Proposal to move the Forest Engineering-Civil Engineering [FE-CE] undergraduate program to a Professional Program Model [PPM]

Institution: Oregon State University  
College/School: College of Forestry 
Department/Program: Department of Forest Engineering, Resources and Management 
Date of Proposal: September 27, 2012 
Proposed Effective Term: Summer Term, 2013

The proposal includes:

1. Stratification of the curricula into a lower division pre-professional course program followed by an upper division professional course program.
2. The criteria for student acceptance into the professional program.
3. Changes to the courses in the curriculum, including elimination of four courses, and addition of new, modified, and existing different courses.
4. Adoption of a Forestry Field School prior to the beginning of fall term of the professional program.
5. Adoption of an optional Coop education program that will include two six month internships which include course credit.
6. Rescheduling of many of the courses in the curriculum to facilitate the Coop Education option.
7. Development of WWW courses for all College of Forestry courses that will be required as a part of the pre-professional course program.
8. Pending the approval of this proposal, the department will request new major codes for the new “Pre-Professional Forest Engineering” and “Professional Forest Engineering” programs.

Although not all of the listed items above required Category II curriculum change approval, they are being included in the proposal due to the interdependence of the initiatives, and to ensure that the rest of the campus understands that the College of Forestry faculty and administration are committed to doing all the things necessary to make the proposal successful. In a very real sense, failing at any of the initiatives will result in failure of the whole.

Justification for Change

The budgetary climate at OSU in general, and specifically within the College of Forestry, requires that existing academic programs that are underfunded be eliminated or modified so as to become more cost effective. The College of Forestry [COF] is currently operating with an annual structural deficit of approximately two million dollars. A portion of this deficit can be traced directly to the academic programs that are not fully supported by budget allocations from the University [of course this situation is not unique at OSU]. At a minimum, it is the obligation of the College to evaluate the need for and content of the current academic programs, and make appropriate cost effective changes consistent with the land grant mission of the University with respect to Forestry. This is the on-campus driver for change.

The off-campus driver can be seen in (1) the aging professional workforce in the forestry profession, and (2) the changing structure of the forest industry. Recent estimates [Wininger, 2007] suggest that 40% of the professional workforce in the forest industry will retire within the next decade. The future job opportunities for graduates, and the need for a qualified
professional workforce substantiates continuation of the current academic programs as an integral part of the land grant mission of the University. At the same time that the need for professional program graduates appears strong, the structure of the forestry industry has changed. Where the ownership of large forestland tracts was once dominated by vertically integrated publicly traded corporations, the majority of large industrial forestland tracts are now owned either by privately held Real Estate Investment Trusts [REIT], some of which are managed very much like the vertically integrated corporations, and some of which are managed by Timber Investment Management Organizations [TIMO]. This shifting management arrangement has created a different job market for graduates than existed even a decade ago. Through our discussions with the management of an array of REIT and TIMO organizations, it has become clear that a formal Cooperative Education program in which a significant number of program graduates could participate is desirable. Since the FE program consists of a series of courses that are taught only once a year, development of a Coop cannot occur without reordering the course schedule, which has curricular content implications. The Coop program will not be formally available to FE/CE double degree majors – they will be allowed to participate in the Coop program, but the course scheduling necessary to facilitate graduation in the normal time will not be done.

**Stratification of the curricula into a Professional Program Model [PPM]**

Adoption of a PPM for the FE/CE program is built around five basic assumptions:

1. Improvement in the quality of the program will result from a more formal approach to acceptance of students into the upper division courses than has historically been achieved through individual course prerequisites. Elimination of heartfelt granting of overrides for students without prerequisites will allow the rigor of all upper division courses to more closely match the curriculum design.
2. Enrollment control and management that will result from the PPM will allow the COF to more cost effectively ensure that student demand is met in a timely manner – we will know exactly how many students to expect in each upper division class a year ahead of time during schedule planning. This will allow more efficient allocation of faculty and TAs in both the short and long terms.
3. Moving skill based courses that are or can be offered by the community colleges to the lower division level will result in lower costs to students and at the same time reduce our teaching obligation in high cost skill courses. Lower cost to students on the community college pathway means that a professional school tuition surcharge will be less likely to discourage pursuit of the FE/CE degree through to completion.
4. All lower division COF courses not commonly available at most of the Oregon community colleges will be offered through Ecampus so that students can complete the pre-professional forest engineering program at a community college.
5. The prestige and efficiency of the professional program will enhance our ability to attract and sustain higher enrollment, hence growing the program. Program growth is essential to meet the forest sector workforce needs. It should be noted that there was significant concern when the FE program was elevated to meet the requirements of ABET accreditation that a reduction in enrollment would result. The alternative perspective advanced by others was that an increase in enrollment would result from the existence and prestige of engineering accreditation – this latter perspective turned out to be the case.
The proposed catalog curriculum sheets for the FE and FE/CE program is shown in the following section. A summary table of program changes is followed by the proposed new catalog copy. The existing program pattern can be viewed in the current general catalog at:

