Syracuse University
Department of Civil and Environmental Engineering (CIE)

College of Engineering and Computer Science

Undergraduate Student Handbook
2015-2016

Name ________________________________________________________________

Please keep this handbook. It contains information that will be helpful to you during your college career.

(Revised: Fall 2015)
Dear Civil and Environmental Engineering Student:

On behalf of the Department of Civil and Environmental Engineering (CIE), I welcome you to the Syracuse University (SU) campus. I hope your academic experience at SU will be a rewarding one. This handbook has been designed to be your guide through the Civil and Environmental Engineering programs. It contains important information that will answer questions you might have during your academic career at SU, so please keep it with you during your time at SU. This handbook was developed based on comments and suggestions by undergraduate and graduate students, as well as faculty and staff members of the Department. Please help improve this handbook by expressing your likes, dislikes, wants, and needs either to me or any of the CIE staff members.

Academic advising is an essential component of your education. A full-time faculty member will be assigned to act as your academic advisor when you attain sophomore standing. Your advisor can be a great resource to you. However, a successful system of academic advising is highly dependent upon a shared commitment of students, faculty, and staff to the process and the availability of timely, accurate information. Therefore, students must be aware of their own responsibility toward advising, as well as that of their advisors and the University.

- Students are responsible for scheduling, preparing for, and keeping advising appointments; for seeking out contacts and information; and for knowing the basic requirements of their individual degree programs. Students bear the final responsibility for making their own decisions based on the best information and advice available, and ultimately, on their own judgment.

- Advisors are responsible for developing a thorough knowledge of the degree requirements within the student’s program of study and a working knowledge of academic options and resources throughout the University. Advisors are expected to involve students by encouraging them to ask questions, gather information, and explore options so that they may develop a meaningful academic plan.

The University, through its schools and colleges, pledges to support a campus-wide network of faculty, staff, and student peer advisors by providing them with a clear and firm foundation of information regarding policies, procedures, resources, and programs. The University is committed to assisting faculty and staff to develop effective advising skills, evaluating its system of academic advising and support services, and to making improvements where necessary. The University also acknowledges the important contribution advisors make to the community through appropriate recognition within the institutional reward system.

All CIE students should know the Department’s mission statement, goal statement, program educational objectives and student outcomes, which can be found on page 1 of this handbook. The curriculum has been designed to incorporate these elements. Students, faculty, alumni, and the Department’s Advisory Board are all involved with ensuring that these elements are incorporated into every student’s education.

I hope you will find the information contained in this handbook helpful. If the information you need is not in this handbook, or if you have other questions or concerns, please consult your advisor or a member of the Department.

Best Wishes,

Ossama M. Salem, Ph.D., PE, CPC, LEED AP
Department Chair and A. Yabroudi Chair Professor
Table of Contents

Mission and Goal Statements, Educational Objectives and Program Outcomes ........................................... 1
Department Advisory Board .......................................................................................................................... 2
Student Advisory Council .......................................................................................................................... 2
Faculty ..................................................................................................................................................... 2
Advisor Information .................................................................................................................................. 7
Academic Integrity ...................................................................................................................................... 8
Important Dates to Remember ................................................................................................................... 8
The Registration Process ............................................................................................................................ 9
Registration Terms and Definitions ............................................................................................................. 9
Grading Options .......................................................................................................................................... 10
Curriculum .................................................................................................................................................. 12
  Civil Engineering Curriculum ................................................................................................................... 12
  Environmental Engineering Curriculum .................................................................................................... 13
  SS/HUM Electives ................................................................................................................................... 14
  Professional Electives ............................................................................................................................... 15
  Technical Electives ................................................................................................................................... 15
  Free Electives ........................................................................................................................................... 15
  Minors ..................................................................................................................................................... 18
Co-op and Internship Programs .................................................................................................................. 24
Internship Programs .................................................................................................................................... 24
Undergraduate Research Opportunities ...................................................................................................... 25
Study Abroad Opportunities ....................................................................................................................... 26
Student Group Activities ............................................................................................................................ 27
Scholarships and Awards ............................................................................................................................. 32
Becoming a Licensed Professional Engineer ............................................................................................... 35
Student Resources ....................................................................................................................................... 37
Frequently Asked Questions ....................................................................................................................... 42
National Society of Professional Engineers Code of Ethics for Engineers ..................................................... 45
Engineers' Creed .......................................................................................................................................... 51
Mission and Goal Statements, Educational Objectives and Program Outcomes

The mission of the Department is to promote learning and the creation, dissemination, and application of knowledge in Civil and Environmental Engineering through integration of teaching, scholarship, and service.

The goal of the Department is to prepare students for engineering practice, advanced study, and life-long learning in Civil and Environmental Engineering. Graduates are expected to be proficient in the fundamentals of engineering analysis and design, and to understand the importance and methods of effective communication. Students are encouraged to use the extensive educational resources of Syracuse University and the Syracuse University community to broaden and enhance the quality of their university education.

The educational objectives of the civil/environmental engineering program are to produce graduates who:

1. apply technical knowledge and problem-solving skills to advance their careers,
2. apply technical knowledge and problem-solving skills to serve their community, society, and profession,
3. are prepared for engineering practice and advanced studies in civil/environmental engineering,
4. engage in life-long learning to keep themselves abreast of new developments in their fields of practice or study,
5. are capable of effective written and oral communications.

Our program outcomes are in-line with those identified by the Accreditation Board for Engineering and Technology. At the time of their graduation, our students should have acquired:

(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.
(d) An ability to function on multidisciplinary 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, economical, 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.
Department Advisory Board

The role of the Department Advisory Board, whose members are prominent civil/environmental engineers and educators from industry and academia, is to advise the Department Chair on matters that relate to undergraduate and graduate education, and on activities that pertain to enhancing the reputation and promoting the growth of the Department. The Board normally meets once or twice a year to discuss issues germane to program accreditation, curriculum revisions, job prospects, and other specific needs of the Department.

Student Advisory Council

The student advisory council was officially formed in 2000 and is comprised of two members from each class. The role of the student advisory council is to provide feedback to the Department on curriculum, advising, extracurricular activities, and other issues that arise through the student experience. The council meets with the chair of the Department at least once each semester, and more as needed. Students are elected to the advisory council in required courses in each year of the curriculum.

Faculty

Aboutaha, Riyad S. - Associate Professor; Ph.D. 1994, University of Texas at Austin

Teaching and Research Interests - Structural Rehabilitation of Civil Infrastructure, Analysis and Design of Concrete and Steel Structures, Experimental Investigation of Structural Elements and Systems, Behavior of Existing Buildings and Bridges, Preventive Maintenance of Highway Bridges, and Rehabilitation with Fiber Reinforced Polymer Composites.

Ataei, Hossein – Assistant Professor; Ph.D. 2013, University of Southern California


Bhatia, Shobha K. - Professor, Laura J. and L. Douglas Meredith Professor for Teaching Excellence; Ph.D. 1980, University of British Columbia

Teaching and Research Interests - Design with Geosynthetics, Seepage and Earth Dams, Ground Improvement, Soil Dynamics and Advanced Soil Mechanics, Application of Synthetic and Natural Flocculants in Environmental applications, Erosion Mitigation and Soil Piping, Sustainable Earth Structures, Use of Waste Materials (Fly ash) Geotechnical Engineering, Engineering and Social Science, Women in Engineering.
Chandler, David G. - Associate Professor; Ph.D. 1998, Cornell University


Chen, Ruth – Professor of Practice; Ph.D. 1984, University of Michigan


Condon, Laura E. – Assistant Professor; Ph.D. 2015, Colorado School of Mines


Dannenhoffer, Joan V., P.E. - Associate Professor; M.S.C.E, University of Connecticut, MBA, Rensselaer Polytechnic Institute


Davidson, Cliff I. - Professor, Thomas C. & Colleen L. Wilmot Professor, and Environmental Engineering Program Director; Ph.D. 1977, California Institute of Technology

**Teaching and Research Interests** - Sustainable Engineering Related to Air Quality as well as Water Quality and Quantity, Green Infrastructure for Water Management in Urban Areas, People’s Perceptions of the Environmental Impacts of their Day-to-Day Activities, Identification of Sources of Pollutants and their Transport through the Environment, Teaching Sustainability Concepts to Engineering Students.

Driscoll, Charles T. - University Professor of Environmental Systems Engineering; Ph.D. 1979, Cornell University

**Teaching and Research Interests** – Air Pollution Effects, Chemical and Biological Processes Occurring in the Environment, Climate Change Effects, Green Water Infrastructure, Environmental Quality Modeling, and Soil Chemistry.
Johnson, Chris E. - Professor, Ph.D. 1989, University of Pennsylvania

Teaching and Research Interests - The terrestrial processes which influence and control the chemistry of natural waters, soils and soil chemistry, weathering, ion exchange processes, and organic matter chemistry. Statistical analysis.

Kelleher, Christa – Assistant Professor (joint with Earth Sciences); Ph.D. 2013, Pennsylvania State University

Teaching and Research Interests - Watershed Hydrology and Hydrologic Modeling, including Distributed Watershed, Water Quality, and Solute Transport Modeling to link Water Quality and Quantity and Landscape Drivers and Hydrologic Response, Environmental Model Sensitivity and Uncertainty Analysis, Scientific Visualization, Hydrology Education.

Lui, Eric M. - Associate Professor, Laura J. and L. Douglas Meredith Professor for Teaching Excellence; Ph.D. 1985, Purdue University

Teaching and Research Interests - Structural engineering with an emphasis on computer-aided analysis and design. Structural Stability, Steel Design, Structural Dynamics, Earthquake Engineering, Numerical Methods, Green Engineering and Sustainable Development.

