PURDUE UNIVERSITY

Environmental and Ecological Engineering
College of Engineering

BSEEE
EEE
128 Credits

Departmental/Program Major Courses (46 credits)

Required Major Courses (23 credits)

_____ (3) EEE 25000 Environmental, Ecological, and Engineering Systems
_____ (1) EEE 29000 Introduction to Environmental and Ecological Engineering Seminar
_____ (3) EEE 30000 Environmental and Ecological Systems Modeling
_____ (3) CE/EEE 35000 Introduction to Environmental And Ecological Engineering
_____ (3) CE/EEE 35500 Engineering Environmental Sustainability
_____ (3) EEE 36000 Environmental and Ecological Engineering Laboratory
_____ (1) EEE 39000 Environmental and Ecological Engineering Professional Practice Seminar
_____ (3) EEE 43000 Industrial Ecology And Life Cycle Analysis
_____ (1) EEE 48000 Environmental and Ecological Engineering Senior Design
_____ (2) EEE 48000 Environmental and Ecological Engineering Senior Design

EEE Selectives (18cr) **& Technical Electives** (5cr)

_____ (3) EEE Selective I - Column A
_____ (3) EEE Selective II - Column B
_____ (3) EEE Selective III - Column C
_____ (3) EEE Selective IV
_____ (3) EEE Selective V
_____ (3) EEE Selective VI
_____ (2) Technical Elective I
_____ (3) Technical Elective II

Other Departmental/Program Course Requirements (55 credits)

_____ (2) *ENGR 13100 Transforming Ideas to Innovation I *(*Satisfies First Year Engineering)*
_____ (2) *ENGR 13200 Transforming Ideas to Innovation II
_____ (4) *MA 16500 Analytic Geometry & Calculus I
_____ (4) *MA 16600 Analytic Geometry & Calculus II
_____ (4) *CHM 11500 General Chemistry I
_____ (4) *CHM 11600 General Chemistry II
_____ (4) *PHYS 17200 Modern Mechanics
_____ (4) MA 26100 Multivariate Calculus
_____ (4) MA 26200 Linear Algebra and Differential Equations
_____ (3) CE 29700 Basic Mechanics I (Statics)
_____ (3) ME 20000 Thermodynamics I
_____ (3) CE 29800 Basic Mechanics II (Dynamics)
_____ (2) BIOL 12100 Biology I: Diversity, Ecology, and Behavior
_____ (3/1) CE 34000 Hydraulics + CE 34300 Hydraulics Laboratory
_____ (3) STAT 35000 Introduction to Statistics
_____ (2) BIOL 28600 Intro. Ecol. & Evolution
_____ (3) BIOL 58500 Ecology

EEE General Education Electives (24 credits) and Free Elective (2-3)

_____	(3)	**Satisfy (H)**	(3) _____	(3-4)	*Satisfy* **(WC)**	(2-3)	Free
_____	(3)	**Satisfy (BSS)**	(3) _____	(3)	*Satisfy* **(OC)**		
_____	(3)	_____	(3) *EEE intersection Society/Environment*				

University Core Requirements (http://www.purdue.edu/provost/initiatives/curriculum/course.html)

Human Cultures Humanities(H)	**EEE Gen Ed (H)**	*Science, Tech & Society Selective(STS)*	**BIOL 12100**
Human Cultures Beh/Social Science(BSS)	**EEE Gen Ed(BSS)**	*Written Communication(WC)*	**EEE Gen Ed (WC)**
Information Literacy(IL)	**ENGR 13100**	*Oral Communication(OC)*	**EEE Gen Ed (OC)**
Science Selective	**CHM 11500**	*Quantitative Reasoning*	**MA 16500**
Science Selective	**PHYS 17200**		

The student is ultimately responsible for knowing and completing all degree requirements.
Degree Works is knowledge source for specific requirements and completion.

