



Oregon State University
College of Forestry

Bachelor of Science

**Forest Engineering - Civil
Engineering Program**



**Undergraduate Advising Guide
2017-2018**

Department Office:	Advising Office:
Forest Engineering, Resources & Mgmt.	Sandy Jameson
201 Snell Hall	Snell 401
541-737-4953	541-737-6548

School & Advising Office:
Civil and Construction Engineering
101 Kearney Hall
541-737-4934

Forest Engineering/Civil Engineering Careers

Congratulations on selecting our Forest Engineering/Civil Engineering (FE/CE) degree programs at Oregon State University. Graduates from these degree programs receive a rigorous blend of engineering and forestry education that provides a foundation for diverse career options. There is only one other university in the U.S. that offers a forest engineering degree. The OSU Forest Engineering Program is the only one that is accredited in both engineering and forestry. The FE/CE double degree is unique; it is not available at any other university in North America and both programs are accredited by the Engineering Accreditation Commission of ABET, Inc.

The Forest Engineering/Civil Engineering Programs are divided into pre-professional and professional components. The pre-professional coursework provides the foundation on which the professional coursework is built. This gives you an opportunity to demonstrate that you have the aptitude, desire, professional attitude, and academic accomplishment required for advancement to the professional level. Acceptance into the Professional Program in Forest Engineering (FE), and the Professional Program in Civil Engineering (CE) is based upon performance in the pre-professional courses. Admission requirements for the FE Professional Program are detailed below. Admission requirements for the Civil Engineering Professional Program can be found at: <http://cce.oregonstate.edu/academic-advising>.

Graduates from both degree programs are prepared to play a variety of key roles in meeting the world's appetite for wood products from sustainable forests, while also protecting other resource values such as soils, water, wildlife habitat, and recreation opportunities. In a world of more than 7 billion people, society's wood demands are enormous and growing, even with aggressive recycling programs. Many Forest Engineering graduates help meet these demands in positions that plan, design, and implement forestry activities — applying the best engineering, science, technology and experience available to conduct safe, cost effective, and environmentally responsible forest operations.

Some Forest Engineering graduates - especially those from the FE/CE degree program - pursue careers with less forestry focus. Examples include land development, surveying engineering, transportation engineering and management, environmental consulting, and municipal engineering. The five-year double degree is challenging, but provides very diverse job opportunities and higher starting salaries.

Traditional forest engineering careers typically involve developing and maintaining transportation systems, planning and designing timber harvests, and other forest operations. Forest products or timberland management companies, federal or state agencies, and consulting or contracting firms are the most common employers for new graduates. Some stay in field oriented positions for much of their career, but many graduates have become successful managers and executives as they gain experience. A substantial number of graduates find opportunity and satisfaction in owning their own consulting or contracting business, especially if they have an interest in entrepreneurship.

All of these types of positions represent vibrant and timely career opportunities. Forestry continues to be a cornerstone of the economy of many communities, providing jobs and economic vitality. This is a good time to be entering this field as the baby boomer generation begins to retire. As the population of the world grows and natural resource challenges become more complex, the need for well-rounded highly trained forest engineers increases. Oregon State University is working to fill that need!

Introduction

Forest Engineering at Oregon State has a long tradition of excellence in undergraduate education. Our programs are designed to provide a solid Engineering background as well as fundamental knowledge in Forestry principles and practices. We provide an engineering education that focuses on solving the engineering problems of Forest Resource Management. It is appropriate that the Forest Engineering program is housed in the College of Forestry — the “Forest” in Forest Engineering is vital to the strength of our undergraduate programs. Employers in forest industries, consulting firms, and public agencies recognize this strength. The quality in the Forest Engineering program is maintained by including breadth and depth in both Forestry and Engineering topics in the curriculum. The Bachelor of Science in Forest Engineering curriculum is accredited by the Society of American Foresters (SAF) and by the Engineering Accreditation Commission of ABET, Inc. (<http://www.abet.org>). The Bachelor of Science in Civil Engineering curriculum is also accredited by the Engineering Accreditation Commission of ABET, Inc.

This advising guide is your map through the Forest Engineering/Civil Engineering double degree curriculum that the Department shares with the School of Civil and Construction Engineering in the College of Engineering. **You should retain this advising guide as you progress through the program.** It is your obligation as an aspiring professional to maintain accurate records of your courses and accomplishments, just as the University maintains the official records of your progress.

This guide is a supplement to the academic requirements and regulations of Oregon State University available on the web at <http://catalog.oregonstate.edu/>.

Program Objectives

Forest Engineering Program Objectives

The Forest Engineering Program at Oregon State University prepares graduates to plan and implement solutions to complex forestry and natural resource problems. It provides work ready graduates to enter the diverse professional field of Forest Engineering. Early career accomplishments include harvest unit design, forest road location and design, contract inspection and administration, cost analysis, and forest transportation management. Mid-career assignments may involve aspects of engineering management including planning and budgeting, supervision, wood supply procurement, harvest and road design reviews, and scheduling and controlling forest operations.