FE:  [http://catalog.oregonstate.edu/MajorDetail.aspx?major=380&college=05](http://catalog.oregonstate.edu/MajorDetail.aspx?major=380&college=05)

FE/CE:  [http://catalog.oregonstate.edu/MajorDetail.aspx?major=381&college=05](http://catalog.oregonstate.edu/MajorDetail.aspx?major=381&college=05)

### Forest Engineering Program Revision Summary

<table>
<thead>
<tr>
<th>Existing courses that will be changed or eliminated</th>
<th>Proposed course list additions</th>
<th>Net Change in Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST 351. Introduction to Statistical Methods (4) – elimination from program</td>
<td>ST 201. Principles of Statistics (4)</td>
<td>0</td>
</tr>
<tr>
<td>WSE 210. Renewable Materials Technology and Utilization (4) – elimination from program</td>
<td></td>
<td>-4</td>
</tr>
<tr>
<td>FE 308. Forest Surveying (4) – move content to lower level course number (Drop-CPS #85524)</td>
<td>FE 208 Forest Surveying (4) (New-CPS #85312)</td>
<td>0&lt;sup&gt;ClII&lt;/sup&gt;</td>
</tr>
<tr>
<td>FE 309. Forest Photogrammetry (4) – move content to lower level course number (Drop-CPS #85525)</td>
<td>FE 209 Forest Photogrammetry (4) (New-CPS #85315)</td>
<td>0&lt;sup&gt;ClII&lt;/sup&gt;</td>
</tr>
<tr>
<td>FE 357. GIS and Forest Engineering Applications (3) – move content to lower level course number (Drop-CPS #85879)</td>
<td>FE 257. GIS and Forest Engineering Applications (3) (New-CPS #85317)</td>
<td>0&lt;sup&gt;ClII&lt;/sup&gt;</td>
</tr>
<tr>
<td>FE 307 Forest Engineering Seminar (1)</td>
<td>FE 307 Forest Engineering Seminar (1) (New-CPS #85837)</td>
<td>+1&lt;sup&gt;ClII&lt;/sup&gt;</td>
</tr>
<tr>
<td>FE 312X. Forestry Field School (2)</td>
<td>FE 312X. Forestry Field School (2) (New-CPS #85502)</td>
<td>+2&lt;sup&gt;ClII&lt;/sup&gt;</td>
</tr>
<tr>
<td>FE 449 Strategic and Tactical Planning Techniques (3) – merge some content with FOR 457 (Drop-CPS #85249)</td>
<td>FOR 457 Techniques for Forest Resource Analysis (4) (Change-CPS #85526)</td>
<td>+1&lt;sup&gt;ClII&lt;/sup&gt;</td>
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<td>FE 451 Forest Operations Design II (3) – merge some content with FOR 459 (Drop-CPS #85250)</td>
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<tr>
<td>FE 450 Forest Operations Design I (3)</td>
<td>FE 450 Forest Operations Design (4) (Change-CPS #85303)</td>
<td>+1&lt;sup&gt;ClII&lt;/sup&gt;</td>
</tr>
<tr>
<td>FE 460 Forest Operations Regulations and Policy Issues (3)</td>
<td>FE 460 Forest Operations Regulations and Policy Issues (3) [WIC] (Change-CPS #85220)</td>
<td>0&lt;sup&gt;ClII&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Non-Coop students, 10 credits free electives. Coop students, 4 credits of Coop +6 credits free elective

Net change to the program | +12 |

Program Total | 192 |

<sup>ClII</sup> Pending approval of Category II proposals.
Proposed revision to the catalog copy:

Forest Engineering Program

The BS degree in Forest Engineering is offered through a four-year resident curriculum, a four year and two term Cooperative Education program, and as part of a five-year double degree program from which graduates receive two bachelor of science degrees, one in forest engineering and one in civil engineering. The BS degree in Forest Engineering is accredited by the Engineering Accreditation Commission of ABET, (http://www.abet.org), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; 410-347-7700. The BS degree in Forest Engineering is also accredited by the Society of American Foresters. The double degree program is offered in conjunction with the School of Civil and Construction Engineering. Curricula for both programs are listed below. Both programs begin with basic science and mathematics, progress on through engineering science and forest science, to arrive at professional-level courses in forest engineering that include surveying, soil and water resources, timber harvesting, operations analysis, road design, and planning. Graduates are eligible to take the Fundamentals of Engineering Examination.

In addition to the listed courses, all students are required to complete a total of six months of satisfactory employment in an area related to their major. This is usually accomplished by two or more summers of work, but it may include work during the academic year. An optional Cooperative Education program that includes two 6-month internships is available. Students in the Cooperative Education program satisfy the six months satisfactory employment requirement by virtue of one internship. Work performance and personal conduct are thoroughly appraised by the College of Forestry.

