Projections (Part II)</td>
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<td></td>
<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>
</tr>
<tr>
<td></td>
<td>Horizontal Measurements in Aerial Photographs</td>
<td>Midterm Exam</td>
</tr>
<tr>
<td>Week</td>
<td>Topic</td>
<td>Assignments</td>
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<tr>
<td>6</td>
<td>Vertical Measurements in Aerial Photographs (Part I - Stereovision)</td>
<td>Homework 3</td>
</tr>
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<td></td>
<td>Vertical Measurements in Aerial Photographs (Part II - Measuring Vegetation Height)</td>
<td>Lab 5: Mapping and Horizontal Measurements in Aerial Imagery Quiz 3</td>
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<td></td>
<td>Aerial Photo Mensuration</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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<td></td>
<td>Obtaining Height Models from LiDAR I: Extracting ground Elevations</td>
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<tr>
<td></td>
<td>Obtaining Height Models from LiDAR II: Fitting Surfaces</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>
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<tr>
<td></td>
<td>Obtaining Vertical Canopy Structure from LiDAR I: Height Percentiles and Canopy Profiles</td>
<td>Homework assignment 4</td>
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<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>
</tr>
<tr>
<td>9</td>
<td>Error sources when working with LiDAR I</td>
<td>Lab 8: Estimating vegetation heights from LiDAR</td>
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<tr>
<td></td>
<td>Error sources when working with LiDAR II</td>
<td>Homework Assignment 5</td>
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<tr>
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<td>Errors and Uncertainties</td>
<td>Quiz 5</td>
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<tr>
<td>10</td>
<td>Sampling Techniques I (Sampling Schemes)</td>
<td></td>
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<tr>
<td></td>
<td>Sampling Techniques II (Ground truthing)</td>
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<tr>
<td>11</td>
<td>Final Exam</td>
<td></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:**  
- _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?
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: 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: 150506

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
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: EMERGENCY MEDICAL SERVICES RESCUE
Course Number:
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:
3.4
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
UCC New Course Approval

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 ENVIRNONMENTS.

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*

- _X_ Course Outline - required
- __ Start-Up Budget (if needed)
- ___Advisory Committee Minutes (if needed)
UCC Course Outline

Course No: ES 113  
Course Credit: 3  
Lecture Hrs. /wk.: 1  
Lab Hrs. /wk.: 0  
Lecture/Lab Hrs. /wk.: 3  
Practicum Hrs. /Wks.: 0  
Clock Hours: 44  
Length of Course: 11 weeks  
Banner enforced Prerequisite: None  
Instructor enforced Prerequisite: None  
Co-Requisite: None  
Load Factor: 3.1  
Activity Code:  210 CTE Preparatory  
CIPS: 430203

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
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
  _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
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  _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?

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.
_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:
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
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 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: 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 DESCRIPTIONS:
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:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Introduction, Matter and Energy</td>
</tr>
<tr>
<td>2</td>
<td>Chemical Forms of Matter, Principles of Chemical Reactions</td>
</tr>
<tr>
<td>3</td>
<td>Chemistry of Some Common Elements</td>
</tr>
<tr>
<td>4</td>
<td>Flammable Gases and Liquids</td>
</tr>
<tr>
<td>5</td>
<td>Chemistry of Some Hazardous Organic Compounds</td>
</tr>
<tr>
<td>6</td>
<td>Chemistry of Some Corrosive Materials</td>
</tr>
<tr>
<td>7</td>
<td>Chemistry of Some Water- Reactive Materials</td>
</tr>
<tr>
<td>8</td>
<td>US Department of Transportation Hazard Classes</td>
</tr>
<tr>
<td>9</td>
<td>Hazardous Materials in Fixed Facilities</td>
</tr>
<tr>
<td>10</td>
<td>Response Guidelines</td>
</tr>
<tr>
<td>11</td>
<td>Final Examinations</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: 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)
UCC New Course Approval

__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
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: 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)
UCC New Course Approval

_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:**
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 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 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
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
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  
- `_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? 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
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  
Contact Title: Dept. Chair  
Department: Science

**Program Revision Information**

Date, Year, and Term of Proposed Revision: Winter 2016  
Program Title: Natural Resources - Landscape Monitoring

**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)*Credits reduced from 95 to 94

**Revised Outcomes *(If needed)***

**Revision Description and Justification**

*Please give as many details as possible about the revision, including justification for the change.*  
This program was modified to better fit the needs of a broader range of programs at UCC and at OSU.

**Program Impacts - select all that apply**

- _X_ Instructional costs (staff, materials, equipment, or facilities) required.  
- _X_ Additional instructional costs (staff, materials, equipment, or facilities) are needed.  
- __ Impact to other divisions in terms of classes and staffing  
- __ Other: The addition of a lab to NR 240 to bring it into alignment with other UCC and OSU programs will add 2.1 ILCs to the Science Dept's. load. An estimated $2000 of equipment will need to be purchased and will be paid for with SCIFEE funds.*
Please list changes to program course listing below.