(effective Fall 2016)

Environmental and Ecological Engineering (EEE)

Suggested Arrangement of Courses:

Credits	Fall 1st Year	Prerequisite	Credits	Spring 1st Year	Prerequisite
2	ENGR 13100[CC]		2	ENGR 13200[CC]	ENGR 13100
4	MA 16500[CC]	ALEKS 85	4	MA 16600[CC]	MA 16500
4	CHM 11500[CC]	ALEKS 75	4	CHM 11600[CC]	CHM 11500
1-2	Free Elective		4	PHYS 17200[CC]	ALEKS 85
4-3	University Core (Written Communication)		3	University Core (Oral Communication)	
15			**17**		

Credits	Fall 2nd Year	Prerequisite	Credits	Spring 2nd Year	Prerequisite
3	EEE 25000		3	EEE 35000[CC]	MA 16600, CHM 11600, PHYS 17200
1	EEE 29000		4	MA 26200	MA 26100
3	EEE 35500		3	CE 29700[CC]	MA 26100 (concurrent) and PHYS 17200
2	BIOL 12100		3	ME 20000	MA 26100 (concurrent) and CHM 11500 and ENGR 13200 (concurrent)
4	MA 26100[CC]	MA 16600	3	General Education Elective	
3	General Education Elective				
16			**16**		

Credits	Fall 3rd Year	Prerequisite	Credits	Spring 3rd Year	Prerequisite
3	EEE 36000[CC]	CHM 11600	3	EEE 30000	MA 16600
3	CE 29800[CC]	CE 29700	3/1	CE 34000/34300	CE 29800
3	STAT 35000	MA 16600	1	EEE 39000	
2	Technical Elective I		3	EEE 43000	MA 16600 and EEE 25000 or 30000 or 35000 or 35500
3	EEE Selective I - Column A		2	BIOL 28600	BIOL 12100
3	General Education Elective		3	EEE Selective II – Column B	
17			**16**		

Credits	Fall 4th Year	Prerequisite	Credits	Spring 4th Year	Prerequisite
1	EEE 48000[CC]	EEE 25000, EEE 36000 and Dept Perm	2	EEE 48000	EEE 25000, EEE 36000 and Dept Perm
3	EEE Selective III – Column C		3	EEE Selective V	
3	EEE Selective IV		3	EEE Selective VI	
3	BIOL 58500 Ecology	BIOL 28600	3	General Education Elective	
3	General Education Elective		3	General Education Elective	
3	Technical Elective II		1	Free Elective	
16			**15**		

128 semester credits required for Bachelor of Science degree.
Students must have 32 credits at the 30000 level or above taken at Purdue.
2.0 Graduation GPA required for Bachelor of Science degree.
2.0 required in College of Engineering courses at the 20000-level and above.

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The student is ultimately responsible for knowing and completing all degree requirements.

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Approved EEE Selective Course Lists

For several elective and selective requirements, lists of acceptable courses will be maintained by the EEE Associate Director of Advising, with approval of changes by the EEE Academics Committee. In addition, students will be able to petition the EEE Academics Committee to have other courses (including one-time special offerings) count for one of the requirements. These lists are therefore considered dynamic, and it is anticipated that small changes will be made to the lists regularly.

All Plans of Study are ultimately subject to approval by the EEE Academics Committee. The EEE curricular guidelines were designed to maximize flexibility so individualized student-centered Plans of Study can be crafted. Proposed Plans of Study without sufficient rigor and academic integrity worthy of earning a BSEEE will not be permitted.

Many courses have prerequisites. It is the student's responsibility to integrate prerequisite courses into the overall Plan of Study.