Pre-Professional Forest Engineering Program

Admission to the pre-professional program requires that students be admitted as a degree-seeking undergraduate or post-baccalaureate level student at Oregon State University. Courses included in the first and sophomore years comprise a pre-professional program of study that produces a solid foundation for professional program studies at the junior, senior, and advanced degree levels. The pre-professional program may be taken at Oregon State University or at any accredited college or university that offers equivalent courses transferable to OSU in conjunction with foundation forestry available via OSU Ecampus.

Professional Forest Engineering Program

Students must be admitted to the professional forest engineering program following completion of the pre-professional forest engineering course work in order to progress to the junior year in Forest Engineering. Students in the double degree program also must be admitted to the College of Engineering professional program following completion of the pre-engineering course work.

Enrollment in professional program courses is restricted to those students who have clearly demonstrated an ability to achieve the standards required for professional studies. The number of students admitted to the program is determined based on available resources. Students meeting the minimum pre-forest engineering GPA of 2.25 may or may not be admitted depending on available resources.
Admission to the professional program will be granted for students meeting the admission requirements prior to fall term of the junior year. Application for the professional program will be made as of the end of winter term for the following fall term. For admission, students must earn:

1) a grade of “C” or better in all pre-professional courses listed below. Grade repeat (replacement) policy will follow OSU Academic Regulation #20.

2) a minimum GPA of 2.25 based on the pre-professional courses [or transfer equivalents] satisfactorily completed.

Students who have completed their pre-professional studies at a college or university other than Oregon State University must apply both to the OSU Office of Admissions for admission to OSU as a degree-seeking undergraduate or post-baccalaureate level student and to the College of Forestry for admission to the professional program. Application forms for the forest engineering professional program and information on policies and programs are available from the College of Forestry.

Students who have not satisfactorily completed all of the pre-professional courses when they apply may be provisionally accepted. Final acceptance is contingent on completion of any remaining pre-professional coursework with grade of “C” or better by the end of the summer term prior to entrance into the professional program. Students who receive provisional acceptance and then fail to attain admission standards prior to the beginning of fall term will be re-directed to the pre-professional forestry program.

All requirements for admission to the professional program must be completed before entering the professional program. Students may only enter the professional program in the fall term each academic year. The professional forest engineering program begins with Forestry Field School prior to fall term of the professional program.

**Pre-Professional Forest Engineering Program**

Grade standards for the pre-professional program as listed in the program description apply.

**First Year (45)**

CH 201. *Chemistry for Engineering Majors (3)*)
COMM 111. *Public Speaking (3)*)
   or COMM 114. *Argument and Critical Discourse (3)*)
ECON 201. *Introduction to Microeconomics (4)*)
FE 101. Introduction to Forest Engineering (2)
FE 102. Forest Engineering Problem Solving and Technology (3)
FOR 111. Introduction to Forestry (3)
FOR 141. Tree and Shrub Identification (3)
HHS 231. *Lifetime Fitness for Health (2)
HHS 241–HHS 248. *Lifetime Fitness: (various activities) (1)
   or any PAC course (1–2)
MTH 251. *Differential Calculus (4)
MTH 252. Integral Calculus (4)
MTH 254. Vector Calculus I
PH 211. *General Physics with Calculus (4) 1E
WR 121. *English Composition (3) 1E
Free Electives (2)

Sophomore Year (49)

CCE 201. Civil Engineering II: Engineering Graphics and Design (3) E
ENGR 211. Statics (3) E
ENGR 212. Dynamics (3) E
ENGR 213. Strength of Materials (3) E
FE 208. Forest Surveying (4) E
FE 209. Forest Photogrammetry (4) E
FE 257. GIS and Forest Engineering Applications (4) E
FOR 240. *Forest Biology (4) 1E
MTH 256. Applied Differential Equations (4) E
PH 212. *General Physics with Calculus (4) E
SOIL 205. *Soils: Sustainable Ecosystems (4) 1E
ST 201. Principles of Statistics (4) E
WR 327. *Technical Writing (3) 1E
*Western Culture Elective (3)

Major Code: xxx (new major code to be assigned)

Professional Forest Engineering Program

All students pursuing the BS in Forest Engineering;

1) must earn grades of “C” or better in all required professional forestry courses (with FE, FOR, FS, course designators), or cross listed course designators, or approved substitutions for majors and options, and;

2) must maintain a 2.0 GPA in all major coursework, defined as courses listed by prefix [e.g. FE, FOR, SOIL] and number, and cross listed course designators, and courses used for substitution of required courses.