Preparation for a successful career in Forest Engineering is achieved through a program of study that is an outgrowth of the departmental mission of developing, communicating, and teaching the science and engineering necessary for sustainable management of forest, land, and water resources to achieve economic, environmental, and social objectives.

The Program Educational Objectives are achieved through an educational program that includes the following elements:

1. **Engineering in a Forestry Context** - The Forest Engineering program will provide a rigorous engineering education within a forestry context.
2. **Forestry Principles** - The Forest Engineering program will incorporate an adequate presentation of fundamental forestry principles so that Forest Engineering graduates will be able to develop engineered forest operations that achieve silvicultural objectives.
3. **Soil and Water Resources** - The Forest Engineering program will incorporate an adequate presentation of the physical and biological aspects of soil and water resources so that Forest Engineering graduates will be able to design forest operations that appropriately protect these resources.
4. **Surveying and Measurement** - The Forest Engineering program will incorporate adequate surveying and measurement of land and forest resources so that the engineering tasks associated with Forest Land Management, specifically, the design of appropriate Forest Operations can be effectively completed.
5. **Forest Transportation** - The Forest Engineering program will incorporate adequate analysis and design principles for the physical and system aspects of the Forest Transportation infrastructure so that Forest Engineering graduates can provide designs and manage the forest transportation in a way that meets the needs of forest land management and minimizes environmental impact.
6. **Harvesting Operations** - The Forest Engineering program will incorporate adequate analysis and design principles for the physical and system aspects of harvesting operations so that Forest Engineering graduates can plan and manage safe, economic, and environmentally sound forest operations.
7. **Planning and Economics** - The Forest Engineering program will incorporate adequate principles and techniques for forest land management and operational planning in an environmental and economic context so that Forest Engineering graduates can effectively develop successful forest operation plans.

Civil Engineering Program Objectives

OSU Civil Engineering graduates receive a compelling education and are able to demonstrate all of the following within a few years of graduation:

1. Ability to apply the natural sciences; mathematics; engineering sciences; and the fundamental paradigms, concepts, understandings, applications, and knowledge of civil engineering.
2. Ability to analyze, synthesize, and evaluate information; solve engineering problems; and perform modern civil engineering design.
3. Preparation for modern professional practice, including abilities for effective communication, collaborative work in diverse teams, ethical decision-making, successful management of personal and professional career objectives, and continual development through lifelong learning and professional involvement.
4. Preparation for employment or continuation into a graduate program in a specialty area of civil engineering. Recognition of the importance of professional licensure and preparation to achieve this significant accomplishment. Consideration of the public health, welfare and safety to be the paramount priority.
5. Understanding of public policy and contemporary societal issues and sensitivity to the challenge of meeting social, environmental, and economic constraints within a global community.

Forest Engineering - Civil Engineering Program Outcomes

Along the way to your degrees in Forest Engineering and Civil Engineering, you will be prepared to meet the challenges of professional practice by achievement of a series of “program outcomes” that describe the attributes that a graduate must possess in order to be successful as a professional. These program outcomes have been developed in part by the Engineering Commission of ABET, Inc., and in part by the faculties in Forest Engineering and Civil Engineering in consultation with their respective Industrial Advisory Committees.