Mac Namara, Sinéad – Associate Professor (joint with Architecture); Ph.D. 2007, Princeton University

Teaching and Research Interests – Innovation and creativity in structural engineering education; teaching methods and assessment; structural art; performance of shell structures; design-build and community engaged design.

Negussey, Dawit - Professor; GRC Program Director, Ph.D. 1985, University of British Columbia


Salem, Ossama (Sam) - Professor, Abdallah H. Yabroudi Professor, and Department Chair; Ph.D. 1998, University of Alberta, Canada

Salman, Baris – Professor of Practice; Ph.D. 2010, University of Cincinnati

**Teaching and Research Interests** - Infrastructure and Construction Engineering; Construction Estimating and Scheduling; Infrastructure Management; Sustainable Development; Risk Assessment and Management; Sustainable Maintenance, Repair, and Rehabilitation (MRR); Transportation Engineering; Engineering Materials; Geomatics; Building Information Modeling.

Todorova, Svetoslava – Professor of Practice; Ph.D. 2012, Syracuse University

**Teaching and Research Interests** - Aquatic chemistry; Biogeochemistry; Environmental engineering; Sustainable engineering practices in built and natural environments; Urban storm water supply and management; Alternative dispute resolution and collaborative decision-making.

Zeng, Teng – Assistant Professor; Ph.D. 2012, University of Minnesota


**Faculty Serving Administrative Roles**

Staniec, Andria M. Costello - Associate Professor, Associate Provost for Academic Programs; Ph.D. 1999, California Institute of Technology

**Teaching and Research Interests** - Biomolecular Engineering, Applied Environmental Microbiology, and Biotechnology.

Steinberg, Laura J. - Professor; Ph.D. 1993, Duke University

**Teaching and Research Interests** - Risk Assessment, Infrastructure Resilience, Natural and Technological Hazards.

**Emeritus Faculty**

Clemence, Samuel P. – Professor Emeritus, Laura J. and L. Douglas Meredith Professor for Teaching Excellence; Ph.D. 1973, Georgia Institute of Technology

Friedman, Alexander A. - Professor Emeritus; Research Faculty; D.Eng. 1970, UC-Davis

**Teaching and Research Interests** - Water and Wastewater Treatment.

Letterman, Raymond D. - Professor Emeritus; Ph.D. 1972, Northwestern University

**Teaching and Research Interests** - Environmental engineering with an emphasis on water resources and drinking water treatment, physical/chemical transformations in water, applied surface chemistry, coagulation, flocculation, filtration, and corrosion control.

Mandel, James A. - Professor Emeritus; Research Faculty; Ph.D. 1967, Syracuse University

**Teaching and Research Interests** - Fiber Reinforced Materials, Fracture Mechanics, Finite Element Analysis, Structural Engineering.

Adjunct Faculty

Driscoll, Kimberly – Research Faculty; M.S.E.E. 1991, Syracuse University

**Teaching and Research Interests** – Environmental Engineering.

Kaczmar, Swiatoslav W. – Adjunct Faculty; Ph.D. 1983, Michigan State University

**Teaching and Research Interests** – Toxicology and Environmental Disposition of Chemical and Physical Contaminants.

Ketcham, Lance S. – Adjunct Faculty; P.E., M.S., 1990, Syracuse University

**Teaching and Research Interests** – Engineering Design, Construction, Site Investigation, Construction Materials, Geotechnical Engineering, Engineering Ethics and Technical Communications.

Plumley, Peter – Research Faculty; Ph.D. 1984, University of California, Santa Cruz

**Teaching and Research Interests** – Geology, Computing and Media Services, Science Education, K-12 Outreach.

Santanam, Suresh – Adjunct Faculty; Sc.D. 1989, Harvard University

**Teaching and Research Interests** – Air Pollution, Environmental Regulations, Control System Design, Industrial Toxicology.

Wazenkewitz, David – Adjunct Faculty; P.E.; B.S. 1983, Syracuse University

**Teaching and Research Interests** – Solid Waste Management.

Yabroudi, Abdallah H. – Adjunct Faculty; M.S.C.E. 1976, Syracuse University

**Teaching and Research Interests** – Construction Engineering and Management.
Advisor Information

Your advisor is a full-time faculty member to whom you have been assigned. Advisors take their roles seriously and are dedicated to enhancing your experience at Syracuse University. Although their primary role is to offer academic advice, they can also assist you to find university resources to help with personal problems, health and wellness, and employment options.

You should see your advisor:

- Before registration to plan your schedule;
- If you are changing your schedule (adding, dropping, withdrawing from a class);
- When declaring a minor;
- When having problems, concerns, or questions;
- When exploring co-op, internship, and job opportunities;
- Whenever you need someone to listen and/or give advice.

Your advisor can, and should be, more than just the person that signs your Undergraduate Advising Form. Your advisor is offering you access to their experiences and knowledge. Utilize that opportunity. You might learn more through your relationship with your advisor than you do in any course.

Occasionally it will be necessary to change advisors. This can occur for the following reasons:

- Student Request - A student may prefer another advisor and may request a change.
- Student Change of Major - Students are assigned faculty advisors in their program of study. If you change majors, a new advisor will be assigned to you. If you change between civil and environmental engineering majors, you may elect to keep your advisor.
- Advisor Departure - If a faculty member leaves their academic unit or the University, their advisees are reassigned.
- Advisor Leave of Absence - If a faculty member is unable to meet with his/her advisees during registration or the academic year, his/her advisees are temporarily assigned to another faculty member.
**Academic Integrity**

All students in the Department of Civil and Environmental Engineering are expected to abide by the Codes of Academic Integrity and the Codes of Student Conduct in the Syracuse University Student Handbook ([http://www.syr.edu/currentstudents/studenthandbook/](http://www.syr.edu/currentstudents/studenthandbook/)). The Handbook is revised each year by the Academic Integrity Office.

The Department of Civil and Environmental Engineering strictly enforces these policies. Students are required to read the policies on their own and follow the policies at all times while enrolled at the University. Ignorance of the policies will not be accepted as an excuse. Students are expected to ask questions if they do not understand. Violations of any policy will be reviewed by a quorum of Civil and Environmental Engineering faculty. **Occurrences of cheating, plagiarism, falsifying records, or other behavior in violation of the University policies will result in penalties following the Academic Integrity Office guidelines ([http://academicintegrity.syr.edu](http://academicintegrity.syr.edu)).**

**Important Dates to Remember***

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule Adjustments</td>
<td>First week of the semester</td>
</tr>
<tr>
<td>Add Deadline</td>
<td>One week after the first day of classes</td>
</tr>
<tr>
<td>Deadline for Grading Option</td>
<td>Two weeks after first day of classes</td>
</tr>
<tr>
<td>(pass/fail or audit)</td>
<td></td>
</tr>
<tr>
<td>Financial Drop Deadline</td>
<td>Three weeks after the first day of classes</td>
</tr>
<tr>
<td>Academic Drop Deadline</td>
<td>Six weeks before the last day of classes</td>
</tr>
<tr>
<td>Withdrawal Deadline</td>
<td>Fall - Three weeks before the last day of classes</td>
</tr>
<tr>
<td></td>
<td>Spring - Two weeks before the last day of classes</td>
</tr>
<tr>
<td>Registration</td>
<td>Begins ten weeks after the first day of classes</td>
</tr>
</tbody>
</table>

* The exact deadline dates may be found at [http://registrar.syr.edu/acadcalendars/index.html](http://registrar.syr.edu/acadcalendars/index.html).
The Registration Process

1. After receiving your Registration Information via e-mail:
   - Check to make sure your personal information is correct
   - Resolve any holds
     - Advising Hold - See your advisor
     - Financial Hold - Contact office indicated on your information form
     - Health Center Hold - Contact Health Center and submit required forms
     - Judicial Affairs Hold - Contact the Office of Judicial Affairs
     - Non-declared Plan Hold - See Student Records Office (130 Link Hall) to declare a major
     - OIS Hold - Contact the Office of International Services
   - Make a note of your registration access date and time

2. Using MySlice and this handbook, plan your schedule and check for time conflicts in the courses you have selected. If you are taking elective courses, look for alternates to your first-choice classes.

3. Make an appointment to meet with your advisor to review your schedule. Do this at least three days before your assigned registration date and time. This will give you plenty of time to change your schedule if necessary.

4. Complete the Undergraduate Advising Form, given to you by your advisor. Sign it yourself and take it to your advisor for his signature.

5. Return the white copy of the Undergraduate Advising Form to the Records office (130 Link Hall). The advising hold will be removed from your profile within 24 hours.

6. Assemble all needed enrollment items (including your pin and any permission numbers) and register on the web at http://myslice.syr.edu/.

Registration Terms and Definitions

Schedule Adjustment:
Schedule adjustment is the one-week time period at the beginning of the semester when students can change their class schedules. The procedure for adjusting your schedule is the same as during registration. You can adjust your schedule on the web. It is critical that you communicate with your advisor (phone, e-mail, in person) if you change any courses that you are taking.

Add deadline:
The last day a student can add a class. The deadline is approximately one week after the first day of classes.*

* Add/Drop forms are available in the Department of Civil and Environmental Engineering office.
Financial deadline:
Three weeks after the first day of classes, it is the last day a student can drop a class and receive a full refund of tuition charges. No refunds will be given for classes dropped by students who remain registered for 12 to 19 credit hours.