Junior Year (52)

FE 307. Forest Engineering Seminar (1)
FE 310. Forest Route Surveying (4)
FE 315. Soil Engineering (4)
FE 316. Soil Mechanics (4)
FE 330. Forest Engineering Fluid Mechanics and Hydraulics (3)
FE 371. Harvesting Process Engineering (4)
FE 312X. Forestry Field School (2)
FE 434. Forest Watershed Management (4)
FE 440. Forest Operations Analysis (3)
FE 441. Production Planning (3)
FE 470. Logging Mechanics (4)
FE 471. Harvesting Management (3)
FOR 321. Forest Mensuration (5)
FOR 441. Silviculture Principles (4)
FOR 457/FE 457. Techniques for Forest Resource Analysis (4)
Senior Year (46)

FE 415. Forest Road Engineering (3)
FE 416. Forest Road System Management (4)
FE 450. Forest Operations Design (4)
FE 456/FOR 456. *International Forestry (3)¹
FE 460. ^Forest Operations Regulations and Policy Issues (3)
FE 480. Forest Engineering Practice and Professionalism (1)
FOR 330. Forest Conservation Economics (4)
FOR 459. Forest Planning and Decision Making (4)
GEO 300. *Sustainability for the Common Good (3)¹
   or FW 350. *Endangered Species, Society and Sustainability (3)¹
*Cultural Diversity Elective (3)
*Difference, Power, and Discrimination Elective (3)
*Literature and Arts Elective (3)
Free Electives (8) [Coop students will be required to complete 4 credits of FE 411 as a part of their Coop Education; these can be in place of free electives]

Total=192

Footnotes:
¹ Required for entry into the professional program.
* Baccalaureate Core Course
^ Writing Intensive Course (WIC)
¹ Must be selected to satisfy baccalaureate core requirements.

Major Code: xxx (new major code to be assigned)
# FE/CE Double Degree Program Revision Summary

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</tr>
</thead>
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<td>ST 351. Introduction to Statistical Methods (4) - eliminate from program</td>
<td>ST 314 Intro to Stats for Engrs (3)</td>
<td>-1</td>
</tr>
<tr>
<td>FE 308. Forest Surveying (4) - move content to lower level course number (Drop-CPS #85524)</td>
<td>FE 208 Forest Surveying (4) (New-CPS #85312)</td>
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<tr>
<td>FE 309. Forest Photogrammetry (4) - move content to lower level course number (Drop-CPS #85525)</td>
<td>FE 209 Forest Photogrammetry (4) (New-CPS #85315)</td>
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<td>0 CII</td>
</tr>
<tr>
<td>FE 307 Forest Engineering Seminar (1) (New-CPS #85837)</td>
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<td></td>
</tr>
<tr>
<td>FE 312X. Forestry Field School (2) (New-CPS #85502)</td>
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<td>FOR 457 Techniques for Forest Resource Analysis (4) (Change-CPS #85526)</td>
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<td>FE 450 Forest Operations Design (4) (Change-CPS #85303)</td>
<td>+1 CII</td>
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<tr>
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<td>FE 460 Forest Operations Regulations and Policy Issues (3) [WIC] (Change-CPS #85220)</td>
<td>0 CII</td>
</tr>
<tr>
<td>FE or CE Design Elective</td>
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<td>-3</td>
</tr>
</tbody>
</table>

**Net Change to the Program**

**Program Total = 242**

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*a* Current listed catalog total credits is in error. The actual net change and new total shown here is correct.

CII Pending approval of Category II proposals.
Proposed revision to the catalog copy:

**Forest Engineering /Civil Engineering Double Degree Program**

The Forest Engineering-Civil Engineering program results in a BS degree in Forest Engineering and a BS degree in Civil Engineering. The BS degree in Forest Engineering is accredited by the Engineering Accreditation Commission of ABET, (http://www.abet.org). The BS degree in Civil Engineering is also accredited by the Engineering Accreditation Commission of ABET, Inc. The BS in Forest Engineering is also accredited by the Society of American Foresters. This unique five-year, double degree program is offered in cooperation with the School of Civil and Construction Engineering. This program begins with basic science and mathematics and progresses on through engineering science and forest science to arrive at professional-level courses in forest engineering that include surveying, soil and water resources, timber harvesting, operations analysis, road design, and planning. Graduates are eligible to take the Fundamentals of Engineering Examination.

In addition to the listed courses, all students are required to complete a total of six months of satisfactory employment in an area related to their major. This is usually accomplished by two or more summers of work, but it may include work during the academic year. An optional Cooperative Education program that includes two 6-month internships is available. Students in the Cooperative Education program satisfy the six months satisfactory employment requirement by virtue of one internship. Work performance and personal conduct are thoroughly appraised by the College of Forestry.