<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>BOT 203</td>
<td>Field Botany</td>
<td>4</td>
<td>Bot 203 or 204</td>
<td>Field Botany w/tour</td>
<td>4</td>
</tr>
<tr>
<td>NR 240</td>
<td>Forest Ecosystems</td>
<td>3</td>
<td>NR 240</td>
<td>Forest Biology w/lab</td>
<td>4</td>
</tr>
<tr>
<td>PE 255</td>
<td>Wilderness Survival</td>
<td>2</td>
<td>Not req.</td>
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<tr>
<td>NR 205</td>
<td>Soil Science w/lab</td>
<td>4</td>
<td>SOIL 205</td>
<td>Soil Science lecture</td>
<td>3</td>
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<td></td>
<td></td>
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<td>SOIL 206</td>
<td>Soils lab for 205</td>
<td>1</td>
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<tr>
<td>GIS 134</td>
<td>Intro to GIS</td>
<td>3</td>
<td>GIS 234</td>
<td>Intro to GIS</td>
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<tr>
<td>GIS 135</td>
<td>GIS II</td>
<td>3</td>
<td>Not req.</td>
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</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__

**Proposed Courses – please attach new course outlines**

<table>
<thead>
<tr>
<th>Course #</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>------------</td>
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<td>---------</td>
</tr>
<tr>
<td>WR 121</td>
<td>Intro to Argument</td>
<td>4</td>
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<tr>
<td>WR 227</td>
<td>Technical Report Writing</td>
<td>4</td>
</tr>
<tr>
<td>SP 111</td>
<td>Fundamentals of Public Speaking</td>
<td>4</td>
</tr>
<tr>
<td>MTH 111</td>
<td>Elementary Functions</td>
<td>5</td>
</tr>
<tr>
<td>BI 211</td>
<td>Principles of Biology I</td>
<td>5</td>
</tr>
<tr>
<td>BI 212</td>
<td>Principles of Biology II</td>
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<tr>
<td>BI 213</td>
<td>Principles of Biology III</td>
<td>5</td>
</tr>
<tr>
<td>ENG 230</td>
<td>Environmental Literature</td>
<td>4</td>
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<tr>
<td>GIS 234</td>
<td>Introduction to GIS</td>
<td>4</td>
</tr>
<tr>
<td>MTH 243</td>
<td>Intro to Statistics</td>
<td>5</td>
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<tr>
<td>SOIL 205/206</td>
<td>Soil Science</td>
<td>4</td>
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<tr>
<td>NR 201</td>
<td>Intro to Natural Resources</td>
<td>3</td>
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<tr>
<td>NR 221</td>
<td>Water Resource Science</td>
<td>4</td>
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<tr>
<td>NR 240</td>
<td>Forest Biology</td>
<td>4</td>
</tr>
<tr>
<td>NR 241</td>
<td>Dendrology</td>
<td>4</td>
</tr>
<tr>
<td>NR 242</td>
<td>Ecosystems of SW Oregon and N California (hybrid)</td>
<td>4</td>
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<tr>
<td>NR 243</td>
<td>Historical Ecology of PNW Landscapes</td>
<td>3</td>
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<tr>
<td>NR 251</td>
<td>Principles of Fish and Wildlife Conservation</td>
<td>3</td>
</tr>
<tr>
<td>NR 255A</td>
<td>Landscape Monitoring: Fall</td>
<td>2</td>
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<tr>
<td>NR 255B</td>
<td>Landscape Monitoring: Winter</td>
<td>2</td>
</tr>
<tr>
<td>NR 255C</td>
<td>Landscape Monitoring: Spring</td>
<td>2</td>
</tr>
<tr>
<td>NR 295</td>
<td>Environmental Dispute Resolution</td>
<td>3</td>
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<tr>
<td>Courses</td>
<td>Description</td>
<td>Credits</td>
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<tr>
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</tr>
<tr>
<td>BOT 203 or BOT 204</td>
<td>Field Botany w/lab or tour</td>
<td>4</td>
</tr>
<tr>
<td>CH 112 or CH 104 or 221</td>
<td>Fundamentals of Chemistry or other CH</td>
<td>5</td>
</tr>
</tbody>
</table>

**Total credits for Program**: 92

Courses in **BOLD** type are new courses developed for this program. Outlines for these new classes are included below.
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.