Rules for EEE Selectives

1. At least six courses, comprising at least 18 credits, are required.
2. At least nine of the 18 credits must be in the College of Engineering at the 20000-level or above. Of these, at least three credits must be at the 40000-level or above.
3. At least one course (or three credits) must focus on Earth Science (Column A).
4. At least one course(or three credits) must be classified as an "engineering design" course (Column B).
5. At least one course (or three credits) must be classified as "EEE Professional Practice" course (Column C).
6. Students are encouraged to propose a selective plan of study which integrates personal career goals with Purdue coursework. Plans of study require approval from the EEE advisor, the EEE Faculty Mentor and EEE Academics Committee.
7. Students are allowed **and** encouraged to choose more than nine credits from Table 1.

Table 1. Universally Approved EEE Selectives

A: Earth Science (Choose at least 1; 3cr min.)	B: Engineering Design (Choose at least 1; 3cr min.)	C: Engineering Fundamentals/EEE Professional Practice (Choose at least 1; 3cr min.)
AGRY 25500: Soil Science	ABE 32500: Soil and Water Resource Engineering	AGRY 38500: Environmental Soil Chemistry
AGRY 33700: Environmental	CE 44000: Urban Hydraulics	CE 31100: Arch Engineering

Table 1. Universally Approved EEE Selectives

A: Earth Science (Choose at least 1; 3cr min.)	B: Engineering Design (Choose at least 1; 3cr min.)	C: Engineering Fundamentals/EEE Professional Practice (Choose at least 1; 3cr min.)
Hydrology		
CE 54200: Hydrology	CE 45700: Air Pollution Control and Design	CE 38300: Geo-technical Engineering I
EAPS 32000: Physics of Climate	EEE 49500 (variable title): Wastewater Treatment Process	CE 44300: Introductory Environmental Fluid Mechanics
EAPS 58400: Hydrogeology	ME 59700 (variable title): Sustainable Design and Manufacturing	CE 55700: Air Quality Management
		CE 59700 (variable title): Water Chemistry Env Eco Eng
		EEE 49500 (variable title): Env Ecol Reg & Compliance (1 credit)
		FNR 35700: Fundamental Remote Sensing
		IE 34300: Engineering Economics

* Courses with an asterisk can count for EEE Selective only if they are not used to satisfy required options.

** Students may count only one course marked with a double asterisk as an EEE Selective.

Table 2. Historically acceptable EEE Selectives. All courses listed below are subject to approval for selective credit.

Course Number	Course Name
ABE 32500	Soil And Water Resource Engineering
ABE 52700	Computer Models in Env. and Natural Resources
ABE 56000	Biosensors: Fundamentals and Applications
AGRY 25500	Soil Science
AGRY 33700	Environmental Hydrology
AGRY 38500	Environmental Soil Chemistry
AGRY 45000	Soil Conservation and Water Management

Table 2. Historically acceptable EEE Selectives. All courses listed below are subject to approval for selective credit.

Course Number	Course Name
AGRY 54000	Soil Chemistry
AGRY 54400	Environmental Organic Chemistry
AGRY 54500	Remote Sensing of Land Resources
AGRY 56000	Soil Physics
AGRY 58200	Environmental Fate of Pesticides
AGRY 58500	Soils and Land Use
ASM 33600	Environmental Systems Management
ASM 54000	GIS Applications
*BIOL 48300	Environmental and Conservation Biology
BIOL 54900	Microbial Ecology
*BIOL 58500	Ecology
BCM 41900	Sustainable Construction
BCM 51000	Env Sust Const Design & Devel
CE 31100	Arch Engineering
CE 38300	Geotechnical Engineering I
CE 40800	Geographic Information Systems in Engineering
CE 44000	Urban Hydraulics
CE 44300	Introductory Environmental Fluid Mechanics
CE 45700	Air Pollution Control And Design
CE 51200	The Comprehensive Urban Planning Process
CE 51501	Building Energy Audits
CE 54000	Open Channel Hydraulics
CE 54200	Hydrology
CE 54500	Sediment Transport Engineering
CE 54900	Computational Watershed Hydrology
CE 55000	Physico-Chemical Processes In Environ. Engr.
CE 55700	Air Quality Management
CE 59300	Environmental Geotechnology
CE 59700 (variable title)	Environ Analytical Chemistry
CE 59700 (variable title)	Sustain Bldg Dsgn Constr&Oper
CE 59700 (variable title)	Urban Systems Sustainability

Table 2. Historically acceptable EEE Selectives. All courses listed below are subject to approval for selective credit.