**Pre-Professional Forest Engineering-Civil Engineering Program**

Admission to the pre-professional program requires that students be admitted as a degree-seeking undergraduate or post-baccalaureate level student at Oregon State University. Courses included in the first and sophomore years comprise a pre-professional program of study that produces a solid foundation for professional program studies at the junior, senior, and advanced degree levels. The pre-professional program may be taken at Oregon State University or at any accredited college or university that offers equivalent courses transferable to OSU in conjunction with foundation forestry available via OSU Ecampus.

**Professional Forest Engineering-Civil Engineering Program**

Students must be admitted to the professional forest engineering program following completion of the pre-professional forest engineering course work in order to progress to the junior year in Forest Engineering. Students in the double degree program must also be admitted to the College of Engineering professional program prior to beginning the Civil Engineering junior year. Students should consult the College of Engineering for requirements of the College of Engineering professional program.

Enrollment in professional forest engineering program courses is restricted to those students who have clearly demonstrated an ability to achieve the standards required for professional studies. The number of students admitted to the program is determined based on available resources. Students meeting the minimum pre-forest engineering GPA of 2.25 may or may not be admitted depending on available resources.

Admission to the professional forest engineering program will be granted for students meeting the admission requirements prior to fall term of the junior year. Application for the professional program will be made as of the end of winter term for the following fall term.
For admission, students must earn:

1) a grade of “C” or better in all pre-professional courses listed below. Grade repeat (replacement) policy will follow OSU Academic Regulation #20.

2) a minimum GPA of 2.25 based on the pre-professional courses [or transfer equivalents] satisfactorily completed.

Students who have completed their pre-professional studies at a college or university other than Oregon State University must apply both to the OSU Office of Admissions for admission to OSU as a degree-seeking undergraduate or post-baccalaureate level student and to the College of Forestry for admission to the professional program. Application forms for the forest engineering professional program and information on policies and programs are available from the College of Forestry.

Students who have not satisfactorily completed all of the pre-professional courses when they apply may be provisionally accepted. Final acceptance is contingent on completion of any remaining pre-professional coursework with grade of “C” or better by the end of the summer term prior to entrance into the professional program. Students who receive provisional acceptance and then fail to attain admission standards prior to the beginning of fall term will be re-directed to the pre-professional forestry program.

All requirements for admission to the professional program must be completed before entering the professional program. Students may only enter the professional program in the fall term of each academic year.

The professional forest engineering program begins with Forestry Field School prior to fall term of the professional program.

Pre-Professional Forest Engineering-Civil Engineering Program

Grade standards for the pre-professional program as listed in the program description apply.

First Year (46)

CCE 101. Civil and Construction Engineering Orientation (2)++
CH 201. Chemistry for Engineering Majors (3)+
CH 202. Chemistry for Engineering Majors (3)++
CH 205. Laboratory for CH 202 (1)++
COMM 111. *Public Speaking (3)+
  or COMM 114. *Argument and Critical Discourse (3)+
ECON 201. *Introduction to Microeconomics (4)
FE 101. Introduction to Forest Engineering (2)
FE 102. Forest Engineering Problem Solving and Technology (3)+
FOR 141. Tree and Shrub Identification (3)
HHS 231. *Lifetime Fitness for Health (2)
HHS 241–HHS 248. *Lifetime Fitness: (various activities) (1)
  or any PAC course (1–2)
MTH 251. *Differential Calculus (4)+
MTH 252. Integral Calculus (4)+
MTH 254. Vector Calculus I (4)
PH 211. *General Physics with Calculus (4)+ E
WR 121. *English Composition (3)+ E

**Sophomore Year (50)**

CCE 201. Civil and Construction Engineering Graphics and Design (3)+ E
ENGR 211. Statics (3)+ E
ENGR 212. Dynamics (3)+ E
ENGR 213. Strength of Materials (3)+ E
FE 208. Forest Surveying (4) E
FE 209. Forest Photogrammetry (4) E
FE 257. GIS and Forest Engineering Applications (3)+ E
FOR 240. *Forest Biology (4) E
MTH 256. Applied Differential Equations (4)+ E
MTH 306. Matrix and Power Series Methods (4)+ E
PH 212, PH 213. *General Physics with Calculus (4, 4)+ E
SOIL 205. *Soils: Sustainable Ecosystems (4) E
ST 314. Introduction to Statistics for Engineers (3) a

**Major Code:** xxx (new major code to be assigned)

**Professional Forest Engineering-Civil Engineering Program**

Grade standards for the professional program as listed in the program description apply.

All students pursuing the BS in Forest Engineering-Civil Engineering;

1) must earn grades of “C” or better in all required professional forestry courses (with FE, FOR, FS, course designators), or cross listed course designators, or approved substitutions for majors and options, and;

2) must maintain a 2.0 GPA in all major coursework, defined as courses listed by prefix [e.g. FE, FOR, SOIL] and number, and cross listed course designators, and courses used for substitution of required courses.