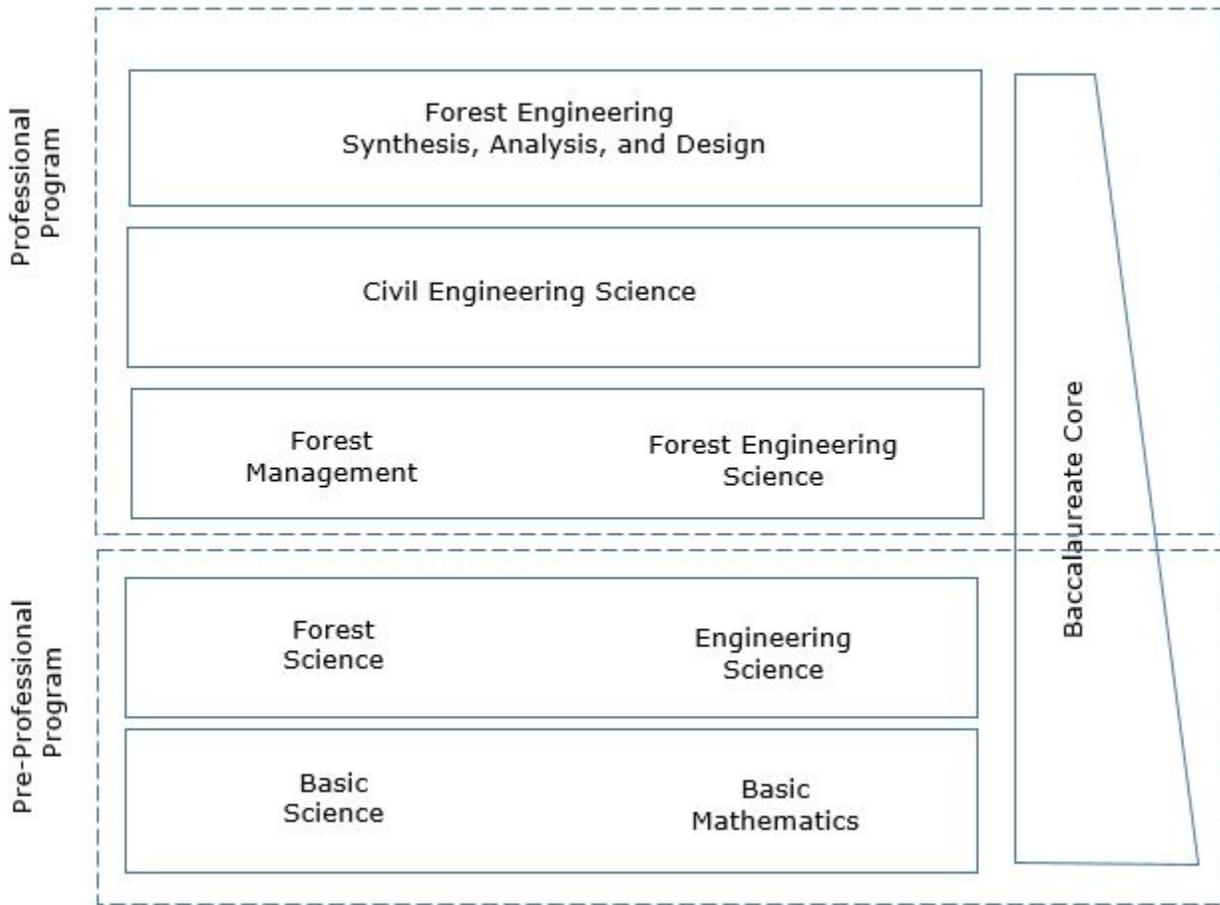
As a graduate of the Forest Engineering and Civil Engineering Programs, you will have:

- (a) an ability to apply knowledge of mathematics, science, and engineering.
- (b) an ability to design and conduct experiments, as well as to analyze and interpret data.
- (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- (d) an ability to function on multi-disciplinary teams.
- (e) an ability to identify, formulate, and solve engineering problems.
- (f) an understanding of professional and ethical responsibility.
- (g) an ability to communicate effectively.
- (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
- (i) a recognition of the need for, and an ability to engage in life-long learning.
- (j) a knowledge of contemporary issues.
- (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- FE(l) an ability to develop engineered forest operations that achieve silvicultural objectives.
- FE(m) an ability to develop engineered forest operations that appropriately protect soil and water resources.
- FE(n) an ability to survey and measure land and forest resources so that the engineering tasks associated with Forest Land Management, specifically, the design of appropriate Forest Operations can be effectively completed.
- FE(o) an ability to provide designs and manage the forest transportation in a way that meets the needs of forest land management with societally acceptable environmental impact.
- FE(p) an ability to plan and manage safe, economic and environmentally sound forest operations.
- FE(q) an ability to incorporate long term forest land management and operational planning in an environmental and economic context into forest operation plans.
- CE(l) knowledge of basic concepts in leadership.
- CE(m) Ability to include non-engineering considerations, including business, regulatory and safety issues in problem solving.
- CE(n) ability to incorporate effective negotiation or consensus-gaining in group decision making.
- CE(o) knowledge and application of project planning and management practices and tools.
- CE(p) ability to assess imperfect or incomplete data conditions, risks and alternatives into problem-solving decisions.
- CE(q) exposure to current industry design practices, construction methods and materials, and overall project delivery considerations.

Forest Engineering/Civil Engineering Program Overview

The coursework that makes up the double degree program is structured to begin with a broad general foundation in the Science, and Mathematics, followed by Forest Science and Engineering Science that provides a bridge between the basic sciences and Forest Management, Forest Engineering Science, and Civil Engineering Science (Figure 1). Incorporating the University's Baccalaureate Core ("Bacc Core") requirements provides basic skills and broader perspectives. The curriculum is completed with Forest Engineering Synthesis, Analysis and Design, the hallmark of Forest Engineering Practice.

The Forest Engineering and Civil Engineering programs are divided into pre-professional coursework and professional coursework. Pre-professional courses are commonly completed in the freshman and sophomore years. The professional coursework begins in the junior year, and requires that you be admitted to Professional School in each College.