Course Number	Course Name
CE 59700 (variable title)	Polymers In Infrast & Environ
CE 59700 (variable title)	Water Chemistry Env Eco Eng
CE 59700 (variable title)	Water Resources Sustainability
CHE 59700 (variable title)	Advanced Solar Conversion
EAPS 30900	Computer-Aided Analysis for Geosciences
EAPS 32000	Physics of Climate
**EAPS 32700	Climate, Science And Society
**EAPS 37500	Great Issues: Fossil Fuels, Energy, and Society
EAPS 58300	Geology of Landfills
EAPS 58400	Hydrogeology
*EEE 36000	EEE Laboratory (Three credits required as core; additional titled credits may be used as Selective)
EEE 49500 (variable title)	Env Ecol Reg And Compliance
EEE 49500 (variable title)	Individual Study/Research
EEE 49500 (variable title)	Urban Water Projects
EEE 49500 (variable title)	Wastewater Treatment Process
EEE 49800 (variable title)	Environmental And Ecological Engineering Projects (Ind. Research proposal required.) Only 3 credits may be applied toward BSEEE.
EDCI 50600	Environmental Education
EPICS Participation	Three credits total required; Project must be environmental engineering related and the courses must be taken in consecutive semesters and be dedicated to the same project.
FNR 35700	Fundamental Remote Sensing
**FNR 48800	Global Environmental Issues
FNR 54300	Conservation Biology I
FNR 55800	Digital Remote Sensing and GIS
IE 34300	Engineering Economics

Table 2. Historically acceptable EEE Selectives. All courses listed below are subject to approval for selective credit.

Course Number	Course Name
ME 41300	Noise Control of Acoustic Waves
ME 49200	Technology and Values
ME 51400	Fundamentals of Wind Energy
ME 59700 (variable title)	Sustainbl Dsgn & Manufac
ME 59700 (variable title)	Sustainabl Enrgy Options&Analy
ME 59700 (variable title)	Solar Energy Technology
MET 42200	Power Plants And Energy Conversion
MET 58100 (variable title)	Fuel Cell Fund, Modl & Diagnstc
NRES 38500	Environmental Soil Chemistry
NRES 45000	Soil Conservation and Water Management
NUCL 30000	Nuclear Structure and Radiation Interactions
NUCL 47000	Fuel Cell Engineering

Notes:

Variable title = temporary or special topics number. Course title must match. These courses may be granted permanent course numbers in the future.

EEE General Education Program List Requirements

Students are strongly encouraged to develop a coherent general education plan, and distribute their general education credits throughout their academic program. The collection of courses used to fulfill this requirement must meet all of the following conditions:

1. Students must select from the list of courses approved by the University Core Council to satisfy each of the six Foundational Learning Outcomes listed below. Some courses may have been approved to meet more than one of the Foundational Learning Outcomes, so fewer than six courses can be used to fulfill this condition. There is no minimum number of credit hours needed to satisfy this component of the College of Engineering General Education Program. The pertinent Foundational Learning Outcomes are defined below.