**Forest Engineering Junior Year (49)**

FE 307. Forest Engineering Seminar (1)
FE 310. Forest Route Surveying (4)
FE 312X. Forestry Field School (2)
FE 315. Soil Engineering (4)
FE 316. Soil Mechanics (4)
FE 371. Harvesting Process Engineering (4)
FE 434. Forest Watershed Management (4)
FE 440. Forest Operations Analysis (3)
FE 441. Production Planning (3)
FE 456/FOR 456. *International Forestry (3)
FE 470. Logging Mechanics (4)
FOR 457. Techniques for Forest Resource Analysis (4)
FOR 321. Forest Mensuration (5)
FOR 441. Silviculture Principles (4)

**Civil Engineering Junior Year (48)**

CCE 321. Civil Engineering Materials (4)
CE 311. Fluid Mechanics I (4)
CE 313. Hydraulic Engineering (4)
CE 361. Surveying Theory (4)
CE 381, CE 382. Structural Theory I, II (4, 4)
CE 383. Design of Steel Structures (4)
CE 392. Introduction to Highway Engineering (4)
ENGR 201. Electrical Fundamentals (3)++
ENVE 321. Environmental Engineering Fundamentals (4)
GEO 300. *Sustainability for the Common Good (3) 1
or FW 350. *Endangered Species, Society and Sustainability (3) 1
WR 327. *Technical Writing (3)
*Cultural Diversity Elective (3)

**Senior Year (49)**

CE Design elective (3)
CE 418. ^Civil Engineering Professional Practice (3)
CE 419. Civil Infrastructure Design (4)
CE 481. Reinforced Concrete I (4)
CE 491. Transportation Engineering (3)
FE 415. Forest Road Engineering (3)
FE 416. Forest Road System Management (4)
FE 450. Forest Operations Design (4)
FE 460. ^Forest Operations Regulations and Policy Issues (3)
FE 480. Forest Engineering Practice and Professionalism (1)
FOR 330. Forest Conservation Economics (4)
FOR 459. Forest Planning and Decision Making (4)
*Western Culture Elective (3)
*Difference, Power, and Diversity Elective (3)
*Literature and Arts Elective (3)

**Total = 242**

**Footnotes:**
* Baccalaureate Core Courses
^ Writing Intensive Course
+ Required courses for pre-engineering program
++ Required courses for pre-civil engineering program
E Required for entry into the Forest Engineering professional program.
a Students considering the double degree in Forest Engineering/Civil Engineering are advised to take ST 314 or equivalent.

**Major Code:** xxx (new major code to be assigned)
Descriptive Characteristics

- The curriculum for the Forest Engineering program above lists all elective Baccalaureate Core courses in the non-Coop FE program as being taken in fall term of the senior year.
  - This arrangement is done to facilitate the Cooperative Education Option that is also a part of this Proposal. The Cooperative Education Option consists of two 6-month internships that occur following the third and fourth years in both programs. Since all upper division Forestry and Forest Engineering courses are only offered once a year, and at least in Forest Engineering, all courses are required, the only way to have non-Coop and Coop programs operating at the same time is to teach all required courses from the fourth year in the non-Coop terms [Winter and Spring]. The result is that all or most of the Elective Baccalaureate Core courses must occur during the Coop term [Fall] for non-Coop students, and during the last term on campus [Winter term] for the Coop students.
  - The effect that this pattern will have on Elective Baccalaureate Core course enrollment is very modest in the context of the whole University demand. The average enrollment in the FE program at the junior level over the past two years was 20 students, hence splitting the program into non-Coop and Coop groups and concentrating their enrollment in elective BCC courses during Fall and Winter terms respectively will not have a noticeable effect University wide. Even anticipated gains in enrollment will not be noticeable at the University level.