Academic drop deadline:
The last day a student can drop a class. Classes dropped prior to this deadline do not appear on the student’s transcript record. The deadline is approximately six weeks before the last day of classes. The procedure for dropping a class after the schedule adjustment period is:
1. Fill out the Add/Drop form*,
2. Obtain the required signatures (E&CS requires signatures of the course Instructor, Advisor, and Department Chair),
3. Obtain an approval stamp from the Records office (130 Link Hall), and
4. Submit the completed form to the Registrar’s Office, 106 Steele Hall.

Withdrawal deadline:
The last day a student can withdraw from a class. In the Fall semester, the deadline is approximately three weeks before the last day of classes. In the Spring semester, the deadline is approximately two weeks before the last day of classes. The notation WD appears on the student’s transcript record, but the student’s grade point average is not affected. The procedure to withdraw from a course is:
1. Complete the petition*, including course prefix, number, section, and title,
2. Obtain the required signatures, and
3. Submit the completed form to the Registrar’s Office, 106 Steele Hall.

**Grading Options**

Audit grading option:
Audited classes are not calculated toward the student’s GPA, do not earn academic credit, and do not fulfill any degree requirements. They do not count as credits carried for the determination of enrollment status (students are not charged for them). Students can register for the course and then fill out the Grading Option Application*, obtain the signature of the course instructor, and submit the form to the Registrar’s Office. However, if registration for the course will bring the total number of credits to more than 19, students should submit the Grading Option Application to the Registrar’s Office and will be enrolled in the course subject to space availability.

---
* These forms are available in the Department of Civil and Environmental Engineering office.
Pass/fail grading option:
In some courses students may elect a pass/fail grading option instead of the letter grading option. A course taken pass/fail cannot count towards a student's major or minor. Students register for the course, complete the Grading Option Application*, obtain the required signatures, and submit the completed form to the Registrar’s Office.

For students in Engineering majors: only social science, humanities, and free elective courses at the 300 level or higher may be taken pass/fail. Elective courses that must be taken from a specified list may not be taken pass/fail. The total hours of pass/fail courses permitted cannot exceed 18 credit hours.

Incomplete grading option:
Students who cannot complete a course within the normal time limits because of exceptional circumstances (severe illness, death of parent/sibling, etc.) can request an incomplete grade. The student and instructor complete the Request for Incomplete Grade Form*, deciding the conditions and time limit for removing the incomplete. An incomplete is calculated as an F in the GPA until it is removed.

* These forms are available in the Department of Civil and Environmental Engineering office.
## Curriculum

### Civil Engineering Curriculum

<table>
<thead>
<tr>
<th>FALL</th>
<th>SPRING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Year</strong></td>
<td></td>
</tr>
<tr>
<td>MAT 295</td>
<td>Calculus I</td>
</tr>
<tr>
<td>CHE 150</td>
<td>General Chemistry I</td>
</tr>
<tr>
<td>CHE 151</td>
<td>Gen. Chem. Lab I</td>
</tr>
<tr>
<td>ECS 101</td>
<td>Intro to ECS</td>
</tr>
<tr>
<td>WRT 105</td>
<td>Writing Studio I</td>
</tr>
<tr>
<td>SS/HUM</td>
<td>3</td>
</tr>
<tr>
<td>Semester Credits</td>
<td>17</td>
</tr>
</tbody>
</table>

| **Second Year** | |
| MAT 397 | Calculus III | 4 | MAT 485 | Differential Eq. & Matrix Algebra | 3 |
| PHY 212 | General Physics II | 3 | ECS 222 | Dynamics | 3 |
| PHY 222 | Gen. Physics Lab II | 1 | ECS 325 | Mech. of Solids | 4 |
| ECS 221 | Statics | 3 | CIE 274 | Civ/Env. Systems | 3 |
| CIE 273 | Introduction to Geomatics and BIM | 3 | WRT 205 | Writing Studio II | 3 |
| SS/HUM | 3 | SS/HUM | 3 |
| Semester Credits | 17 | Semester Credits | 16 |

| **Third Year** | |
| CIE 331 | Analysis of Struct. & Mat’l. | 3 | CIE 332 | Design of Concrete Structures | 3 |
| CIE 337 | Intro. to Geo. Eng. | 4 | CIE 338 | Foundation Eng. | 3 |
| CIE 341 | Intro. to Env. Eng. | 3 | CIE 329 | Stats. and Risk | 4 |
| CIE 327 | Prin. of Fluid Mech. | 4 or** | CIE 352 | Water Res. Eng. | 4 |
| MAE 341 | Fluid Mechanics | 4 ** | SS/HUM | |
| WRT 307 | Professional Writing | 3 | |
| Semester Credits | 17 | Semester Credits | 17 |

| **Fourth Year** | |
| CIE 401 | Construction Eng. | 3 | CIE 475 | Civ/Env. Eng. Design | 4 |
| CIE 443 | Transport Eng. | 3 | | Technical Elective | 3 |
| CIE 326 | Engineering Materials | 3 | | SS/HUM | 3 |
| CIE 442 | Trtm Proc. Env. Eng | 4 or** | | Free Elective | 3 |
| CIE 463 | Intro. to Sust. Eng. | 3 or** | | |
| CIE 471 | Env. Chem. & Analysis | 3** | | |
| Semester Credits | 12/13 | Semester Credits | 13 |

Total Credits Required: 127/128.
*take either EAR110 or EAR203.
**take one from the group.
## Environmental Engineering Curriculum

### FALL

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 295</td>
<td>Calculus I</td>
<td>4</td>
<td>MAT 296</td>
<td>Calculus II</td>
<td>4</td>
</tr>
<tr>
<td>CHE 106</td>
<td>General Chemistry I</td>
<td>3</td>
<td>CHE 116</td>
<td>General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>ECS 101</td>
<td>Intro to ECS</td>
<td>3</td>
<td>PHY 211</td>
<td>General Physics I</td>
<td>3</td>
</tr>
<tr>
<td>WRT 105</td>
<td>Writing Studio I</td>
<td>3</td>
<td>PHY 221</td>
<td>Gen. Physics Lab. I</td>
<td>1</td>
</tr>
<tr>
<td>SS/HUM</td>
<td></td>
<td>3</td>
<td>SS/HUM</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Semester Credits: 17

### SPRING

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 397</td>
<td>Calculus III</td>
<td>4</td>
<td>MAT 485</td>
<td>Differential Eq. &amp; Matrix Algebra</td>
<td>3</td>
</tr>
<tr>
<td>ECS 221</td>
<td>Statics</td>
<td>3</td>
<td>ECS 325</td>
<td>Mech. of Solids</td>
<td>4</td>
</tr>
<tr>
<td>EAR 110</td>
<td>Dynamic Earth</td>
<td>4 or*</td>
<td>EAR 203</td>
<td>Earth System Science</td>
<td>4 or*</td>
</tr>
<tr>
<td>SS/HUM</td>
<td></td>
<td>3*</td>
<td>SS/HUM</td>
<td></td>
<td>3*</td>
</tr>
<tr>
<td>SS/HUM</td>
<td></td>
<td>3</td>
<td>CIE 274</td>
<td>Civ/Env. Systems</td>
<td>3</td>
</tr>
<tr>
<td>SS/HUM</td>
<td></td>
<td>3</td>
<td>WRT 205</td>
<td>Writing Studio II</td>
<td>3</td>
</tr>
</tbody>
</table>

Semester Credits: 15

### SECOND YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIE 337</td>
<td>Intro. to Geo. Eng.</td>
<td>4</td>
<td>ECS 222</td>
<td>Dynamics</td>
<td>3 or*</td>
</tr>
<tr>
<td>CIE 341</td>
<td>Intro. to Env. Eng.</td>
<td>3</td>
<td>CIE 326</td>
<td>Eng. Materials</td>
<td>3 or*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ELE 231</td>
<td>Elec. Eng. (EE) Fund I</td>
<td>3(4 w/lab) or*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>MAE 251</td>
<td>Thermodynamics</td>
<td>4 or*</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>CHE 346</td>
<td>Physical Chemistry</td>
<td>3*</td>
</tr>
<tr>
<td>CIE 327</td>
<td>Prin. of Fluid Mech.</td>
<td>4* or</td>
<td>CIE 352</td>
<td>Water Res. Eng.</td>
<td>4</td>
</tr>
<tr>
<td>MAE 341</td>
<td>Fluid Mechanics</td>
<td>4*</td>
<td>CIE 329</td>
<td>Stats. and Risk</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>GEO 383</td>
<td>Geo. Information Sys.</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Professional Elective</td>
<td>3</td>
</tr>
<tr>
<td>SS/HUM</td>
<td></td>
<td>3</td>
<td>Free Elective</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>

Semester Credits: 16/17

### THIRD YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIE 471</td>
<td>Env. Chem. &amp; Analy.</td>
<td>3</td>
<td>CIE 475</td>
<td>Civ/Env. Eng. Design</td>
<td>4</td>
</tr>
<tr>
<td>CIE 442</td>
<td>Treatment Proc. in Env. Eng.</td>
<td>4</td>
<td></td>
<td>Professional Elective</td>
<td>3</td>
</tr>
<tr>
<td>CIE 472</td>
<td>Appl. Env. Micorb.</td>
<td>3</td>
<td></td>
<td>Technical Elective</td>
<td>3</td>
</tr>
<tr>
<td>GNE 461</td>
<td>Air Pollut. Eng</td>
<td>3</td>
<td></td>
<td>Technical Elective</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Professional Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

Semester Credits: 16

### FOURTH YEAR

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CIE 471</td>
<td>Env. Chem. &amp; Analy.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIE 442</td>
<td>Treatment Proc. in Env. Eng.</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CIE 472</td>
<td>Appl. Env. Micorb.</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GNE 461</td>
<td>Air Pollut. Eng</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Semester Credits: 13

Total Credits Required: 129/130.