> ***Written Communication:*** The clear expression of ideas in writing; includes grammar, organization, and structure. Varying levels and types of writing skills are required for different jobs. The ability to convey ideas concisely and coherently is important.
>
> ***Oral Communication:*** The activity of conveying meaningful information verbally; communication by word of mouth typically relies on words, visual aids and non-verbal elements to support the conveyance of the meaning. Oral communication is designed to increase knowledge, foster understanding, or to promote change in the listener's attitudes, values, beliefs, or behaviors.
>
> ***Information Literacy:*** The ability to recognize the extent and nature of information needs, then to locate, evaluate, and effectively use the needed information. It involves designing, evaluating and implementing a strategy to answer questions or achieve a desired goal.
>
> ***Human Cultures: Humanities*** The ability to recognize one's own cultural traditions and to understand and appreciate other cultural traditions and languages. This includes content in classics, history, languages, the law, literature, the performing arts, philosophy (including ethics), religion, and visual arts.
>
> ***Human Cultures: Behavior/Social Science*** The ability to recognize one's own cultural traditions and to understand and appreciate other cultural traditions and languages. This includes content in anthropology, psychology, cognitive science, organization theory, sociology, economics, history, counseling, and political science.
>
> ***Science, Technology, and Society:*** The ability to understand and reflect upon the complex issues raised by technological and scientific changes and its effects on society and the

global world by making sense of, evaluating, and responding to present and future changes that shape individuals' work, public, and personal lives.

Students must earn a C- or better in courses used to satisfy this component of the EEE General Education Program. *The list of approved Foundational Learning Outcomes courses is available at http://www.purdue.edu/provost/initiatives/curriculum/course.html.*

2. Students must take additional approved courses to reach the minimum requirement of 24 credit hours, selected as follows:

o All courses approved by the University Core Council as meeting a Foundational Learning Outcome (see above list).

o Courses must be drawn from those offered by the departments of Agricultural Economics, Speech, Language, and Hearing Sciences, Child Development and Family Studies, Communication, Economics, English, Foreign Languages and Literatures, History, Interdisciplinary Studies, Philosophy, Political Sciences, Psychological Sciences, Sociology and Anthropology, Visual and Performing Arts. Any course offered by these departments is allowable, provided that it is open to students in the offering department and is not focused primarily on professional training, natural science or mathematics.

3. At least 6 of the 24 required credit hours must come from courses at the 30000-level or above, or from courses with a required prerequisite in the same department.

4. At least 3 credit hours in a course at the intersection of Society and the Environment. These are generally in environmental law, environmental policy, environmental history, environmental humanities, or environmental education. The current list is:

AD 39700: Sustainability In The Built Environment
AGEC 40600: Natural Resources and Environmental Economics
AGEC 41500: Community and Resource Development
AGEC 52500: Environmental Policy Analysis
ANTH 32700: Environment And Culture
ENGL 23400: Ecological Literature
PHIL 29000: Environmental Ethics
PHIL 49000 (variable title): Climate Change & the Moral Psychology of Existential Threat

POL 22300: Introduction to Environmental Policy
POL 32700: Global Green Politics
POL 42300: International Environmental Policy
POL 42500: Environmental Law and Politics
POL 42800: Politics of Regulation

POL 42900 (variable title): Hlth, Sustain & Built Envirnmnt
POL 52300: Environmental Politics and Public Policy

5. At least 12 of the 24 required credit hours must be taken from the College of Liberal Arts, the Krannert School of Management, and/or the Honors College provided such courses are not focused primarily on engineering, technology, the natural sciences, or mathematics.

6. In order to ensure sufficient exposure to topics dealing with global, societal and contemporary issues, at least 9 credit hours must be drawn from courses offered by the departments of Agricultural Economics, Economics, Communication, Foreign Languages and Literatures, History, Interdisciplinary Studies, Philosophy, Political Sciences, Psychological Sciences, or Sociology and Anthropology.

EEE Technical Elective Requirements - Definition; No list exists

Technical Elective (5cr) – Additionally, five credits of Technical Electives are required. Technical Electives are defined as any course in a technical field, typically from the Colleges of Engineering, Technology, Science, or Agriculture. Remedial courses and seminar courses are not allowed.

EEE Free Elective Requirements - Definition; No list exists

Free Elective (2-3cr) - Free Electives are not limited to a particular college, department or level. Undistributed transfer credit may be used only after review and approval. Remedial courses are not allowed.