- The background courses in the first two years of the program that are not commonly available at community colleges will be offered through Ecampus so that community college students can take all pre-professional program courses within their first two years if the community college schedule and their preparedness allows.
  - The classes that will be offered through Ecampus are:
    - FOR 111 – Introduction to Forestry [existing Ecampus class]
    - FOR 141 – Tree Identification
    - FOR 240 – Forest Biology [existing Ecampus class]
    - FE 209 – Forest Photogrammetry
  - As indicated above, FOR 111 – Introduction to Forestry, and FOR 240 – Forest Biology are currently offered through Ecampus.
  - Some courses required in the pre-professional program may not be offered at all community colleges, and will not be offered through Ecampus. An example of this is FE 208 – Forest Surveying. This class requires extensive field lab experience which can best be done in a crew format with expensive field equipment, and therefore will not be offered through Ecampus. Approximately half of Oregon’s community colleges have a substitute transfer course, hence prospective FE students will be directed to those community colleges. This requirement will be prominently stated on the College of Forestry web pages, and we propose to include it in the catalog as well.
  - The Table below indicates the depth of course offerings at the various Oregon Community Colleges. As can be seen courses that have only very limited availability either are or will be offered through Ecampus.
<table>
<thead>
<tr>
<th>OSU Course</th>
<th>Ecampus</th>
<th>Transfer course(s)</th>
<th>Oregon CC’s offering the transfer course</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCE 201</td>
<td>various courses</td>
<td>Nearly all community colleges.</td>
<td></td>
</tr>
<tr>
<td>CH 201</td>
<td>CH 221</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>COMM 111 or 114</td>
<td>Various courses</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>CSS 205</td>
<td>E</td>
<td>ECON 201</td>
<td>All</td>
</tr>
<tr>
<td>ENGR 201</td>
<td>ENGR 211</td>
<td>All except Blue Mountain Community College, Clatsop Community College, Klamath Community College.</td>
<td></td>
</tr>
<tr>
<td>ENGR 211</td>
<td>ENGR 212</td>
<td>All Except Blue Mountain Community College, Clatsop Community College, Klamath Community College, Rogue Community College and Treasure Valley Community College.</td>
<td></td>
</tr>
<tr>
<td>ENGR 212</td>
<td>ENGR 213</td>
<td>All Except Blue Mountain Community College, Clatsop Community College, Klamath Community College, Rogue Community College and Treasure Valley Community College.</td>
<td></td>
</tr>
<tr>
<td>ENGR 213</td>
<td>ENGR 214</td>
<td>All Except Blue Mountain Community College, Clatsop Community College, Klamath Community College, Rogue Community College and Treasure Valley Community College.</td>
<td></td>
</tr>
<tr>
<td>FE 101</td>
<td>various courses</td>
<td>All Except Klamath Community College, Rogue Community College, and Treasure Valley Community College.</td>
<td></td>
</tr>
<tr>
<td>FE 102</td>
<td>various courses</td>
<td>All Except Blue Mountain Community College, Clatsop Community College, Klamath Community College, Lane Community College, and Rogue Community College</td>
<td></td>
</tr>
<tr>
<td>FE 208</td>
<td>various courses</td>
<td>Blue Mountain Community College, Central Oregon Community College, Chemeketa Community College, Linn-Benton Community College, Mt Hood Community College, Portland Community College, Treasure Valley Community College, Umpqua Community College all have single or multiple course equivalents for FE 208</td>
<td></td>
</tr>
<tr>
<td>FE 209</td>
<td>D</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FE 257</td>
<td>various courses</td>
<td>All except Clatsop Community College and Klamath Community College</td>
<td></td>
</tr>
<tr>
<td>FOR 111</td>
<td>E</td>
<td>FT111; F111</td>
<td>Central Oregon Community College; Mt Hood Community College</td>
</tr>
<tr>
<td>FOR 141</td>
<td>D</td>
<td>FOR 241A; F141</td>
<td>Only Central Oregon Community College and Mt Hood Community College</td>
</tr>
<tr>
<td>FOR 240</td>
<td>E</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HHS 231</td>
<td>various courses</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>HHS 241-248</td>
<td>various courses</td>
<td>All</td>
<td></td>
</tr>
</tbody>
</table>

1 The courses listed below may not be listed as transfer equivalent courses in the Registrar’s database, but will be considered to satisfy the requirement in the programs.
MTH 251 | MTH 251 | All
---|---|---
MTH 252 | MTH 252 | All
MTH 254 | MTH 254 | All Except Clatsop Community College, Klamath Community College, and Treasure Valley Community College.
MTH 256 | MTH 256 | All except Clatsop Community College, Klamath Community College, and Treasure Valley Community College.
PH 211 | PH 211 | All Except Klamath Community College.
PH 212 | PH 212 | All Except Klamath Community College.
ST 201 | E | MTH 243 | Nearly all Community Colleges
WR 121 | WR 121 | All
WR 327 | WR 227 | All Except Blue Mountain Community College, Clatsop Community College, Klamath Community College, Rogue Community College, and Treasure Valley Community College.

