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](http://www.abet.org).

**Lower Division Required Courses**

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Codes*</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education Course in two of the following categories: US History &amp; Civic Engagement, The Arts, Social Science, World History and Global Awareness, World Languages</td>
<td>G</td>
<td>6</td>
</tr>
<tr>
<td>General Education Course in Diversity, Equity, Inclusion and Social Justice</td>
<td>G</td>
<td>3</td>
</tr>
<tr>
<td>Earth Science Elective: FOR 345, FCH 399, FOR 338, EAR105, EAR 111, or EAR 117</td>
<td>G</td>
<td>3</td>
</tr>
<tr>
<td>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</td>
<td>G</td>
<td>3</td>
</tr>
</tbody>
</table>

### Upper Division Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>APM 395 Probability &amp; Stats/Engr</td>
<td>3</td>
</tr>
<tr>
<td>CEE 337 Intro to Geotechnical Engrng</td>
<td>0 - 8</td>
</tr>
<tr>
<td>ERE 335 Numerical &amp; Computing Methods</td>
<td>3</td>
</tr>
<tr>
<td>ERE 339 Fluid Mechanics</td>
<td>4</td>
</tr>
<tr>
<td>ERE 340 Engr Hydrology&amp;Hydraulics</td>
<td>4</td>
</tr>
<tr>
<td>ERE 365 Principles of Remote Sensing</td>
<td>4</td>
</tr>
<tr>
<td>Course</td>
<td>Codes*</td>
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<tr>
<td>------------------------------</td>
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</tr>
<tr>
<td><strong>Upper Division Electives</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Course</strong></td>
<td><strong>Credits</strong></td>
</tr>
<tr>
<td>Engineering Fundamentals</td>
<td></td>
</tr>
<tr>
<td>Elective</td>
<td></td>
</tr>
<tr>
<td><em>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.</em></td>
<td></td>
</tr>
<tr>
<td>Pre-approved SUNY ESF</td>
<td></td>
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<tr>
<td>Engineering Fundamentals</td>
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<tr>
<td>Elective courses are:</td>
<td></td>
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<tr>
<td>• PSE 361 Engineering</td>
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<tr>
<td>• PSE 370 Principles of Mass</td>
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<tr>
<td>• CME 404 Applied Structures</td>
<td></td>
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<tr>
<td>• Any approved Engineering</td>
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<tr>
<td>• Pre-approved Syracuse</td>
<td></td>
</tr>
<tr>
<td>• University courses that satisfy the engineering fundamentals elective include:</td>
<td></td>
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<tr>
<td>• ELE 231 Electrical</td>
<td></td>
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<tr>
<td>• MAE 251 Thermodynamics</td>
<td></td>
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<tr>
<td>• ECS 222 Dynamics</td>
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</table>
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.

Pre-approved SUNY ESF Engineering Fundamentals Elective courses are:

- 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

Pre-approved Syracuse University courses that may be used to satisfy engineering electives include:

- 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
University's L.C. Smith College of Engineering must be pre-approved by the Department prior to registration.

500-599 Graduate courses designed expressly for areas of specialization in post-baccalaureate programs. Qualified undergraduate students may enroll with permission of the instructor.

- ERE 520/521 Resource Recovery with Laboratory
- ERE 527 Stormwater Management
- ERE 545 Environmental Soil Physics
- ERE 570 Hydrology in a Changing Climate

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.

- 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)

Technical Elective
These courses focus on techniques, theory, and skills to advance competence in professional practice.

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
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.

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.