In addition to the structure and categories illustrated in the figure above, the Forest Engineering/Civil Engineering program has been structured to satisfy the accreditation criteria of the Society of American Foresters (SAF) and the Engineering Accreditation Commission of ABET, Inc. SAF divides Forestry curricula into seven categories; Communication, Science and Math, Humanities and Social Science, Forest Ecology and Biology, Forest Measurements, Forest Management, and Forest Policy and Administration. ABET divides Engineering curricula into three categories: Mathematics and Basic Science, Engineering topics and a General Education Component. Courses may include material that can fit in more than one category.

Pre-Professional Forest Engineering-Civil Engineering Program

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

First Year (47 – 48 credits)

CCE 101. Civil and Construction Engineering Orientation (2)^{E++}
CH 201. Chemistry for Engineering Majors (3)^{E+}
CH 202. Chemistry for Engineering Majors (3)^{E++}
CH 205. Laboratory for Chemistry 202 (1)^{E++}
COMM 111. *Public Speaking (3)^{1E+}
or COMM 114. *Argument and Critical Discourse (3)^{1E+}
ECON 201. *Introduction to Microeconomics (4)^{1E}
FE 101. Introduction to Forest Engineering (2)^E
FE 102. Forest Engineering Problem Solving and Technology (3)^{E+}
FES 240. *Forest Biology (4)^{1E++}
HHS 231. *Lifetime Fitness for Health (2)¹
HHS 241. *Lifetime Fitness (1)
or any PAC course (1–2)¹
MTH 251. *Differential Calculus (4)^{E+}
MTH 252. Integral Calculus (4)^{E+}
MTH 254. Vector Calculus I (4)^{E+}
PH 211. *General Physics with Calculus (4)^{E+}
WR 121. *English Composition (3)^{E+}

Sophomore Year (49 – 50 credits)

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 and Remote Sensing (4)^E
FE 257. GIS and Forest Engineering Applications (3)^{E++}
FES 241. Dendrology (3)^E
MTH 256. Applied Differential Equations (4)^{E+}
MTH 306. Matrix and Power Series Methods (4)^{E+}
PH 212. *General Physics with Calculus (4)^{E+}
PH 213. *General Physics with Calculus (4)^{E+}
SOIL 205. *Soil Science (3)^{1E}
and FOR 206. *Forest Soils Laboratory for SOIL 205 (1)^{1E}
or SOIL 206. *Soil Science Laboratory for SOIL 205 (1)^{1E} and FOR 208. Forest Soils Recitation (1)^{1E}
ST 314. Introduction to Statistics for Engineers (3)^{E++}

Professional Forest Engineering - Professional 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 courses, cross-listed course designators, or approved substitutions for majors and options, and;
2. must maintain a 2.0 GPA in all major course work and cross-listed course designators, and courses used for substitution of required courses.

College of Engineering specific requirements:

1. must earn grades of "C" or better in all required civil engineering major courses in the pre-professional and professional core.
2. must maintain a cumulative 2.25 GPA in all civil engineering major course work and an overall OSU GPA of 2.25.

Forest Engineering Junior Year (48)

FE/FOR 307. Junior Seminar (1)
FE 310. Forest Route Surveying (4)
FE/FOR 312. 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 (4)
FE 470. Logging Mechanics (4)
FOR 321. Forest Mensuration (5)
FOR 330. Forest Resource Economics I (4)
FOR 331. Forest Resource Economics II (4)
FOR 441. Silviculture Principles (4)

Civil Engineering Junior Year (48)

CCE 321. Civil and Construction Engineering Materials (4)
CE 311. Fluid Mechanics (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 I (3)**
ENVE 321. Environmental Engineering Fundamentals (4)
WR 327. *Technical Writing (3)¹
Bacc Core Courses (6)

Senior Year (52 - 53)

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/FOR 456. *International Forestry (3)¹ or *other Contemporary Global Issues Bacc Core*
FE/FOR 457. Techniques for Forest Resource Analysis (4)
FE/FOR 459. Forest Management Planning and Design I (4)
FE 460. ^Forest Operations Regulations and Policy Issues (3)
or FOR 460. ^Forest Policy (4)
FE/FOR 469. Forest Management Planning and Design II (4)
FE 480. Forest Engineering Practice and Professionalism (1)
GEOG 300. *Sustainability for the Common Good (3)¹
or FW 350. *Endangered Species, Society and Sustainability (3)¹
Bacc Core Courses (6)

Footnotes:

* Baccalaureate Core Course

^ Writing Intensive Course (WIC)

† Required courses for Pre-Civil Engineering Program

** Additional recommended courses for Pre-Civil Engineering Program

‡ Required for entry into the Forest Engineering Professional Program

¹ Must be selected to satisfy baccalaureate core requirements

In addition to the courses listed, all students are required to complete a total of six months of satisfactory employment in an area related to their major. This is accomplished by two or more summers of work, but it may include work during the academic year.