*only one (EAR 110 or EAR 203) is required; the other must be SS/HUM.*
SS/HUM Electives

All CIE students are required to complete at least 18 credits of SS/HUM electives. A minimum of one course (3 credits) must be chosen from each of the three groups of designated courses listed below. The remaining three SS/HUM electives (9 credits) can be selected from the lists below or, in addition to the lists, may be chosen from:

- any College of Arts and Sciences courses in the Undergraduate Catalog that are listed in the Liberal Arts Core under the Divisional Perspective Requirement; acceptable courses are found under the “Humanities Division” and “Social Sciences Division” links.
- any foreign language courses (except the student’s native language)
- ECS 391 – Legal Aspects of Engineering and Computer Science
- ECS 392 – Ethical Aspects of Engineering and Computer Science

Group 1: Economics and Social Issues
ECN 203 – Economics Ideas and Issues
ECN 301* – Intermediate Microeconomics
ECN 302* – Intermediate Macroeconomics
ECN 365* – The World Economy
GEO 353 – Geographies of Environmental Justice
SOC 101 – Introduction to Sociology
SOC 102 – Social Problems
SOC 363 – Urban Sociology
STS/BPS 101 – Introduction to Science, Technology and Society

* requires ECN203 as prerequisite

Group 2: Global Affairs
ECN 365 – The World Economy
GEO 103 – Environment and Society
GEO 105 – World Urban Geography
GEO 215 – Global Environmental Change
GEO 272 – World Cultures
GEO 273 – Global Environmental Change
MAX 123 – Critical Issues for the U.S.
MAX 132 – Global Community
PAF 351 – Global Social Problems
PSC 124 – International Relations
PSC 355 – International Political Economy

Group 3: Public Policy and Policy Studies
ECN/WGS 358 – Economics of US Poverty and Discrimination
GEO 203 – Society and the Politics of Nature
GEO 314 – Hazardous Geographic Environments
GEO 356 – Environmental Ideas and Policy
PAF 101 – An Introduction to the Analysis of Public Policy
PAF 409* – Intermediate Analysis of Public Policy
PAF 451 – Environmental Policy
PSC 302- Environmental Politics and Policy
PSC 305 – U.S. Congressional Politics
PSC 308 – The Politics of U.S. Public Policy
PSC 312 – Urban Government and Politics
PSC 318 – Technology, Politics, and Environment

* requires PAF101 with minimum grade A as prerequisite

Check with your advisor to make sure the courses you have selected will fulfill your degree requirements. The SSH credits can be, and are encouraged to be, used towards the completion of a minor.
**Professional Electives**

Professional Electives are courses that advance a student’s professional abilities and form a cohesive and meaningful addition to the required CIE coursework. They are designed to develop and enhance a student’s role as a professional civil or environmental engineer. Professional Electives are *upper-level courses* (300 and above), generally from professional schools at SU and SUNY-ESF, and must be selected in consultation with the student’s academic advisor. Many Professional Electives can be used towards completion of a minor. Approved Professional Electives include ECS 222, ELE 231 and MAE 251, if they have not been used to satisfy other degree requirements. Also, courses offered in the following schools/colleges with the indicated prefixes may be used as professional electives.

<table>
<thead>
<tr>
<th>School/College</th>
<th>Course Prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture</td>
<td>ARC</td>
</tr>
<tr>
<td>Arts and Sciences</td>
<td>AST, BCM, BIO, CHE, ECN, GEO, EAR, MAX, MAT, PAF, PHY</td>
</tr>
<tr>
<td>Engineering and Computer Science</td>
<td>All course prefixes</td>
</tr>
<tr>
<td>Information Studies</td>
<td>IST</td>
</tr>
<tr>
<td>Whitman</td>
<td>ACC, BUA, EEE, FIN, INB, LPP, MAR, O&amp;M, SOM</td>
</tr>
<tr>
<td>Newhouse</td>
<td>COM</td>
</tr>
<tr>
<td>VPA</td>
<td>CRS</td>
</tr>
<tr>
<td>SUNY-ESF</td>
<td>All course prefixes</td>
</tr>
</tbody>
</table>

**Technical Electives**

Technical Electives MUST be CIE courses numbered 300 and above. They are to be selected in consultation with a student’s advisor to advance the student’s knowledge in a specific area of interest in civil or environmental engineering.

**Free Electives**

Any SU or ESF three or four credit course except Physical Education.
Minors

All Civil and Environmental Engineering students are strongly encouraged to pursue a minor. Employers of our graduates have expressed the need for engineering students to diversify their curriculum in order to successfully compete in the job market. Minors can be used to broaden and enhance your educational experience, increase your employability, or explore an area of personal interest. Many minors can easily fit into your schedule. In many cases minors can be obtained without a great deal of additional credit hours.

In order to declare a minor:
1. Obtain a Declaration of a Minor petition*,
2. Obtain the signatures of your advisor, the department or college offering the minor, and your home college dean's office, and
3. Return the completed petition to your home college dean's office.

All official minors currently offered at SU are listed below. Please refer to the Undergraduate Course Catalog for a more detailed description of the requirements for each minor.

<table>
<thead>
<tr>
<th>Accounting</th>
<th>Communication Sciences and Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Addiction Studies</td>
<td>Communication Photography</td>
</tr>
<tr>
<td>Advocacy and Public Rhetoric</td>
<td>Computer Engineering</td>
</tr>
<tr>
<td>African American Studies</td>
<td>Computer Gaming</td>
</tr>
<tr>
<td>Animation</td>
<td>Computer Science</td>
</tr>
<tr>
<td>Anthropology</td>
<td>Construction Management (ESF)</td>
</tr>
<tr>
<td>Applied Statistics</td>
<td>Disability Studies</td>
</tr>
<tr>
<td>Arabic</td>
<td>Drama</td>
</tr>
<tr>
<td>Architecture</td>
<td>Earth Sciences</td>
</tr>
<tr>
<td>Art History</td>
<td>Economics</td>
</tr>
<tr>
<td>Art Photography</td>
<td>Education Studies</td>
</tr>
<tr>
<td>Asian/Asian American Studies</td>
<td>Electrical Engineering</td>
</tr>
<tr>
<td>Biology</td>
<td>Energy Systems</td>
</tr>
<tr>
<td>Bioprocess Science (ESF)</td>
<td>Engineering and Computer Science Management</td>
</tr>
<tr>
<td>Ceramics</td>
<td>English and Textual Studies</td>
</tr>
<tr>
<td>Chemistry</td>
<td>Entrepreneurship and Emerging Enterprises</td>
</tr>
<tr>
<td>Child and Family Policy</td>
<td>Environment and Society</td>
</tr>
<tr>
<td>Child and Family Studies</td>
<td>Exercise Science</td>
</tr>
<tr>
<td>Chinese Language</td>
<td>Exercise Science (Dance)</td>
</tr>
<tr>
<td>Chinese Studies</td>
<td>Finance</td>
</tr>
<tr>
<td>Classical Civilization</td>
<td>Fine Arts</td>
</tr>
<tr>
<td>Classics</td>
<td>Food Studies Minor</td>
</tr>
<tr>
<td>Cognitive Science</td>
<td>Forensic Science</td>
</tr>
<tr>
<td>Communication and Rhetorical Studies</td>
<td>French and Francophone Studies</td>
</tr>
</tbody>
</table>

* The declaration of a Minor petition is available in the ECS Student Records office.
<table>
<thead>
<tr>
<th>Geography</th>
<th>Native American Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>German</td>
<td>Nutrition</td>
</tr>
<tr>
<td>Gerontology Interdisciplinary</td>
<td>Nutrition Science</td>
</tr>
<tr>
<td>Global Enterprise Technology</td>
<td>Painting</td>
</tr>
<tr>
<td>Global Political Economy</td>
<td>Paper Science (ESF)</td>
</tr>
<tr>
<td>Global Security Studies</td>
<td>Philosophy</td>
</tr>
<tr>
<td>Health and Wellness</td>
<td>Physical Computing</td>
</tr>
<tr>
<td>International Business</td>
<td>Physical Education (Coaching)</td>
</tr>
<tr>
<td>Italian</td>
<td>Physics</td>
</tr>
<tr>
<td>Jazz Studies</td>
<td>Policy Studies</td>
</tr>
<tr>
<td>Jewelry &amp; Metalsmithing</td>
<td>Political Science</td>
</tr>
<tr>
<td>Jewish Education</td>
<td>Private Music Study</td>
</tr>
<tr>
<td>Jewish Studies</td>
<td>Psychology</td>
</tr>
<tr>
<td>Landscape Architecture (ESF)</td>
<td>Public Communications Studies</td>
</tr>
<tr>
<td>Latin American Studies</td>
<td>Public Health</td>
</tr>
<tr>
<td>Leadership/Stewardship Communication</td>
<td>Real Estate</td>
</tr>
<tr>
<td>Lesbian, Gay, Bisexual, Transgender Studies (LGBT)</td>
<td>Recreation Resource and Protected Area Management (ESF)</td>
</tr>
<tr>
<td>Linguistic Studies</td>
<td>Religion</td>
</tr>
<tr>
<td>Logic</td>
<td>Religion and Society</td>
</tr>
<tr>
<td>Management Studies</td>
<td>Religion and the Media</td>
</tr>
<tr>
<td>Marketing</td>
<td>Renewable Energy (ESF)</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Retail Management</td>
</tr>
<tr>
<td>Medical Anthropology</td>
<td>Russian and Central European Studies</td>
</tr>
<tr>
<td>Medieval and Renaissance Studies</td>
<td>Sculpture</td>
</tr>
<tr>
<td>Middle Eastern Studies</td>
<td>Social Welfare</td>
</tr>
<tr>
<td>Mindfulness and Contemplative Studies</td>
<td>Sociology</td>
</tr>
<tr>
<td>Music History and Cultures</td>
<td>South Asian Studies</td>
</tr>
<tr>
<td>History</td>
<td>Spanish</td>
</tr>
<tr>
<td>History of Architecture</td>
<td>Sport Management</td>
</tr>
<tr>
<td>Information Management and Technology</td>
<td>Strategic Management</td>
</tr>
<tr>
<td>Information Technology Design &amp; Startups</td>
<td>Sustainable Construction Management (ESF)</td>
</tr>
<tr>
<td>Music Industry</td>
<td>Visual Culture</td>
</tr>
<tr>
<td>Music Performance</td>
<td>Women’s and Gender Studies</td>
</tr>
<tr>
<td>Natural Resources and Environmental Policy (ESF)</td>
<td>Writing</td>
</tr>
</tbody>
</table>