<table>
<thead>
<tr>
<th>CURRENT</th>
<th>PROPOSED</th>
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<tbody>
<tr>
<td><strong>Course #</strong></td>
<td><strong>Course Title</strong></td>
</tr>
<tr>
<td>EMS 151</td>
<td>EMT Part 1</td>
</tr>
<tr>
<td>EMS 152</td>
<td>EMT Part 2</td>
</tr>
<tr>
<td>EMS 170</td>
<td>Emergency Communications</td>
</tr>
<tr>
<td>EMS 171</td>
<td>Emergency Transport</td>
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<tr>
<td>EMS 175</td>
<td>Intro to Emergency Medical</td>
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<td></td>
<td>Services</td>
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<tr>
<td>EMS 180</td>
<td>Crisis Intervention</td>
</tr>
<tr>
<td>MED 111</td>
<td>Medical Terminology I</td>
</tr>
<tr>
<td>FRP 201A</td>
<td>Rough Terrain Rescue</td>
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<tr>
<td>FRP 201B</td>
<td>Swift Water Rescue</td>
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<tr>
<td>FRP 201C</td>
<td>Rough Terrain Rescue</td>
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<tr>
<td>EMS 251</td>
<td>Paramedic Part 1</td>
</tr>
<tr>
<td>EMS 252</td>
<td>Paramedic Part 2</td>
</tr>
<tr>
<td>EMS 253</td>
<td>Paramedic Part 3</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>EMS 254</td>
<td>Paramedic Part 4</td>
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<tr>
<td>EMS 261</td>
<td>Paramedic Clinical &amp; Field Experience Part 1</td>
</tr>
<tr>
<td>EMS 262</td>
<td>Paramedic Clinical &amp; Field Experience Part 2</td>
</tr>
<tr>
<td>EMS 263</td>
<td>Paramedic Field Internship</td>
</tr>
<tr>
<td>BI 231</td>
<td>Human Anatomy &amp; Physiology</td>
</tr>
<tr>
<td>BI 232</td>
<td>Human Anatomy &amp; Physiology</td>
</tr>
<tr>
<td>BI 233</td>
<td>Human Anatomy &amp; Physiology</td>
</tr>
<tr>
<td>WR 121</td>
<td>English Composition</td>
</tr>
<tr>
<td>MTH 095 or higher</td>
<td>Intermediate Algebra OR higher</td>
</tr>
<tr>
<td>HPE 295</td>
<td>Wellness &amp; Health Assessment</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Psychology of Human Relations</td>
</tr>
<tr>
<td>SP 111 or higher</td>
<td>Fundamentals of Public Speaking OR higher</td>
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<tr>
<td></td>
<td>Social Science, Fine Arts, or Humanities Elective</td>
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</table>
## UCC Program Revision

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</tbody>
</table>

### Total credits for Program
99

**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**

- 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)**
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.  
- Impact to other divisions in terms of classes and staffing  
- Other:
Please list changes to program course listing below.