Sample Course Plan – Forest/Civil Engineering

This is a sample schedule. Actual schedules will vary from student to student based upon factors such as math placement and course availability. Students are strongly encouraged to create a personalized plan with their academic advisor. *Courses in italics also fulfill Baccalaureate Core requirements.*

B.S. in Forest/Civil Engineering

2017-2018

	Fall		Winter		Spring	
First Year	MTH 251: <i>Differential Calculus</i> CH 201: Chemistry for Engineers I CCE 101: Civil & Const. Engr. Orientation FE 101: Intro to Forest Engineering WR 121: <i>English Composition</i>	4 3 2 2 3	MTH 252: Integral Calculus CH 202: Chemistry for Engineers II <i>ECON 201: Intro to Microeconomics</i> FE 102: FE Problem Solving & Technology <i>HHS 231: Lifetime Fitness</i> <i>HHS 241 or PAC: Fitness Activity</i>	4 3 4 3 2 1-2	MTH 254: Vector Calculus <i>PH 211: General Physics with Calc I</i> <i>FES 240: Forest Biology</i> <i>COMM 111/114: Communication</i> CH 205: Chem for Engineering Lab	4 4 4 3 1
	Total Credits	14	Total Credits	17-18	Total Credits	16
Second Year	MTH 306: Matrix & Power Series Meth. PH 212: General Physics with Calc II ENGR 211: Statics FE 208: Forest Surveying CCE 201: Civil Engr Graphics & Design	4 4 3 4 3	ENGR 213: Strength of Materials PH 213: General Physics with Calc III FE 257: GIS & Forest Engr Applications ST 314: Statistics for Engineers FE 209: Photogrammetry & Remote Sens.	3 4 3 3 4	MTH 256: Applied Diff. Equations ENGR 212: Dynamics FES 241: Dendrology <i>SOIL 205: Soil Science</i> <i>FOR 206: Forest Soils Lab</i>	4 3 3 3 1
	Total Credits	18	Total Credits	17	Total Credits	14
Third Year	FE 434: Forest Watershed Mgmt FOR 321: Forest Mensuration FE 371: Harvesting Processes Engr FE 312: Forestry Field School	4 5 4 2	FE 307: Forest Engineering Seminar FE 315: Soil Engineering FE 440: Forest Operations Analysis FE 470: Logging Mechanics FOR 331: Forest Resource Econ II	1 4 4 4 4	FE 310: Forest Route Surveying FE 316: Soil Mechanics FOR 330: Forest Resource Econ II FOR 441: Silvicultural Principles	4 4 4 4
	Total Credits	15	Total Credits	17	Total Credits	16
Fourth Year	CE 311: Fluid Mechanics CE: 381: Structural Theory I CCE 321: Civil & Const Engr Materials CE 361: Surveying Theory	4 4 4 4	CE 313: Hydraulic Engineering CE 382: Structural Theory II CE 392: Intro to Highway Engr <i>WR 327: Technical Writing</i>	4 4 4 3	CE 383: Design of Steel Structures ENVE 321: Environ Engr Fundamentals ENGR 201: Electrical Fundamentals <i>Bacc Core – Western Culture</i> <i>Bacc Core – Cultural Diversity</i>	4 4 3 3 3
	Total Credits	16	Total Credits	15	Total Credits	17
Fifth Year	CE 481: Reinforced Concrete I CE 491: Transportation Engineering <i>GEOG 300: Sustainability for Com. Good</i> FE 457: Tech for Forest Res Analysis <i>Bacc Core – Literature Arts</i>	4 3 3 4 3	CE 418: Civil Engr Professional Practice FE 459: Forest Mgmt Planning & Design I FE 415: Forest Road Engineering <i>FE 456: International Forestry</i> <i>FE 460: Forest Op Regulations & Policy</i> FE 480: Forest Engr Practice & Prof.	3 4 3 3 4 1	CE 419: Civil Infrastructure Design FE 469: Forest Mgmt Planning & Design II FE 416: Forest Road System Mgmt CE Design Elective <i>Bacc Core – Diff, Power, Disc.</i>	3 4 4 3 3
	Total Credits	17	Total Credits	18	Total Credits	17

Forest Engineering – Civil Engineering Program Structure

The Pre-Professional Program

The Forest-Civil Engineering Pre-Professional Programs are intended to take the first two years of the five year degree. The term-by-term sequence shown in the sample course plan reflects both course prerequisites and the term in which the courses are taught. In some cases, courses may be taken in more than one term and you should consult the Schedule of Classes and your academic advisor for options. The sample course plan should be followed exactly for all Math (MTH), Physics (PH), Chemistry (CH), Engineering Science (ENGR), Civil Engineering (CE), Civil and Construction Engineering (CCE), Forestry (FOR and FES), and Forest Engineering (FE) courses to ensure minimal course conflicts. Some students may require additional time to complete the pre-professional courses due to preparation in math, chemistry, or physics.

The Forest Engineering Professional Program

Admission to the Forest Engineering professional program will be granted to students meeting the admission requirements prior to fall term of the third/junior year. Enrollment in Forest Engineering professional program courses is restricted to those students who have been admitted to the professional program.