The following are minors thought to be especially complementary to the Civil or Environmental Engineering major. Many of the courses required for completion of the minors can also be used to fulfill the professional electives and, in some cases, the Social Sciences/Humanities requirements for your major.
<table>
<thead>
<tr>
<th><strong>School of Architecture</strong></th>
<th><strong>Required Courses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Architecture</strong></td>
<td><strong>Required:</strong>&lt;br&gt;ARC 101&lt;br&gt;ARC/CAS 133&lt;br&gt;ARC/CAS 134&lt;br&gt;ARC 194&lt;br&gt;ARC 394&lt;br&gt;Plus two of the following:&lt;br&gt;ARC 331/HOA 396/SAS 396&lt;br&gt;ARC 332/HOA 323&lt;br&gt;ARC 334&lt;br&gt;ARC 335/HOA 322&lt;br&gt;ARC 336/HOA 324&lt;br&gt;ARC 337/HOA 374&lt;br&gt;ARC 338/HOA 375&lt;br&gt;ARC 431/HOA 479&lt;br&gt;ARC 432/HOA 419&lt;br&gt;ARC 433/HOA 389&lt;br&gt;ARC 435/HOA 389&lt;br&gt;ARC 436/HOA 475</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>College of Arts and Sciences</strong></th>
<th><strong>Required Courses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economics</strong></td>
<td>18 to 21 Credits.&lt;br&gt;The Economics program emphasizes the application of economics to the study of public policy issues and the role of the government in a market economy.&lt;br&gt;May substitute FIN 355 for ECN 481 (will not receive credit for both NOR credit for both ECN 365 and ECN 465 or for both ECN 422 and ECN 521)</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>18 credits in geography courses, of which a minimum of 12 credits must be upper division (i.e. 300-level or above).</td>
</tr>
<tr>
<td><strong>Earth Science</strong></td>
<td>18 Credits.&lt;br&gt;The Geology program allows students to obtain a general education in the science of the Earth.</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td>21 Credits.&lt;br&gt;The minor in Mathematics allows students to broaden their mathematical knowledge, while improving their mathematical skills. This minor has 15 credit core that includes the calculus sequence (MAT 295, 296, 397 and either MAT 331 or MAT 485).&lt;br&gt;Note: Students who take MAT 485 instead of MAT 331 may not use the differential equations sequence to satisfy minor requirements</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>College of Arts and Sciences</strong></th>
<th><strong>Required Courses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Economics</strong></td>
<td>18 credits in Earth sciences which includes an introductory course (EAR 105 or EAR 110 or EAR 203 ), and 12 credits of courses numbered 300 or above.</td>
</tr>
<tr>
<td><strong>Geography</strong></td>
<td>18 Credits.&lt;br&gt;This program offers a unique approach to understanding the world by studying people, environments, and problems.</td>
</tr>
<tr>
<td><strong>Earth Science</strong></td>
<td>18 credits in Earth sciences which includes an introductory course (EAR 105 or EAR 110 or EAR 203 ), and 12 credits of courses numbered 300 or above.</td>
</tr>
<tr>
<td><strong>Mathematics</strong></td>
<td>21 Credits.&lt;br&gt;The minor in Mathematics allows students to broaden their mathematical knowledge, while improving their mathematical skills. This minor has 15 credit core that includes the calculus sequence (MAT 295, 296, 397 and either MAT 331 or MAT 485).&lt;br&gt;Note: Students who take MAT 485 instead of MAT 331 may not use the differential equations sequence to satisfy minor requirements</td>
</tr>
<tr>
<td>Policy Studies</td>
<td>Geometry- MAT 531, 551 or MAT 531, 554. Probability and Statistics- MAT 521, 525 or MAT 521, 526.</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>18 Credits.</td>
<td>18 credits, of which at least 12 credits include courses numbered 300 or above.</td>
</tr>
<tr>
<td>The Policy Studies minor allows students to develop skills in social science research, computer applications, written and oral communications, interpersonal relations, planning management, and problem solving.</td>
<td>Required Courses: PAF 101 An Introduction to the Analysis of Public Policy ECN 203 Economic Ideas and Issues. PAF 410 Practicum in Public Policy The remaining 9 credits are taken from courses numbered 300 or above</td>
</tr>
<tr>
<td>Writing</td>
<td>Writing 18 Credits.</td>
</tr>
<tr>
<td>18 Credits.</td>
<td>18 credits, WRT 255 Plus 15 WRT credits numbered 300 or above, excluding WRT 320.</td>
</tr>
<tr>
<td>The minor in writing is available to all undergraduates at Syracuse University. Students must have credit for WRT 105 and WRT 205, or equivalent. Students may begin the minor before completing WRT 205.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College of Engineering and Computer Science</th>
<th>Required Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Engineering</td>
<td>The minor in Computer Engineering requires a minimum of 18 credit hours, 12 of which must be in 300 to 400-level coursework. Must include: CSE 261, CSE 283 and CSE 382. Plus 9 credits are taken from courses numbered 300 or above. Examples include: CSE 381, CSE 384, CSE 464, CSE 483, CSE 484, CSE 489</td>
</tr>
<tr>
<td>18 Credits.</td>
<td></td>
</tr>
<tr>
<td>Computer Engineering is a relatively new and expanding discipline. The program gives students a general background in the fields of digital systems, software engineering, and design automation.</td>
<td></td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>Must complete 8 credits from the following: ELE 231 ELE 291 ELE 232 ELE 292 Plus 12 credits of junior/senior ELE EE electives or completion of a track. See EE curriculum for more information.</td>
</tr>
<tr>
<td>20 Credits.</td>
<td>Electrical engineering is based on scientific principles governing the motion of charged particles through conductors, semiconductors, or even a vacuum. This program allows students to either choose electives for a broad-based minor or complete a track in a specific concentration area. See catalog for prerequisites.</td>
</tr>
</tbody>
</table>
### Engineering and Computer Science Management

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECS 391</td>
<td></td>
</tr>
<tr>
<td>ECS 392</td>
<td></td>
</tr>
<tr>
<td>Plus two of the following:</td>
<td></td>
</tr>
<tr>
<td>EEE 370</td>
<td>EEE 382</td>
</tr>
<tr>
<td>EEE 451</td>
<td>FIN 301</td>
</tr>
<tr>
<td>LPP 458</td>
<td></td>
</tr>
<tr>
<td>and two of the following:</td>
<td></td>
</tr>
<tr>
<td>ACC 201</td>
<td>MAR 301</td>
</tr>
<tr>
<td>ECN 203</td>
<td></td>
</tr>
</tbody>
</table>

This minor is designed to provide ECS students with a relevant non-technical minor.

### Energy Systems

This minor is designed to provide ECS students academic depth in the fields of energy related systems in four different but related tracks: (1) Thermo-Mechanical Energy Systems; (2) Nuclear Energy; (3) Renewable Energy and (4) Electric Power. The student must be enrolled in a BS program in Engineering; other sufficient technical backgrounds may be considered.

- **Thermo-Mechanical Energy Systems Track**
  - Select any 2: MAE 553, 554, 585, 457 or AEE 446 plus 1 elective from any of the Energy Systems tracks.

- **Nuclear Energy Track**
  - NUC 301
  - Plus NUC 510 or NUC 520
  - Plus 1 NUC elective or 1 elective from any of the Energy Systems tracks.
  - *NUC electives*: NUC 510, NUC 520, NUC/ELE 530, NUC 540

- **Renewable Energy Track**
  - Select any 2: MAE 486, 587, 588, PHY 305, CEN 400, 462, 551 plus one elective from any of the Energy Systems tracks.