<table>
<thead>
<tr>
<th>CURRENT</th>
<th>PROPOSED</th>
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</thead>
<tbody>
<tr>
<td><strong>Course #</strong></td>
<td><strong>Course Title</strong></td>
</tr>
<tr>
<td>FRP101</td>
<td>FIREFIGHTER SAFETY AND SURVIVAL</td>
</tr>
<tr>
<td>FRP111</td>
<td>BUILDING CONST. FOR FIRE SUPPRESSION</td>
</tr>
<tr>
<td>FRP121</td>
<td>ELEMENTARY SCIENCE FOR FIREFIGHTERS PART 1 NEEDED FOR DPSST/ NFPA FIREFIGHTER CERT.</td>
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<tr>
<td>FRP121 B</td>
<td>NOT CURRENTLY OFFERED</td>
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<tr>
<td>FR 123</td>
<td>HAZARDOUS MATERIALS AWARENESS/OPERATIONS</td>
</tr>
<tr>
<td>FRP132</td>
<td>FIRE PUMPCONSTRUCTION</td>
</tr>
<tr>
<td>FRP133</td>
<td>NATURAL COVER FIRE PROT.</td>
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<tr>
<td>FRP 163</td>
<td>NFPA FIRE INSTRUCTOR 1</td>
</tr>
<tr>
<td>FRP201 A or ES 113</td>
<td>FIRE RESCUE PRACTICES ROUGH TERRAIN NOT CURRENTLY OFFERED</td>
</tr>
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<td>Course Title</td>
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<tr>
<td>-------------</td>
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</tr>
<tr>
<td>FRP 201 B  ES 113</td>
<td>FIRE RESCUE PRACTICES SWIFT WATER NOT CURRENTLY OFFERED</td>
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<tr>
<td>FRP 201 C  ES 113</td>
<td>FIRE RESCUE PRACTICES VEHICLE EXTRICATION NOT CURRENTLY OFFERED</td>
</tr>
<tr>
<td>FRP 202</td>
<td>FIRE PROTECTION SYSTEMS</td>
</tr>
<tr>
<td>FRP 212</td>
<td>FIRE INVESTIGATION</td>
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<tr>
<td>FRP 213</td>
<td>FIREFIGHTING TACTICS AND STRATEGIES</td>
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<tr>
<td>FRP 230</td>
<td>FIRE SERVICE HYDRAULICS</td>
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<tr>
<td>FRP 240</td>
<td>WATER DISTRIBUTION SYSTEMS</td>
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<tr>
<td>EMS 151</td>
<td>EMT PART 1</td>
</tr>
<tr>
<td>EMS 152</td>
<td>EMT PART 2</td>
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<td>FRP 280</td>
<td>FIRE RELATED SKILLS</td>
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<td>FRP 159</td>
<td>NOT OFFERED CURRENTLY</td>
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<tr>
<td>ES 101</td>
<td>NOT CURRENTLY OFFERED</td>
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<tr>
<td>FRP 135</td>
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<td>Course Title</td>
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<td>-------------</td>
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<tr>
<td>ES 107</td>
<td>NOT CURRENTLY OFFERED</td>
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<tr>
<td>ES 107</td>
<td>LEGAL ASPECTS OF EMERGENCY SERVICES</td>
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<tr>
<td>ES 103</td>
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<td>ES 103</td>
<td>OCCUPATIONAL SAFETY AND HEALTH FOR EMERGENCY</td>
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<tr>
<td>WR 122</td>
<td>ENGLISH COMPOSITION STYLE AND ARGUMENT</td>
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<td>WR 122</td>
<td>REMOVE</td>
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<tr>
<td>CIS 120</td>
<td>INTRO TO COMPUTER INFORMATION SYSTEMS</td>
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<td>WR 227</td>
<td>TECHNICAL REPORT WRITING</td>
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<td>WR 121</td>
<td>ENGLISH COMPOSITION</td>
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<td>MTH 095</td>
<td>INTERMEDIATE ALGEBRA</td>
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<tr>
<td>SP 111</td>
<td>FUNDAMENTALS OF PUBLIC SPEAKING</td>
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<td>CH, GS, PH</td>
<td>SCIENCE ELECTIVE</td>
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<td>HPE 295</td>
<td>WELLNESS &amp; HEALTH</td>
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<td>PSY 101</td>
<td>PSYCHOLOGY OF HUMAN RELATIONS</td>
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<td>ES 109</td>
<td>CURRENTLY NOT OFFERED</td>
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<td></td>
<td>REMOVE</td>
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<tr>
<td></td>
<td>Total credits for Program</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
_x_ Other: NFA FESHE Model Curriculum
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
  
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 3 cr; 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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**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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* 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

***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**

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**Term 4**

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**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

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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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**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**

- [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.  
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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## Prerequisites and Course Availability per Term

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

### ENGINEERING AND DRAFTING TECHNICIAN, COMPLETION CERTIFICATE

PROPOSED

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</table>

| Term 2| DRF 113  Computer Aided Drafting (CAD) II | x |    |    | 3  | DRF 112 CAD I                              |
|       | GIS 234  GIS I Introduction to 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                                       |
|       | UCC Approved Human Relations Elective | x | x  | x  | x  | 3       |                                                          |
| Term 3| CIV 214  CAD - Civil 3D              | x |    |    | 3  | DRF 113 CAD I                              |
|       | GIS 235  GIS II Analysis and Applications | 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                                       |

| Credit Total | 50 |

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>DRF 116</td>
<td>Structural Drafting</td>
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<td>ENGR 245</td>
<td>Engineering Graphics</td>
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<td>MTH 111</td>
<td>Algebra</td>
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</table>

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>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:

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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>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>
</tr>
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<td>ENGR 111</td>
<td>Engineering Orientation I</td>
</tr>
<tr>
<td>ENGR 112</td>
<td>Engineering Orientation II</td>
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<tr>
<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>Calculus III</td>
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<td>Vector Calculus I</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>
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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)                                                            REVISED 10/22/15*

<table>
<thead>
<tr>
<th>Course No. and Course Name</th>
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<th>Summer</th>
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**TOTAL AAS DEGREE CREDITS**

| 49 | 101 |
Basic Information
Name of Course Revision Contact: Mariah Beck
Date: October 30, 2015
Contact Title: Associate Professor of Math
Department: Mathematics
Course Number: Mth 105
Course Title: Math in Society

Course Revision Information

Type of change
_x_ Revision
__ Reactivation
__ Deletion

Date, Year, and Term of Proposed Revision: Winter 2017

Parent Program:

Course Revision Description and Justification
Please give as many details as possible about the revision, including justification for the change. Oregon math instructors from the community and 4 year colleges met in 2015 to standardize the topics covered in Mth 105. This revision reflects the decisions reached by that group and approved by the JBAC, CIA, Provosts, and HECC.