To be eligible for admission, students must earn:

1. a grade of “C” or better in all courses required for entry into the professional program (marked with ^ε). Grade repeat (replacement) policy will follow OSU Academic Regulation #20.
2. a minimum GPA of 2.25 in the required courses (or transfer equivalents).

Application for the Forest Engineering professional program will be available on the College of Forestry website in March. Applications will be due in early April, and applicants will be notified of their admission status by early May. 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.

The Civil Engineering Professional Program

For admission to the Civil Engineering Professional program (the fourth year), students must be admitted to the University and must apply to the College of Engineering. **The application is available for summer, fall, and winter term entry. Application information and deadlines are available on the College of Engineering website: <http://engineering.oregonstate.edu/apply-engineering-professional-program-summer15-later>.**

To be eligible to apply, students must have completed at least 80 credit hours of college coursework; completed 50 credit hours of required pre-engineering courses (PRE-E courses) with grades of “C” or better and have an earned GPA on these courses (PRE-E GPA) of 2.25 or greater. Admission to the Civil Engineering professional program is based on student ranking determined on the grade point calculated using PRE-E courses. The actual admission GPA varies from year to year depending on the applicant pool.

Students are not allowed to register for junior-level professional engineering courses until they are admitted into the professional program. Students who have completed the majority of their pre-engineering courses but do not apply or do not meet the requirements for admission to the professional program may find it difficult to take a full course load. Petitions to take specific junior-level professional engineering courses are considered on a case-by-case basis. Considerations include student PRE-E GPA, number of missing PRE-E courses, number of lower division courses still to take, likelihood that student will be admitted to the professional program, completion of prerequisites, and space available in the course.

More generally, enrollment in any upper division engineering course in the College of Engineering requires that: (a) students have been admitted to a professional engineering program of the College of Engineering and that the course is required in their program of study, or (b) students are enrolled in any major program at OSU whose curriculum, as printed in the OSU General Catalog, stipulates the course by name and number, or (c) students admitted with the approval of the College and the Department offering the course by a petition process.

College of Engineering Academic Requirements and Policies

To assure that all College of Engineering graduates have the strongest possible educational preparation for a professional career in engineering with no deficiencies in any required area of study, the College of Engineering has adopted policies and rules which can be found online at:

<http://engineering.oregonstate.edu/undergraduate-policy-manual>.

School of Civil & Construction Engineering Academic Requirements

Students must demonstrate that adequate background has been gained in all coursework used to satisfy program requirements. Therefore, all coursework must be passed with a grade of “C” or better.

Regarding sequence courses or courses with prerequisites, a student receiving a grade below “C” in a prerequisite course will not be able to proceed in the sequence. Students should see an academic advisor for assistance.

Baccalaureate Core and Major Requirements

Bacc Core Category	Course	Grading Options	Also Fulfills a Major Requirement?	Special Requirements
Writing I	WR 121	A-F	Yes	Must be completed satisfactorily (grade of C- or better) within the first 45 credits at OSU. WR 121 courses are alpha-sectioned so the first letter of your last name determines the term in which you can take the course. Last names A-G = Fall Last names H-N = Winter Last names O-Z = Spring
Writing II	WR 327	A-F	Yes	Must be completed satisfactorily within the first 90 credits at OSU.
Speech	COMM 111 or COMM 114	A-F	Yes	Must be completed satisfactorily within the first 45 credits at OSU.
Mathematics	MTH 251	A-F	Yes	A mathematics course numbered MTH 105 or higher must be completed satisfactorily within the first 45 credits at OSU.
Fitness		A-F or S/U	No	Two parts: HHS 231 (2 credits) and HHS 24X/PAC (1 credit)
Biological Science & Lab	SOIL 205 & lab	A-F	Yes	These categories are called <i>Perspectives Courses</i> . Students can have no more than two courses from the same department in the perspectives categories.
Physical Science & Lab	PH 211	A-F	Yes	
Additional Lab Science	FES 240	A-F	Yes	
Social Processes & Institutions	ECON 201	A-F	Yes	
Western Culture	Choose from a list	A-F or S/U	No	
Difference, Power, and Discrimination	Choose from a list	A-F or S/U	No	
Cultural Diversity	Choose from a list	A-F or S/U	No	
Literature & Arts	Choose from a list	A-F or S/U	No	
Contemporary Global Issues	FE 456 or Sub	A-F	Yes	These categories are called <i>Synthesis</i> . Your synthesis courses must be from two different departments.
Science, Technology, and Society	FW 350 or GEOG 300	A-F	Yes	
Writing Intensive	FE 460 or FOR 460 & CE 418	A-F	Yes	

Grade Requirements for Accreditation

Mathematics (all required courses must be graded “C” or higher)

A grade of “C” or higher is required in all Mathematics courses listed with the MTH prefix (e.g. MTH 251: Differential Calculus). Preparatory Mathematics courses not required for your major (such as MTH 111: College Algebra) can be taken for an S/U grade, but you must earn an S grade in order to meet the prerequisite requirements for the subsequent courses. You should consult with your advisor on any S/U grading questions as well as the possibility of retaking Math courses for which a grade of “C” is earned.