- **Electric Power Track**
  - Select any 3: ELE 324/PHY 424, ELE 416, ELE 514 or NUC/ELE 530

### School of Information Studies

<table>
<thead>
<tr>
<th>Required Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 195</td>
</tr>
<tr>
<td>One from the following technology courses:</td>
</tr>
<tr>
<td>IST 233, 256, 263, 346, 359</td>
</tr>
<tr>
<td>One from the following management courses:</td>
</tr>
<tr>
<td>IST 335, 352, 445</td>
</tr>
<tr>
<td>Plus 9 credits of additional IST courses. A minimum of 12 credits of coursework MUST be at the 300+ level.</td>
</tr>
</tbody>
</table>

### School of Management

<table>
<thead>
<tr>
<th>Required Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC 201 Essentials of Accounting</td>
</tr>
<tr>
<td>FIN 301 Essentials of Finance</td>
</tr>
<tr>
<td>LPP 255 Introduction to the Legal System</td>
</tr>
<tr>
<td>MGT 355 Strategic Human Resource Management</td>
</tr>
<tr>
<td>MAR 301 Essentials of Marketing</td>
</tr>
<tr>
<td>EEE 370 Introduction to Entrepreneurship</td>
</tr>
</tbody>
</table>

**Management Studies**

18 Credits.
This minor increases students’ understanding of information resources and information technology.
The Whitman School also offers several other minors.
which include Accounting, Entrepreneurship and Emerging Enterprises, Finance, General Management Studies, International Business, Marketing, Real Estate, Retail Management, and Strategic Management.

<table>
<thead>
<tr>
<th><strong>S.I. Newhouse School of Public Communications</strong></th>
<th><strong>Required Courses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Public Communication Studies</strong></td>
<td>COM 107</td>
</tr>
<tr>
<td>18 credits of which 12 credits must be 300-level or</td>
<td>COM 505 or COM 506</td>
</tr>
<tr>
<td>above.</td>
<td>Plus four courses from any of the following list. <strong>NO MORE THAN ONE COURSE MAY BE BELOW 300 LEVEL:</strong></td>
</tr>
<tr>
<td>This minor allows students to examine how the process of public communications affects society.</td>
<td>ADV 201</td>
</tr>
<tr>
<td></td>
<td>ADV 206</td>
</tr>
<tr>
<td></td>
<td>ADV 345</td>
</tr>
<tr>
<td></td>
<td>COM 300</td>
</tr>
<tr>
<td></td>
<td>COM 337</td>
</tr>
<tr>
<td></td>
<td>COM 346</td>
</tr>
<tr>
<td></td>
<td>COM 400</td>
</tr>
<tr>
<td></td>
<td>COM 427</td>
</tr>
<tr>
<td></td>
<td>GRA 345</td>
</tr>
<tr>
<td></td>
<td>ICC 300</td>
</tr>
<tr>
<td></td>
<td>ICC 400</td>
</tr>
<tr>
<td></td>
<td>MAG 205</td>
</tr>
<tr>
<td></td>
<td>NEW 345</td>
</tr>
<tr>
<td></td>
<td>NEW 400</td>
</tr>
<tr>
<td></td>
<td>PRL 206</td>
</tr>
<tr>
<td></td>
<td>PRL 345</td>
</tr>
<tr>
<td></td>
<td>PRL 400</td>
</tr>
<tr>
<td></td>
<td>TRF 235</td>
</tr>
<tr>
<td></td>
<td>TRF 340</td>
</tr>
<tr>
<td></td>
<td>TRF 530</td>
</tr>
<tr>
<td></td>
<td>TRF 560</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>State University of New York College of Environmental Science and Forestry</strong></th>
<th><strong>Required Courses</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Management</strong></td>
<td>CM 342</td>
</tr>
<tr>
<td>18 Credits.</td>
<td>CM 343</td>
</tr>
<tr>
<td>This minor’s objective is to provide a fundamental understanding of the various methods used to take the design into the field and construct a quality structure in the most effective and efficient manner with minimal environmental impacts. Requires junior status, a cumulative GPA of 2.5 or higher, and permission of the construction management and wood products engineering undergraduate curriculum coordinator (220 Baker).</td>
<td>CM 453</td>
</tr>
<tr>
<td></td>
<td>CM 454</td>
</tr>
<tr>
<td></td>
<td>Plus two additional courses chosen from the following (3 credits each):</td>
</tr>
<tr>
<td></td>
<td>CM 330</td>
</tr>
<tr>
<td></td>
<td>CM 331</td>
</tr>
<tr>
<td></td>
<td>CM 335</td>
</tr>
<tr>
<td></td>
<td>CM 350</td>
</tr>
<tr>
<td></td>
<td>CM 444</td>
</tr>
<tr>
<td></td>
<td>CM 455</td>
</tr>
</tbody>
</table>
Co-op and Internship Programs

Cooperative Education Program (Co-op)
The Engineering and Computer Science Cooperative Education program (Co-op) empowers undergraduate students to take advantage of experiential learning opportunities that have proven to aid them in successfully reaching their post graduate goals. The Co-op program consists of full-time professional work, primarily during the summer. This design allows students the opportunity to gain more than six months of paid work experience in their field of study and still graduate in four years. Working during the academic year is an option that students may choose, with the understanding that their ability to graduate in four years may be affected. To be eligible, students must be enrolled full time in the College of Engineering and Computer Science. For additional information contact: Engineering and Computer Science Career Services, 121 Link Hall, 315 443-2582.

Internship Programs
Internships provide students with learning and hands-on experience in their field. Internships improve both a student’s education and employability. Internships may be paid or unpaid. Visit the Center for Career Services (http://careerservices.syr.edu/) in 235 Schine Student Center for more information.

The CIE Department administers two competitive internship programs. The Dubai Summer Internship (DSLIP) is a four to five week program that takes place in Dubai, United Arab Emirates each summer from mid-May to late June. The focus of the DSLIP is on construction engineering and management. Airfare, lodging, transportation within Dubai and some meals are provided at no cost, and students receive a modest stipend. Students also earn credits that can be used as a technical elective in their curriculum.

A second internship, Raymond International Infrastructure (RII) Internship Program, takes place over two weeks each summer. The focus of this internship is on water supply in the arid Arabian Peninsula. All travel expenses are paid for by the internship program.

Interested students may apply for these internship programs during the Fall semester of their junior year. Selection of interns is made by a committee of CIE faculty, and is based on academic record, letters of recommendation, and potential as a representative of the department, college and university. Application materials are available from the CIE Department office.

Alumni Points of Contact
Our alumni often contact us with opportunities for summer work and internships. These opportunities are circulated to students through the faculty and the class listservs.
Undergraduate Research Opportunities

Undergraduate students in the CIE department are welcome to participate in research projects with faculty and graduate students. This handbook contains brief profiles of the faculty, beginning on page 2. Students are encouraged to contact faculty whose research topics they find interesting. Undergraduate research experiences may be on a paid or volunteer basis. Students can also perform research for credit by enrolling in independent study.

Undergraduates may participate in research during the academic year or during the summer. In the academic year, students typically work on research projects 5-15 hours per week. If the research project has external funding, undergraduate students can apply the work-study awards that are part of their financial aid package.

The CIE department also has many opportunities for undergraduate students to participate in research projects during the summer. Paid research internships include:

**Stevens Fund Internships**
Each year, 2-4 CIE students are selected for these internships, which carry a stipend of $1,500-$2,500. This stipend may be supplemented by additional funding from the research account(s) of the supervising faculty member.

**O’Brien and Gere Internships**
Up to two CIE students are selected each year for these internships, which support research experiences in environmental engineering. These internships include a stipend of $2,500, which may be supplemented by additional funding from the research account(s) of the supervising faculty member.

**NASA Earth System Science Internships**
Up to two CIE students are chosen each year as NASA Research Fellows. These internships, which carry a stipend of up to $4,000, are awarded to students who wish to work with environmental engineering faculty on projects related to Earth System Science. The stipend may be supplemented by additional funding from the research account(s) of the supervising faculty member.

**Internships Funded by Research Grants**
Individual faculty members may offer paid summer research experiences, which are supported by research grants. These opportunities are offered at the discretion of the supervising faculty member. Interested students are encouraged to contact faculty members whose research areas they find particularly interesting.
Research Experience for Undergraduates (REU) Programs

The National Science Foundation provides funding for undergraduate students to be given the opportunity to become involved with research projects each summer. There are REU sites across the country from Maine to California. Each site consists of a group of undergraduates, each of whom are assigned to work on a specific research project at the host institution. The students work closely with faculty, post-docs, and graduate students, while socializing with each other at seminars, lunch meetings, and social functions. Students are granted stipends, and in some cases assistance with housing and travel. More information can be found at http://www.nsf.gov/home/crssprgm/reu/start.htm. Information regarding the Interactive Biomaterials REU Program intended for Engineering, Chemistry, Biology or Physics majors can be found at: http://biomaterials.syr.edu/reu/.

Study Abroad Opportunities

Syracuse University, through SU Abroad and the College of Engineering and Computer Science offers students in both civil and environmental engineering the opportunity to study abroad. These opportunities offer students a chance to explore other cultures, through both interaction and travel, while earning academic credits. There are full year, semester, and summer programs available. More information can be found at http://suabroad.syr.edu/ for SU Abroad programs.

SU Abroad/ECS

Full-Year Program

*England*  
Civil and environmental engineering students earn 32 credits, taking classes at either the City University or University College in London. The British University year has three terms, beginning the first week of October and ending in late June, with up to four weeks of study and vacation time between terms. Students participating in the London program must complete the entire year. Students either locate their own housing or live in University assigned flats.

Semester or Full-Year Programs

*Beijing*  
Students may study at the Tsinghua University and Beijing Center, Spring Semester only, February – June.

*Chile*  
Students may attend the University of Santiago or Catholic University in Santiago. The academic year begins in February and ends in November. Instruction is in Spanish, so students must demonstrate appropriate language skills.

*Florence*  
This program is for students who wish to take all of their courses at Syracuse University’s Center in Florence. Both civil and environmental sophomore students may enroll for the spring semester only.
*Hong Kong*  Civil engineering students take courses at City University of Hong Kong. The academic year begins in September and ends in June.