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

_x_ Other: state information on changes – *Mth 105 report final version*
COURSE TITLE: Math in Society
DEVELOPED BY: Mariah Beck
DEVELOPMENT DATE: October, 2015

COURSE DESCRIPTION:

Math in Society is a rigorous mathematics course designed for students in Liberal Arts and Humanities majors. This course provides a solid foundation in quantitative reasoning, symbolic reasoning, and problem solving techniques needed to be a productive, contributing citizen in the 21st century. Applications of mathematics will be explored with a major emphasis on the integration of mathematics with other subjects, communicating mathematics effectively orally and in writing, and reasoning quantitatively.

LEARNER OUTCOMES: The successful student in this class should be able to:
1. Describe and critique arguments using logical reasoning.
2. Use strategies of problem solving to approach problems in a variety of ways.
3. Interpret graphical displays of data.
4. Use measures of central tendency and spread to analyze data.
5. Understand margin of error, expected value, and misuse of data.
6. Calculate and interpret basic probabilities.
7. Model linear and non-linear growth, including exponential growth and decay. Interpret maximum values, minimum values, initial conditions, and rates of change.
8. Use technology, including calculators and spreadsheets, to model data and as problem solving tools.
9. Select and use the appropriate formula to solve finance problems: compound interest, annuities, and loans.

TEXT: To be determined

Topics

1. Logical Reasoning and Problem Solving --- (10 – 20% of course)
   Describing and Critiquing Arguments
   Understanding the Language and rules of Logic
   Recognizing Common Logical Fallacies
   Learning Strategies of Problem Solving (non-algebraic, showing another way)
2. Probability and Statistics --- (30% of course)
   Counting Rules --- Multiplication Property
   Measures of Central Tendencies and Spread
   Calculating and Interpreting Basic Probabilities
   Interpreting Graphical Displays/Histograms
   Margin of Error/Polls
   Expected Value
   Interpreting Distributions
   Misuse of Data

3. Financial Literacy --- (20% of course)
   Percent Sales and Income Tax
   Simple and Compound Interest
   Annuities
   Loans and Credit Cards

4. Additional Math Topics --- (30% of course)
   Additional topics that might be addressed include, but are not limited to:
   Modeling Linear and Non-linear Growth
   Fractal Geometry
   Applied Trigonometry
   Game Theory
   Using large and small numbers and scientific notation
   Exponential Growth/Decan Models
   Math in Art and Music
Mth 105 --- Math in Society

Course Description:
Math in Society is a rigorous mathematics course designed for students in Liberal Arts and Humanities majors. The course provides a solid foundation in quantitative reasoning, symbolic reasoning, and problem solving techniques needed to be a productive, contributing citizen in the 21st century.

Course Outcomes: Skills and abilities that result from the course.
- [MR] Mathematical Reasoning: Students will read a complex problem requiring quantitative and/or symbolic analysis, use flexibility in selecting a solution strategy, and impose an appropriate mathematical structure or mathematical procedure in solving the problem.
- [MH] Mathematical Habits of Thought: Students will determine the reasonableness and implications of mathematical solutions, and will recognize the limitations of the methods used in context.
- [MC] Mathematical Communication: Student will use appropriate representations to effectively communicate, orally and in writing, quantitative results and mathematical processes.
- [MS] Mathematical Symbols, Techniques & Computation: Students will demonstrate proficiency in the skills supporting mathematical understanding.

Major Course Topics:
These are the three major topics along with the required supporting topics for each. The major topics are listed in the order in which they should be taught. Reasoning logically and problem solving are skills that should permeate throughout the entire course.

1. Logical Reasoning and Problem Solving --- (10 – 20% of course)
   - Describing and Critiquing Arguments
   - Understanding the Language of Logic
   - Recognizing Common Logical Fallacies
   - Learning Strategies of Problem Solving (non-algebraic, showing another way)

2. Probability and Statistics --- (30% of course)
   - Counting --- Multiplication Property
   - Measures of Central Tendencies and Spread
   - Calculating and Interpreting Basic Probabilities
   - Interpreting Graphical Displays/Histograms
   - Margin of Error/Polls
   - Expected Value
   - Interpreting Distributions
   - Misuse of Data
3. Financial Literacy --- (20% of course)
   ✓ Percent Sales and Income Tax
   ✓ Simple and Compound Interest
   ✓ Annuities
   ✓ Loans and Credit Cards

4. Additional Math Topics --- (30% of course)
   Additional topics that might be addressed include, but are not limited to:
   ✓ Graph Theory
   ✓ Game Theory
   ✓ Modeling Growth
   ✓ Apportionments
   ✓ Fractals
   ✓ Applied Trigonometry
   ✓ Golden Mean
   ✓ Math in Art
   ✓ Math in Music
   ✓ Sequence and Series
   ✓ Voting Theory
   ✓ Fermi Approximations
   ✓ Infinities
   ✓ Symmetry/Tessellations
   ✓ Cryptography
   ✓ Binary Operations
   ✓ Historical Numbers
   ✓ Proportional Reasoning
   ✓ Scheduling
   ✓ Logistic Models