- **Entrance to the Professional Program**
  - As explained previously, the drivers behind the professional program model are prerequisite control, program stature, and the corollary of greater association with community colleges to achieve student preparation for the professional program.
  - Admission to the professional program will be granted for students meeting the admission requirements prior to Fall term of the junior year.
  - For consistency with the community college pathway, entrance requirements for the professional program will be (1) a grade of “C” or better in all pre-professional courses listed below, and (2) a minimum GPA of 2.25 based on the first 22 chronologically of the 26 pre-professional courses [or transfer equivalents]:
    - CCE 201 [3 cr]
    - CH 201 [3 cr]
    - COMM 111 or 114 [3 cr]
    - SOIL 205, 314, 351 [3-4 cr]
    - ECON 201 [4 cr]
    - ENGR 211, 212, 213 [9 cr]
    - FE 101, 102, 208, 209, 257 [16 cr]
    - FOR 111, 141, 240 [10 cr]
    - HHS 231, plus one activity course [3 cr]
    - MTH 251, 252, 254, 256 [16 cr]
    - PH 211, 212 [8 cr]
    - ST 314 [3 cr]
    - WR 121 [3 cr]
  - Normal application for the professional program will be made as of the end of winter term in the second year of the program
    - This will allow OSU students who are admitted to register for Fall term professional program courses at their regularly scheduled time.
    - All courses must be passed with a “C” or better grade.
    - Special cases of “P” and “S” grades, and “AP” credit or “IB” credit will be handled on an individual basis.
- A student who has completed all of the pre-professional courses with a 2.25 GPA may be accepted into the professional program.
- A student who has not completed all of the pre-professional courses may be provisionally accepted if they have completed a minimum of 22 of the 26 courses listed above, and their GPA based on 20 best grades is a minimum of 2.25.
- A student who is denied admission because of a sub 2.25 GPA on the first 22 courses from the list above who ultimately achieves a 2.25 GPA in the pre-professional courses may be admitted for Fall term following completion of the pre-professional program.
- Final acceptance will be based on completion of any remaining pre-professional coursework with grade of “C” or better by the end of the summer term prior to entrance into the professional program.
  - Students who receive provisional acceptance and then fail to achieve “C” or better grades in any remaining coursework prior to the beginning of Fall term will be automatically un-enrolled from professional program courses and designated as pre-professional forest engineering majors.
    - An analysis of the records of FE, and FE/CE graduates from the last ten years indicates that this model would have eliminated approximately 25% of the students who ultimately graduated from the program.
    - It is our belief that the majority of these students, in the face of potential rejection at the professional program level, could have increased their academic performance and made the cut, leaving only 10 to 15% who would have been rejected.

- Individual courses requiring Cat II proposals for revision, elimination, or as new courses in order for the program revisions to occur [FOR course revisions are consistent with revision to the Forest Management program and are administratively controlled in the FERM Department as well]:
  - FE 208 – CPS #85312 – this course is currently taught as FE 308.
  - FE 209 – CPS #85315 – this course is currently taught as FE 309.
  - FE 257 – CPS #85317 – this course is currently taught as FE 357.
  - FE 307 – CPS #85837 – 1 credit – this course will serve as professionalism course in the first year of the professional program and as an introduction to the Coop program.
  - FE 312X – CPS #85502 – 2 credits – this course is for awarding credits for the Forestry Field School that we are introducing as a starting point for the professional programs in FE, and FE/CE. The field school will be held in the two weeks prior to Fall term of the first year of the professional program, and will appear on the students transcript as a part of Fall term.
  - FE 449 – CPS #86249
  - FE 450 – CPS #85303 – this course will be revised to include elements of the current FE 449, 450, and 451, be increased by one credit hour, and be a companion for FOR 459 which will also be revised. FOR 459 will cover strategic planning, and FE 450 will cover tactical planning.
  - FE 451 – CPS #86250
  - FE 457 [cross-listed as FOR 457] – CPS #85503 – This class will effectively replace FE 449 in the FE program, and be revised to be a standard junior level foundation in optimization for all FERM department majors.
- FE 460 – CPS #85220 – this course which currently includes a number of major professional practice writing assignments will be revised so as to be the WIC course for FE, and FE/CE majors, and as an option for Forestry majors as well.

- FOR 459 – CPS #85335 – This class with an increase of one credit hour will now be the first term of a capstone sequence when paired with the revised FE 450. FOR 459 will cover strategic planning, and FE 450 will cover tactical planning.

- The community college pathway
  - Since no community colleges have all the courses required for admission to the professional program, an effective pathway for community college students must be identified.
    - For community college students who meet OSU entrance requirements and are accepted to OSU, access to the necessary OSU distance courses necessary for completion of the pre-professional program can be done through the Degree Partnership Program (DPP) (http://oregonstate.edu/partnerships/students; http://oregonstate.edu/partnerships/dpp-educators).
    - For community college students who do not initially qualify for admission to OSU, access to the necessary OSU distance courses necessary for completion of the pre-professional program can be done through the “Non-Degree” pathway. The negative aspect of this is that the OSU distance courses will not qualify for financial aid.
    - Since many community college courses that transfer to OSU have more credit hours at the community colleges than the OSU equivalent, it is likely that the community college pathway will take three academic years to complete the required two years of courses. This situation is no different than for any other degree program.
    - We anticipate working with the community colleges to improve the transfer pathway, but any such improvement is contingent on community college commitment to University transfer, student demand for courses, and budgets that are clearly outside OSU control.

- Proposed effective date for the program revisions:
  - The effective date for this proposal will be Summer term 2013.
  - The new course requirements will be effective for continuing students as of Fall term 2013, but course substitutions consistent with accreditation requirements will be utilized for students who matriculate prior to Summer term 2013. Substitutions will be granted in a way that does not disadvantage continuing students.