*Spain*  Available for year-long or spring semester programs only, this option is designed for students with advanced Spanish language proficiency who want to take all or some of their liberal arts courses in Spanish at the Universidad Autonoma de Madrid (UAM).

*Turkey*  Students attend Bahçeşehir University in Istanbul. The academic year begins in September and ends in June. Instruction is in English.

**Summer Programs**

*France*  Civil and environmental engineering students can enroll at INSA in Strasbourg, France. Engineering courses are offered and students participate in independent study projects in cooperation with the French engineering school.

*Italy*  Environmental engineering students can enroll in environmental design in Florence, Italy. The program combines studio work and field trips, within and outside of Florence. A new program in the Spring 2016, Eco-City Europe is offered as a post-semester seminar in the spring (April-May). It begins after the Florence semester program ends and returns to Florence upon completion.

**Student Group Activities**

**Alpha Omega Epsilon - Professional and Social Engineering Sorority**  
Faculty Advisor- Kathleen Joyce  

**Mission:** To provide friendship, leadership, and professionalism to all members of Alpha Omega Epsilon.  
AOE is a sisterhood that provides an opportunity for women in engineering to learn from and support one another socially and intellectually. It is an internationally recognized, professional sorority. AOE was founded at Syracuse University on April 26, 1997, and ever since has become an integral part of the University. AOE is a wonderful opportunity for female ECS students to become amazing leaders in the community, while providing a united support network at SU and beyond. Many of their activities are coordinated with their brother fraternity, Theta Tau (p. 31).

**ASCE - American Society of Civil Engineers**  
Faculty Advisor - TBD  
[http://lcs3.syr.edu/organizations/suasce](http://lcs3.syr.edu/organizations/suasce)

Founded in 1852, ASCE is America’s oldest national engineering society. The mission of the national chapter of ASCE ([http://www.asce.org](http://www.asce.org)) is to advance civil engineering and serve the public good. Its goals are to:
- Facilitate the advancement of technology to enhance quality, knowledge, competitiveness, sustainability, and environmental stewardship.
- Encourage and provide the tools for lifelong learning to aid our members' continued growth throughout their careers.
- Promote professionalism and the profession throughout society to enhance the stature of civil engineers and to influence public policy.
- Develop and support civil engineer leaders to broaden our members' perspectives, enhance their career growth, and promote the public interest.
- Advocate infrastructure and environmental stewardship to protect the public health and safety and improve the quality of life.

The Syracuse University Chapter of ASCE (http://lcs3.syr.edu/organizations/sucasce/), working in collaboration with and with support from the Syracuse Section of ASCE (http://ascesyracuse.org/), sponsor technical meetings, conduct field trips, cultivate resume writing and job interviewing skills, and hold social gatherings.

Students in the SU Chapter of ASCE have the opportunity to interact and connect with professionals in the greater Syracuse area, and put their knowledge to the test through involvement in activities such as the Steel Bridge and Concrete Canoe competitions. Both civil and environmental engineering majors are welcome to join ASCE and participate in activities of the SU ASCE student chapter.

Student members of ASCE are eligible for a number of National Chapter fellowships/scholarships, as well as several special local chapters’ scholarships.

**American Water Works Association**
Faculty Advisors – TBD

**Mission:** AWWA is an international organization that unites the water community to protect public health and to provide safe and sufficient water for all. AWWA advances technology, education, science, management, and government policies. The mission of the student chapter of AWWA is to help students learn about careers in water supply by sponsoring speakers from the water industry, conducting field trips to water supply facilities and helping students volunteer for beneficial efforts such as AWWA’s Water for People.

**Chi Epsilon - National Civil and Environmental Engineering Honor Society**
Faculty Advisor – Dr. Riyad Aboutaha

**Mission:** Chi Epsilon promotes exemplary character, scholarship, practicality, and sociability as essential elements in the training and development of civil and environmental engineering professionals.

Chi Epsilon was founded in 1952 and has initiated over 65,000 members. Students with junior or senior standing and an outstanding academic record, as well as leadership potential, are eligible to become members of Chi Epsilon. Members of Chi Epsilon are eligible for both scholarships and district awards, which are sponsored by the national chapter.
Chi Epsilon offers free tutoring to students of all engineering disciplines, as well as sponsoring tours to local engineering firms and guest speakers.

**EWB - Engineers Without Borders**
Faculty Advisor – Dr. Chris Johnson
http://www.ecs.syr.edu/organizations/ewb/

**Mission:** Engineers Without Borders – USA supports community-driven development programs worldwide through the design and implementation of sustainable engineering projects, while fostering responsible leadership.

The Syracuse University chapter of Engineers Without Borders was formed in the Fall of 2006. Engineers Without Borders is open to all majors. In addition to its international involvement, the SU EWB chapter contributes to the local Syracuse area through community service projects.

In the summer of 2007, the national EWB organization approved the SU chapter to undertake a project at an orphanage in South Kinangop, Kenya. The project entails two phases that will provide the orphanage with an expanded kitchen capacity and a sustainable source of power. An assessment trip was made in January 2009, with construction of the new dining facility completed in November, 2011. The SU chapter is currently working on two projects in Guatemala.

**NSBE - National Society of Black Engineers**
Faculty Advisors – Mr. R. Scott Freeney, Assistant Director of Academic Advising (SOE) and Tamara N. Hamilton, Director LSAMP Program
http://syr.orgsync.com/org/nsbe

**Mission:** To increase the number of culturally responsible Black engineers who excel academically, succeed professionally, and positively impact the community. NSBE, founded in 1975, represents more than 10,000 engineers worldwide, and is the largest student run organization in the country. The NSBE interacts with professionals in the Syracuse area through professional presentations. Members of NSBE are eligible for over $300,000 in scholarships and awards. The scholarships are listed at www.nsbe.org. NSBE members organize workshops, including topics such as time management, financial planning, study skills and stress relief, as well as social activities. During the academic year, NSBE members serve as math and robotics instructors for middle and high school students in Syracuse city.

**oSTEM - Out in Science, Technology, Engineering, and Mathematics**
Faculty Advisors – Dr. Laura Steinberg
http://www.ostem.org

**Mission:** oSTEM is a national society dedicated to educating and fostering leadership for LGBTQA communities in the STEM fields. As a national society, oSTEM serves LGBTQA communities and functions to:
• Provide services and support for students in science, technology, engineering, and mathematics.
• Create a dynamic network between students and professionals in industry and academia.
• Provide education, outreach, and professional resources to high school students.
• Actively recruit and address the needs of diverse groups within the LGBT community, inclusive of those who are historically underrepresented with regards to gender and ethnic background.

**SASE - Society of Asian Scientists and Engineers**
Faculty Advisor: Young Moon (MAE)
http://syr.orgsync.com/org/sase

**Mission:** SASE is dedicated to the advancement of Asian heritage scientists and engineers in education and employment so that they can achieve their full career potential. In addition to professional development, SASE also encourages members to contribute to the enhancement of the communities in which they live. SASE’s goal is to:
• Prepare Asian heritage scientists and engineers for success in the global business world.
• Celebrate diversity on campuses and in the workplace.
• Provide opportunities for members to make contributions to their local communities.
SASE membership is open to men and women of all ethnic backgrounds.

**SHPE - Society of Hispanic Professional Engineers**
Faculty advisor: Maria Marceau
http://syr.orgsync.com/org/shpe

**Mission:** Our mission is to achieve educational, economic, and social equality for Hispanic people by supporting the development of Hispanic engineers and scientists. The Society of Hispanic Professional Engineers (SHPE) was founded in 1974. SHPE provides both financial and academic aid through scholarship information, tutoring, and other activities.

**SEE - Society of Environmental Engineers**
Faculty Advisor - Dr. Chris Johnson

**Mission:** The Society of Environmental Engineers (SEE) organizes events ranging from guest lectures to sustainable design competitions to educate and provide leadership in the field of environmental engineering and environmental issues. The society participates in research and community outreach in the Central New York region. SEE is not affiliated with any national organization, although members are encouraged to join the American Academy of Environmental Engineers. Membership is open to undergraduate and graduate students at Syracuse University and SUNY-ESF.
SWE - Society of Women Engineers
Faculty Advisor – Professor Joan Dannenhoffer, P.E.
http://studentactivities.syr.edu/studentorganizations/index.html

SU SWE participates in community outreach such as volunteering at Ronald McDonald House, sponsors workshops and networking events with women engineers from local industry on topics such as “a day in the life of an engineer”, “getting your first job”, and “resume writing and interviewing skills” and organizes social events.

Mission:
Stimulate women to achieve full potential in careers as engineers and leaders by:
- providing an organization that fosters mentoring and the development of professional and personal networks,
- creating a sense of identity and community,
- providing resources for women engineers, and
- enhancing leadership and professional skills.

SWE was founded in 1950 and represents 16,000 engineers (both male and female) in the United States and Puerto Rico. Students in SWE interact with women engineers through a Her-Stories Speaker series, in which professional engineers speak about their experiences and offer advice. SWE members also attend events as guests of local companies, which provide excellent networking opportunities.

Female members of SWE are eligible for $150,000 in scholarships.

Tau Beta Pi – National Engr. Honor Society
Faculty Advisor: Can Isik

TBP is the oldest engineering honor society in the United States and the second oldest collegiate honor society in America. It honors engineering students who have shown a history of academic achievement as well as a commitment to personal and professional integrity. Specifically, the association was founded “to mark in a fitting manner those who have conferred honor upon their Alma Mater by distinguished scholarship and exemplary character as students in engineering, or by their attainments as alumni in the field of engineering, and to foster a spirit of liberal culture in engineering colleges”.