Basic Science (all courses must be graded “C” or higher)

The Basic Science requirement includes Physics, Chemistry, Soil Science, and an array of Forestry courses. Some Forestry courses include subject matter that is considered to be an Engineering Topic as well.

Engineering Topics (all courses must be graded “C” or higher)

Engineering Science (ENGR courses) provides the bridge between the basic sciences and engineering synthesis and design. The classical Engineering Science sequence, Statics, Dynamics, and Strength of Materials, is easily identifiable as engineering science course material. Many other components of engineering science are less easily delineated, and make up only portions of engineering or other courses. In some cases, courses taught by other departments have engineering science character appropriate to Forest Engineering. For example, the application of basic mathematics to the Engineering and Management analysis of the “time value of money” is an engineering science topic even though it is presented in Forest Resource Economics I (FOR 330). Similarly, the application of mathematics and statistics to measurement of forest resource quantities is an engineering science topic even though it is presented in Forest Mensuration (FOR 321).

The heart of engineering practice is Synthesis and Design; hence Synthesis and Design are the capstone of an engineering education. Within Forest Engineering coursework, the most common occurrence of engineering science topics is in the beginning of a course or course sequence, the latter portion of which is engineering synthesis or design. The Engineering Design experience in the Forest Engineering program culminates in the Forest Planning Sequence (FE 459 and FE 469). This sequence provides the challenge and opportunity for students to integrate components of the entire curriculum, including the disciplines of Engineering, Forest Ecology, Silviculture, Fisheries, and Wildlife, into the design of a timber harvesting plan that meets a set of financial objectives developed with consideration of the time value of money and forest growth.

Forest - Civil Engineering Degree Credit Distribution

Check Completed	Course Title	Course Prefix and Number	Basic Science and Mathematics Credit	Engineering Topics Credit	Supporting General Education Credits
Forest Engineering/Civil Engineering Pre-Professional Program					
	Chemistry for Engineering Majors **	CH 201	3		
	Introduction to Forest Engineering **	FE 101		1	1
	Civil & Construction Engineering Orientation **	CCE 101		1	1
	Differential Calculus [BC] **	MTH 251	4		
	English Composition [BC] **	WR 121			3
	Chemistry for Engineering Majors **	CH 202	3		
	Introduction to Microeconomics [BC] **	ECON 201			4
	Forest Engineering Problem Solving and Technology **	FE 102	1	1	1
	Lifetime Fitness [BC] **	HHS 231			2
	Lifetime Fitness Activity [BC] or Physical Activity (PAC) **	HHS 241-251 or PAC			1
	Integral Calculus **	MTH 252	4		
	Laboratory for Chemistry 202 **	CH 205	1		
	Public Speaking, or Argument & Critical Discourse [BC] **	COMM111/114			3
	Dendrology **	FES 241	3		
	Vector Calculus I **	MTH 254	4		
	General Physics with Calculus [BC] **	PH 211	4		
	Civil Engr and Const Engr Graphics & Design **	CCE 201		3	
	Statics **	ENGR 211		3	
	Forest Surveying **	FE 208		4	
	Matrix and Power Series Methods **	MTH 306	4		
	General Physics with Calculus **	PH 212	4		
	General Physics with Calculus **	PH 213	4		
	Strength of Materials **	ENGR 213		3	
	Forest Photogrammetry **	FE 209		4	
	GIS & Forest Engineering Applications **	FE 257		3	
	Intro to Statistics for Engineers**	ST 314	3		
	Dynamics **	ENGR 212		3	
	Forest Biology **	FES 240	4		
	Soil Science [BC] **	SOIL 205	3		
	Forest Soils lab or Soil Science lab and Forest Soil recitation	FOR 206 OR SOIL 206 and FOR 208	1		
	Applied Differential Equations **	MTH 256	4		
Forest Engineering/Civil Engineering Professional Program					
	Forest Engineering Field School	FE 312		2	
	Harvesting Process Engineering	FE 371		4	
	Forest Watershed Management	FE 434	2	2	
	Forest Mensuration	FOR 321	1	1	3
	Forest Engineering Seminar	FE 307		1	
	Soil Engineering	FE 315		4	
	Forest Operations Analysis	FE 440		4	
	Forest Resource Economics II	FOR 331		1	3
	Logging Mechanics	FE 470		4	
	Forest Route Surveying	FE 310		4	
	Soil Mechanics	FE 316		4	
	Forest Resource Economics I	FOR 330		1	3
	Silviculture Principles	FOR 441	4		