While the major topics overlap in many ways with content addressed in courses in statistics and business mathematics, the focus in Mth 105 is on the “big ideas” in these areas. That is, the aspects of logic, statistics, and finance which are essential knowledge for an educated citizenry. The course should not have extensive emphasis on procedures and details. The intent is to define a rigorous liberal arts quantitative course that provides an important piece of a well-rounded general education, namely, building a student’s ability to reason quantitatively. The list of major topics is meant to address this aim through a consistent focus while still leaving time, about 30% of the course, for additional math topics that can be relevant to a wide range of liberal arts and humanities areas. An instructor could choose to apply the time allotted for the Additional Math Topics area to delve deeper into one, or all of the Major Course Topics.

Prerequisite Skills for Mth 105, Math in Society

In order for students to be successful in a rigorous college, transfer-level quantitative reasoning course it is essential that they have a firm foundation in basic number sense, the ability to reason algebraically, and the ability to read and interpret graphs. The following list of skills is intended to help frame our concept of a transfer-level quantitative reasoning course and to provide students and instructors with an understanding of the expectations we have for students who enroll in such a course. This list represents skills students should have entering this Mth 105 course, not a list of skills corresponding to a specific math course. It is important to realize that students are not expected necessarily to achieve a high level of proficiency in all of these skills prior to entering Mth 105 as many of these skills will continue to be developed in this college, transfer-level course.
The Mth 105, Math in Society, description of skills and outcomes presumes that students entering the course should have developed a skill set through a college developmental math sequence or from math courses taken in high school. These skills include the following:

**Note:** While many of these skills provide foundational support for more than one major course topic area in Mth 105, the coding abbreviations in parentheses, where noted, suggest a primary link between a particular skill and one of the three major course topic areas listed for the course: LR = logical reasoning; FL = financial literacy; and PS = probability and statistics.

**Number Sense**
- Use standard order of operations to evaluate expressions (including fractions and exponents)
- Calculate with, and convert between, decimals, fractions, and percents (FL)
- Interpret and use scientific notation
- Use various strategies to perform estimations (products, ratios, relative sizes) (FL)
- Use, and convert between, units
- Increase or decrease a given value by a given percentage (FL)
- Calculate the relative change (percent) between two quantities (PS)

**Algebraic Reasoning and Modeling**
- Use variables to represent quantities (LR)
- Solve linear equations and proportions (FL)
- Create and use linear models in a variety of authentic settings (FL)
- Interpret slope as a rate or ratio as appropriate for the given context (FL)
- Simplify and evaluate algebraic expressions using rules of exponents, including negative exponents, and combining like terms. (FL)
- Recognize and describe the relationship between variables expressed in an algebraic equation or graphical representation (intuitive notion of a function)
- Use, and convert between, different representations of relationships (verbal, algebraic, numerical, graphical) (LR)
- Understand order of operations (LR)
- Be able to use Polya’s problem solving principles (or at least have modeled and solved some application problems) (LR)

**Graphical Sense**
- Create and use simple graphs: lines, bar charts, pie charts, and histograms (PS)
- Read and interpret graphs, charts, and tables (PS)
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:
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: 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:
Course Title: **Forest Ecosystems**  
Developed By: Ken Carloni, Ph.D.  
Development Date: Nov. 2014  
Revision Date:  
Review Date:  

**COURSE DESCRIPTION:**  

**COURSE OUTCOMES:**  
Students who complete this course will be able to:  
- Describe the components and processes of forest ecosystems at multiple scales.  
- Explain the flow of energy and the cycling of nutrients in ecosystems, and discuss the factors that influence these processes.  
- Explain the influence of climate, soils, topography, and disturbance agents on ecosystem structure and function.  
- Explain the relationships between the processes of disturbance and forest succession, and discuss their effects on ecosystem structure and function including stand demographics, soils, water resources, wildlife habitat, carbon storage and biodiversity.  
- Discriminate among those management practices that accumulate carbon, store water, produce sustainable products, and increase biodiversity from those that don’t.  
- Recognize effective solutions to ecological problems and communicate them clearly.
COURSE OUTLINE:

- Fundamental Ecosystem Concepts
- Structure and Function of Forest Ecosystems at Multiple Scales
- Climate, Soils, Topography and Ecoregions
- Coevolution of Populations and Communities
- Disturbance and Succession in Forest Ecosystems
- Energy, Productivity and Biomass
- Biogeochemical Cycles
- Landscape Ecology: Fragmentation, Connectivity, and Landscape Heterogeneity
- Ecosystem Services
Basic Information
Name of New Course Contact: Ken Carloni
Contact Title: Dept. Chair
Department: Science
Supervisor: Jason Aase
Program: Natural Resources, Forest Engineering, Forest Management

