

BACHELOR OF SCIENCE IN ENVIRONMENTAL RESOURCES ENGINEERING

Environmental Resources Engineering degree program prepares graduates to operate with professional competence in environmental resources engineering. A broad base of study in engineering fundamentals enables graduates to enter professional practices that focus on the use and protection of soil, water, air, and other renewable and non-renewable resources. The program aims to educate professionals who will ensure sustainable development through environmentally responsible engineering solutions. **This program is accredited as an environmental engineering program by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.**

Lower Division Required Courses

APM 205	Calculus I:Science & Engr	4
APM 206	Calculus II:Science & Engr	4
APM 307	Multivariable Calculus	4
APM 485	Diff Equat/Engr&Scientist	3
EFB 101	Gen Bio I:Organismal Bio&Ecol	3
EFB 102	General Biology I Laboratory	1
ERE 132	Intro/Envrnmntl Resrces Engr	1
ERE 133	Intro to Engineering Design	3
ERE 275	Ecological Engineering	3
EWP 190	Writing And The Envrnment	3
EWP 290	Research Writing & Humanities	3
FCH 150	General Chemistry I	3
FCH 151	General Chemistry I Lab	1
FCH 152	General Chemistry II	3
FCH 153	General Chemistry II Lab	1
GNE 271	Statics	3
GNE 273	Mechanics of Materials	3
PHY 211	General Physics I	0 - 8

PHY 212	General Physics II	0 - 8
PHY 221	General Physics I Laboratory	0 - 8
PHY 222	General Physics II Laboratory	0 - 8

"C-" is a requirement for students to pass each calculus course and move into the next course. This requirement is necessary to ensure engineering students have the quantitative skills to succeed in the ERE program. The admissions office uses C as a threshold for the calculus courses when students want to transfer into the ERE program.

Lower Division Electives

Course	Codes*	Credits
General Education Course in two of the following categories: US History & Civic Engagement, The Arts, Social Science, World History and Global Awareness, World Languages	G	6
General Education Course in Diversity, Equity, Inclusion and Social Justice	G	3
Earth Science Elective: FOR 345, FCH 399, FOR 338, EAR105, EAR 111, or EAR 117	G	3
Biology Elective: EFB 103, EFB 303, EFB 307, EFB 320, EFB 360, EFB 400, EFB 424, EST 220, FOR 232, FOR 332, FOR 334, or FOR 442	G	3

Upper Division Required Courses

APM 395	Probability & Stats/Engr	3
CEE 337	Intro to Geotechnical Engrng	0 - 8
ERE 335	Numerical & Computing Methods	3
ERE 339	Fluid Mechanics	4
ERE 340	Engr Hydrology&Hydraulics	4
ERE 365	Principles of Remote Sensing	4

ERE 371	Surveying For Engineers	3
ERE 430	Engr Decision Analysis	3
ERE 440	Water and Wastewater Treatment	3
ERE 468	Solid & Hazardous Waste Engr	3
ERE 480	Fate & Trnsprt of Contaminants	3
ERE 488	Engineering Project Management	1
ERE 489	Env Res Engr Plan&Design	3

Upper Division Electives

Course	Codes*	Credits
<p>Engineering Fundamentals Elective</p> <p>These courses are intended to introduce or reinforce basic concepts and theory within the engineering sciences. They are intended as intermediate level classes that build on lower division electives.</p> <p>Pre-approved SUNY ESF Engineering Fundamentals Elective courses are:</p> <ul style="list-style-type: none"> • PSE 361 Engineering Thermodynamics • PSE 370 Principles of Mass and Energy Balances • CME 404 Applied Structures • Any approved Engineering Elective <p>Pre-approved Syracuse University courses that satisfy the engineering fundamentals elective include:</p> <ul style="list-style-type: none"> • ELE 231 Electrical Engineering Fundamentals • MAE 251 Thermodynamics • ECS 222 Dynamics 		3

<p>Engineering Elective These courses focus on theory and application of scientific principles and quantitative skills to monitor, assess, or design in the environmental resources engineering profession.</p> <p>Pre-approved SUNY ESF Engineering Fundamentals Elective courses are:</p> <ul style="list-style-type: none"> • ERE 311 Ecological Engineering in the Tropics • ERE 412 River Form and Process • ERE 445 Hydrologic Modeling • ERE 465 Environmental Systems Engineering • ERE 575 Ecological Engineering for Water Quality • GNE 461 Air Pollution Engineering • ERE 496 and ERE 596 Special Topics courses must be approved by the Department prior to registration • ERE 496 (Sec 04) Humanitarian Engineering <p>Pre-approved Syracuse University courses that may be used to satisfy engineering electives include:</p> <ul style="list-style-type: none"> • CEE 331 Analysis of Structures and Materials • CEE 332 Design of Concrete Structures • CEE 338 Foundation Engineering • CEE 443 Transportation Engineering • CEE 473 Transport Processes in Environmental Engineering • Special Topics courses offered through Syracuse 	E	9
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<p>University's L.C. Smith College of Engineering must be pre-approved by the Department prior to registration</p> <p>500-599 Graduate courses designed expressly for areas of specialization in post-baccalaureate programs. Qualified undergraduate students may enroll with permission of the instructor.</p> <ul style="list-style-type: none"> • ERE 520/521 Resource Recovery with Laboratory • ERE 527 Stormwater Management • ERE 545 Environmental Soil Physics • ERE 570 Hydrology in a Changing Climate <p>600-699 Graduate courses are designed expressly for advanced levels of specialization. Undergraduate students with a cumulative grade point average of 3.000 or better may enroll in these courses with an approved petition.</p> <ul style="list-style-type: none"> • ERE 621 Spatial Analysis • ERE 622 Digital Image Analysis (requires permission of instructor) • ERE 674 Methods in Ecological Treatment • ERE 693 GIS-Based Modeling (requires permission of instructor) 		
<p>Technical Elective These courses focus on techniques, theory, and skills to advance competence in professional practice.</p> <p>Any CEE class, any APM class 200 level and above; any BPE class 300 level and above; any BTC class; any CME class with the exception of CME 202; any EFB class with the</p>		6

exception of EFB 120, 200, 217, 220, and 312; any EHS class; any ERE class; ESF 300 any FCH class 200 level and above; any FOR class 320 and above with exception of 475 to 478; any GNE class; or any SRE class. Any Special Topics course (496 or 596) must be approved by the Department prior to registration.		
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Total Minimum Credits For Degree: 128

* **Special Course Codes** (Code indicates course meets certain program or accreditation requirements. Ignore if there is no relevance to this program of study.) **G** = General Education Course (GenEd), **E** = Engineering, **ES** = Engineering Sciences, **M** = Mathematic, **NS** = Natural Sciences, **PE** = Professional Education, **S** = Summer-only