Forest - Civil Engineering Degree Credit Distribution (Continued)

Check Completed	Course Title	Course Prefix and Number	Basic Science and Mathematics Credit	Engineering Topics Credit	Supporting General Education Credits
Forest Engineering/Civil Engineering Professional Program continued					
	Fluid Mechanics I	CE 311		4	
	Surveying Theory	CE 361		4	
	Structural Theory I	CE 381		4	
	Civil & Construction Engineering Materials	CCE 321		4	
	Hydraulic Engineering	CE 313		4	
	Structural Theory II	CE 382		4	
	Introduction to Highway Engineering	CE 392		4	
	Technical Writing [BC]	WR 327			3
	Design of Steel Structures	CE 383		4	
	Environmental Engineering Fundamentals	ENVE 321		4	
	Electrical Fundamentals I	ENGR 201		3	
	Sustainability for the Common Good [BC]	GEOG 300	1		2
	Reinforced Concrete I	CE 481		4	
	Transportation Engineering	CE 491		3	
	Civil Engineering Design Elective			3	
	Civil Engineering Professional Practice [WIC]	CE 418		3	
	Forest Op. Regulations and Policy Issues [WIC] or Forest Policy	FE 460 or FOR 460		4	
	Forest Management Planning and Design I	FE 459		4	
	Forest Road Engineering	FE 415		3	
	Techniques for Forest Resource Analysis	FE 457		4	
	Civil Infrastructure Design	CE 419		3	
	Forest Management Planning and Design II	FE 469		4	
	Forest Road System Management	FE 416		4	
	International Forestry	FE 456	1		2
	Forest Engineering Practice & Professionalism	FE 480		1	
Other Baccalaureate Core Courses [BaccCore]					
	Cultural Diversity				3
	Literature and Arts				3
	Western Culture				3
	Difference, Power, and Discrimination				3
Category Credit Totals			63	137	44

** Pre-Professional Course that must be completed before entering the Professional Program.

DISCLAIMER:

Future term data are continually updated. Check the web frequently for current information.

Forest Engineering Program Electives for admission to the Fundamentals of Land Surveying Examination

The Oregon State Board of Examiners for Engineering and Land Surveying [OSBEELS] has established the minimum educational qualifications for admission to the Fundamentals of Land Surveying Examination. These qualifications require that Forest Engineering graduates who wish to pursue a professional career in land surveying take additional coursework beyond that required for the Bachelor of Science in Forest Engineering. If you are interested in professional land surveying, please consult the listed OAR, and discuss the educational requirements with your advisor.

Advising and Assistance

The College of Forestry and the Department of Forest Engineering, Resources and Management are committed to helping students succeed. That includes assistance identifying majors and minors, and understanding University rules and regulations. Your academic advisor, Sandy Jameson, is a great resource when you have questions. Another valuable resource for University procedures, rules and regulations is the College of Forestry Student Services Office.

This advising guide provides details of the Forest Engineering/Civil Engineering programs not listed in the University Catalog, and helpful suggestions for your success as a student. The guide does not replace the need for regular term-by-term visits with your advisor. The FE/CE programs are tightly structured, hence there are few elective choices for the student who wishes to graduate in five years. However, the choices that are available are very important for satisfying the intent of the curriculum and providing the professional education that you desire. A close association with your academic advisor will help you make the best choices as you progress through the program. Your advisor is also an invaluable resource for discussions about options to add extra value to your education through additional coursework, minors, additional degrees, or co-curricular experiences.

You should refer to your College of Forestry Undergraduate Handbook for detailed information about advising, including the rights and responsibilities inherent in the advisor/advisee relationship. The most current advising information, and appointment scheduling, is available online: <http://undergrad.forestry.oregonstate.edu/advising>.

Who:



Sandy Jameson

Academic Advisor
Forest Engineering
Snell 401
541-737-6548
sandy.jameson@oregonstate.edu



Nicole Kent

Head Advisor
College of Forestry
Snell 404
541-737-1592
nicole.kent@oregonstate.edu

What:

You can expect your advising appointments to be 30 minutes of one-on-one time with your academic advisor. You and your advisor will both prepare in advance—reviewing your MyDegrees page, preparing questions, and looking ahead. During your appointment, you will review your progress to date, make course plans for the upcoming term(s), discuss opportunities and resources pertinent to your goals, and track your progress toward graduation.

While your advisor is here to assist and guide you, your educational choices are yours to make. We advise and you decide.

When:

COF students are required to meet with their academic advisor at least once per quarter, and are welcome to meet more often. Your advising appointments should occur around these holidays:

Fall Term	Halloween
Winter Term	Valentine's Day
Spring Term	Cinco de Mayo

It's always okay to call, email, or drop in with questions.

How:

The easiest way to schedule your advising appointment is using your advisor's online calendar: <http://undergrad.forestry.oregonstate.edu/advising/academic-advisors>