New Course Information
Date, Year, and Term of Proposed Implementation: Fall 2016
Course Title: Forest Biology
Course Number: NR 240
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’)

_33_Lecture (11 hrs/credit)
_33_Lab (30 hrs/credit)
__Lecture/Lab (20 hrs/credit)
__Other:
Number of Hours:  
66 hrs/term

Co- and Pre-Requisite Information  
Course in BI or NR; Instructor’s consent

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

Catalog Course Description – see attached course outline  
Forest Biology is a basic course that provides a broad foundation in biology that is relevant to many natural resource issues. This course examines forest biology at multiple levels of organization, from molecules to the globe; principles of ecosystem dynamics in managed and unmanaged forest communities, landscapes and bioregions; coevolution of competition, predation, decomposition, and mutualism; energy flow, nutrient cycles and feedback controls; the effects of disturbance and succession on carbon storage, biodiversity, and habitat stability through time.

Grading Option: A-F

Load Factor: 5.1 ILCs

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? n/a
NR 240 UCC New Course Approval

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
Natural Resources, Forest Engineering, Forest Management AS degrees

New Course Justification
Core requirement for AS degrees in Natural Resources, Forest Engineering, Forest Management

Course Impacts (Select all that apply)
__X__Instructional costs (staff, materials, equipment, or facilities) are required.
__X__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 adds 3 lab hours (2.1 ILCs) to Sci. Dept. teaching load, and 1 credit to the NR program. It will also require about $2000 dollars of additional equipment that will be purchased with Science Dept. funds.

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 No: NR 240
Course Credit: 4
Lecture Hrs/wk: 3
Lab Hrs/Wk: 3
Lecture/Lab Hrs/Wk: 6
Practicum Hrs/Wk: 0
Clock Hours: 66
Length of Course: 11 wks.
Banner enforced Prerequisite: Course in BI or NR; Instructor’s consent
Instructor enforced Prerequisite:
Co-Requisite:
Load Factor: 5.1 ILCs
Activity Code: 100
CIPS: 260101

Course Title: Forest Biology
Developed By: Ken Carloni, Ph.D.
Development Date: Nov. 2015
Revision Date:
Review Date:

COURSE DESCRIPTION:
Forest Biology is a basic course that provides a broad foundation in biology that is relevant to many natural resource issues. This course examines forest biology at multiple levels of organization, from molecules to the globe; principles of ecosystem dynamics in managed and unmanaged forest communities, landscapes and bioregions; coevolution of competition, predation, decomposition, and mutualism; energy flow, nutrient cycles and feedback controls; the effects of disturbance and succession on carbon storage, biodiversity, and habitat stability through time.

COURSE OUTCOMES:
Students who complete this course will be able to:
- Apply scientific methodology and demonstrate the ability to draw conclusions based on observation, analysis, and synthesis.
- Recognize and apply concepts and theories of basic biological science.
- Demonstrate connections between forest ecology principles and other subject areas.
- Describe the structure and function of trees.
- Describe the components and processes of forest ecosystems at multiple scales.
- Explain the flow of energy and the cycling of nutrients in ecosystems, and discuss the factors that influence these processes.
UCC Course Outline

- Explain the influence of climate, soils, topography, and disturbance agents on ecosystem structure and function.
- Explain the relationships between the processes of disturbance and forest succession, and discuss their effects on ecosystem structure and function including stand demographics, soils, water resources, wildlife habitat, carbon storage and biodiversity.
- Discriminate among those management practices that accumulate carbon, store water, produce sustainable products, and increase biodiversity from those that don’t.
- Recognize effective solutions to ecological problems and communicate them clearly.
COURSE OUTLINE:

Lectures
• Fundamental Ecosystem Concepts
• Anatomy and physiology of woody plants.
• Structure and Function of Forest Ecosystems at Multiple Scales
• Climate, Soils, Topography and Ecoregions
• Coevolution of Populations and Communities
• Disturbance and Succession in Forest Ecosystems
• Energy, Productivity and Biomass
• Biogeochemical Cycles
• Landscape Ecology: Fragmentation, Connectivity, and Landscape Heterogeneity

Ecosystem Services

Labs
• Introduction to Data Collection and Analysis
• Woody plant Structure
• Keying Vascular Plants
• Measuring Photosynthesis and Respiration Rates
• Transpiration
• Predator/Prey Dynamics
• Calculating Biodiversity Indices
• Forest Demographics I
• Forest Demographics II
• Carbon Dynamics
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)
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)

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

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

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**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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<th>COURSE SCHEDULE</th>
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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:
Course Title: GIS I Introduction to Geographic Information Systems

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: GIS 234
Co-Requisite:
Load Factor: 4.4
Activity Code: 100
CIPS: 450702

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
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 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: 150201

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:**
*“Elementary Surveying, 13th Edition”* by Charles Ghilani and Paul Wolf

**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.
__ 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: 
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:   150201

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 052 (Introduction to Algebra for the Trades) or equivalent – Banner 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 052 or equivalent. 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: MTH 52 or equivalent  
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 052 – Introduction to Algebra for the Trades or Equivalent  

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 052 (Introduction to Algebra for the Trades) of Equivalent 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 052. 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...
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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: WQT 228
Course Credit: 3
Lecture Hrs/wk: 0
Lab Hrs/Wk: 0
Lecture/Lab Hrs/Wk: 0
Practicum Hrs/Wk: 0
Clock Hours: 33
Length of Course: 11 wks
Banner enforced Prerequisite: MTH 52 or equivalent
Instructor enforced Prerequisite: 
Co-Requisite: 
Load Factor: 3
Activity Code: 220
CIPS: 150506

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

PREREQUISITES: MTH 052 – Introduction to Algebra for the Trades or Equivalent

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. 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 052 (Introduction to Algebra for the Trades or Equivalent) – 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 052. 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.
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...
Course will replace WQT 130 Water Treatment Plant Operations in the catalog
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 TREATMENT  
WQT 260  
Course Outline

Course No: WQT 260  
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: MTH 52 or equivalent  
Instructor enforced Prerequisite:  
Co-Requisite:  
Load Factor: 3  
Activity Code: 220  
CIPS: 150506

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

PREREQUISITES: MTH 052 – Introduction to Algebra for the Trades

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 052 (Introduction to Algebra for the Trades) or equivalent
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 052. 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:
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:  
Practicum Hrs/Wk:  
Clock Hours: 44
Length of Course: 11 wks
Banner enforced Prerequisite: MTH 52 or equivalent
Instructor enforced Prerequisite:  
Co-Requisite:  
Load Factor: 4
Activity Code: 220
CIPS: 150506

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

PREREQUISITES: MTH 052 – Introduction to Algebra for the Trades

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
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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
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: 220
CIPS: 150506

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
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.
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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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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: 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...
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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 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...
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 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.
UCC Course Outline

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...
NONE
**List current information and proposed changes**

|                      | CURRENT          | PROPOSED
|----------------------|------------------|----------------
|                      |                  | if no changes put "same"
| Course number        | FRP 240          | DELETE         
|                      | Course number    |                
| Course title         | WATER DISTRIBUTION | DELETE        
|                      | Course title     |                
| Credits              | 3                | 0              
|                      | Credits          |                
| Lecture Hrs/Wk       | 3                | 0              
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| Practicum            | NONE             | N/A            
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| Banner/Instr. Prereqs | NONE           | N/A            
| Co-requisites        | NONE             | N/A            
|                      | Co-requisites    |                
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| Grading Option       | STANDARD         | N/A            
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| Load Factor          | 4                | 0              
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**Additional Documentation**

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

- Course Outline - required
- Other:

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UCC Course Revision v1.0 9/30/14 Page 2
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...
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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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<td>Fire Behavior, Personal Protective Equipment</td>
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<td>Week 3</td>
<td>Ropes and Knots, Forcible Entry</td>
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<td>Week 4</td>
<td>SCBA Search and Rescue, Salvage and Overhaul</td>
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<td>Week 5</td>
<td>Fire Extinguishers, Fire Hose</td>
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<td>Fire Streams, Water Supply</td>
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<td>Week 7</td>
<td>Fire Control, Ladders Operations and Maintenance</td>
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<td>Building Construction (introduction), Forcible Entry</td>
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UCC Course Revision

**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.  

**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 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.

_X_ Course Outline - required

__ Other:
COURSE TITLE: ELEMENTARY FIRE SCIENCE PART 2
Developed by: Joel King, BS, Fire Science Coordinator
Approved by: Roger Kennedy, BS, Public Safety Chair

COURSE DESCRIPTION:

This class is part 2 of a two part course 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.
- Make interior and exterior attacks on live fire structures or approved simulators
- Control vehicle fires using live fire situations or approved simulators.
- Perform search and rescue techniques in hostile or simulated hostile environments.
• Demonstrate ability to use Thermal Imaging Cameras
• 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 2

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<td>SCBA Search and Rescue, Salvage and Overhaul</td>
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**UCC Course Revision**

**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.
**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: 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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### 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.
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    __ Other:

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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.
UCC Course Outline

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.
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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
## UCC Course Outline

**REQUIRED TEXT/ MATERIALS:**

*Building Construction; Methods and Materials for the Fire Service 2nd Edition (2012); Michael Smith, Brady Publishing (Pearson)*

Outline

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UCC Course Outline – v1.0, 9/30/14
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.
__ 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:
UCC Course Outline

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.
__ 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.

- 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:**

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<td>Company Operations, Fire Protection Systems</td>
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<td>After The Incident, Building Construction</td>
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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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Additional Documentation

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

__ Course Outline - required
__ Other:
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]