Theta Tau - Professional Engineering Fraternity
Faculty Advisor: Professor Fred Carranti (MAE)

Theta Tau stresses the importance of high professional ethics and exemplary practices, as well as a strong fraternal bond.

Theta Tau was founded in 1904 and has initiated over 28,000 members. Male students in any branch of engineering are eligible for membership in Theta Tau. The fraternity presents awards for both outstanding personal and chapter achievement.

Theta Tau organizes many activities, including brother bonding experiences and the annual Halloween party with Alpha Omega Epsilon, Theta Tau’s sister sorority (p. 27).
USGBC – United States Green Building Council
Faculty Advisor: Melissa Cadwell
http://syr.orgsync.com/org/unitedstatesgreenbuildingcouncilstudentsgroupatsyracuseuniversity49938/home

USGBC at Syracuse University is a group of students interested in green infrastructure and how our actions can have a negative impact on the world around us. We are taking an initiative and a responsibility to educate ourselves and the campus about LEED and sustainable design.

The mission of USGBC Students is to enable the students of Syracuse University (SU) and SUNY College of Environmental Science and Forestry (SUNY ESF) to become sustainably conscious individuals by providing opportunities for education and promoting a greater awareness of sustainable practices on campus and in the community.

WiSE - Women in Science and Engineering
Faculty Directors - Dr. Shobha Bhatia (CIE) and Dr. Karin Ruhlandt (Chemistry)
http://www.suwise.syr.edu

WiSE at Syracuse University is an innovative program designed to enhance and support the professional development and persistence of women faculty and students in the sciences and engineering. A young woman’s involvement in WiSE helps her persist with her chosen field of study and make a difference in this world. By participating in WiSE programs, women benefit from: 1) support and networking opportunities, 2) mentoring, 3) leadership skill development, and 4) career preparation and development. With a supportive community and targeted programs, women strengthen their commitment to a career in math, science, or engineering and to conduct research. For more information about WiSE, contact Sharon Alestalo, Program Director at swalesta@syr.edu, 443-3419 or stop by her office on the 3rd floor of Link Hall, Room 335.

Scholarships and Awards

University Scholarships

Remembrance Scholarships
In December 1988, the Syracuse University community suffered a tragic loss when 35 of its undergraduate students perished in a terrorist bombing over Lockerbie, Scotland. Each year, these students are memorialized through the selection of 35 Remembrance Scholars. Selected in a University-wide competition, scholars represent the best and brightest of Syracuse University with outstanding accomplishments in scholarship, service, leadership activities, and citizenship. CIE students have often been awarded these prestigious scholarships.
Outside Scholarships

There are many scholarships available to students that are offered by organizations outside the University. These scholarship awards vary, as do the eligibility requirements.

Students interested in applying for outside scholarships can receive assistance in their search from the Office of Financial Aid & Scholarship Programs located at 200 Archbold North. The scholarship office staff has compiled binders grouped by major. They also have scholarship books that students can browse. Students can sign up for the scholarship listserv and search for scholarships online at http://financialaid.syr.edu/.

Students can also research scholarships over the Internet. There are many sites listing available scholarships. At www.freschinfo.com you can fill out a PowerSearch information form. PowerSearch then searches through the database for scholarships that match your information. A personal scholarship homepage is set up for you that you can bookmark. New and updated scholarships are automatically added to your personal homepage. For chosen scholarships, Freschinfo will send you a reminder email 30 days before the scholarship deadline.

Senior Awards – College of Engineering and Computer Science

ECS Class Marshal
Two ECS seniors are selected each year as Class Marshals to lead the academic procession of ECS graduates at Commencement. Both students represent the ideals of the graduating class and are selected on the basis of their academic achievements, scholarly activities, service to others, extracurricular activities, and collegiality.

The George M. Berry Award for Best All-Around Senior
Every year, the college community is proud to honor the ECS student who best combines excellence in academics with distinguished contributions to the University and college community through leadership, service, and extracurricular activities.

The George M. Berry Award for Outstanding Design Achievement
This award is presented to the ECS student who has demonstrated outstanding creativity and tenacity in developing an original design solution to a technical problem.

The Yueh-Ying Hu Memorial Award
This award is presented to the graduating woman who best exemplifies the spirit, determination, and academic excellence demonstrated by Ms. Yueh-Ying Hu.

The Earl H. DeVoe Prize for Outstanding Undergraduate Research
The DeVoe prize is presented to an ECS student who has made a significant scholarly research contribution as an undergraduate.

The Louis N. DeMartini Award for Innovative Undergraduate Research
This award, which is endowed by Mrs. Gloria DeMartini Gioia in memory of her father, Louis N. DeMartini, is presented to an undergraduate researcher who has made a particularly innovative contribution to his or her scholarly discipline.
The ECS Alumni Association Service Award
Every year, the Alumni Association honors a graduating senior who has performed extraordinary service on behalf of the college community.

The Richard A. Bernard Award
This award, which is endowed by Jean I. Bernard in memory of her husband, is presented to the ECS student who has shown awareness of the needs of physically challenged individuals and the creative application of engineering approaches to solving the challenges posed by those functional and practical needs.

Senior Awards – Department of Civil and Environmental Engineering

The John Burch McMorran ’22 Award
This award is presented annually to an outstanding civil engineering senior based upon academic performance and extracurricular activities.

Outstanding Achievement Award in Environmental Engineering
This award is presented to a senior with outstanding academic credentials who has demonstrated leadership in extracurricular activities.

K.L. Lui Memorial Award
This award was created in memory of Kui Leung Lui for his inspiration to many through his belief in family values, lifelong learning and self-improvement. It is presented to a graduating civil or environmental senior who has exemplified hard work, honesty, selflessness and generosity.

Dr. James A. Mandel Prize for Achievement in Civil and Environmental Engineering
This prize is presented to graduating senior in the Department of Civil and Environmental Engineering who is an active member of the National Society of Black Engineers (NSBE).

Samuel P. Clemence Prize for Outstanding Senior Design
This award is presented to a group of students in the Senior Capstone Design course to honor the best overall senior design project in the Department of Civil and Environmental Engineering.

Other Awards

James A. Mandel Outstanding Junior Award
Three outstanding juniors from the Department of Civil and Environmental Engineering are selected each year for this award: the student with the highest GPA among all civil and environmental engineering juniors, the junior civil engineering student with the highest GPA, and the environmental engineering junior with the highest GPA.

Class-Based Awards
Thanks to generous gifts from alumni, several CIE classes feature awards to high performing students. In recent years, outstanding students in CIE 331 and 337 have been selected for “book awards”.

34
Becoming a Licensed Professional Engineer

You have made the decision to become an engineer and have started down the path toward your dream. Congratulations! Now it's time to make a second decision—the decision to follow the path to professional licensure.

Professional licensure can open more doors than your degree alone can. You will become more promotable and enjoy a higher salary than unlicensed engineers. Professional engineers (PE’s) can expect salaries 15% to 25% higher than those who are not licensed. Many civil and environmental engineering positions require the PE designation.

But, what does being a licensed professional mean? Being a PE means you have passed two exams and proven to the public and your peers that you have fulfilled the educational and experience requirements needed to become a licensed professional. As a licensed professional you can offer your engineering services directly to the public. A license earns you a higher level of respect and credibility as well as the opportunity for a more diverse career.

Which exams do I need to take?

The first exam you'll take is the Fundamentals of Engineering (FE) Examination http://ncees.org/exams/cbt/. This exam is typically the first step in the process leading to the P.E. license. It is designed for recent graduates who are close to finishing an undergraduate engineering degree. The FE is a computer-based exam that is administered year-round. Once you pass the exam, you are classified as an engineer-in-training (EIT).

Typically, after four years of professional experience you can take the second exam—the Principles and Practice of Engineering (PE) Examination. Most PE discipline examinations are offered in both April and October, but some are offered only in October. After passing the PE exam and satisfying the requirements of your local board, you can use the distinguished P.E. designation.

What if I fail?

First of all, have some confidence! Historically, CIE students have passed the FE exam at rates above the national average. In most years, 70-90% of CIE seniors taking the exam have passed. If you prepare for the exam by studying in the months leading up to it, you are very likely to pass.

However, students who do not pass the FE exam may re-take the exam. There is no limit to the number of times a person may take the FE exam.
FE Exams

Starting in 2014, the FE has transitioned to computer-based testing (CBT). Registration is now open year-round and examinees may select the exam time, date, and location that works best for them. Results are received 7–10 days after the exam. If you plan to take the FE exam, make sure to sign up for a feprep account. You will gain access to free FE exam review tools such as a discipline-specific FE Study Schedule and self-diagnostic Assessment. For additional information visit http://ncees.org/exams/fe-exam/

What Does the FE Exam Cover?

The FE contains 110 multiple-choice questions. The exam appointment time is 6 hours long, which includes a nondisclosure agreement, tutorial (8 minutes), the exam (5 hours and 20 minutes), a scheduled break (25 minutes), and a brief survey. The FE exam is now offered in seven disciplines: Chemical, Civil, Electrical and Computer, Environmental, Industrial, Mechanical and other disciplines. The civil engineering and the environmental engineering discipline specific exams cover the following content breakdown:

<table>
<thead>
<tr>
<th>Civil Specific Exam</th>
<th>Approx. # of Questions</th>
<th>Environmental Specific Exam</th>
<th>Approx. # of Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>7-11</td>
<td>Mathematics</td>
<td>4-6</td>
</tr>
<tr>
<td>Probability and Statistics</td>
<td>4-6</td>
<td>Probability and Statistics</td>
<td>3-5</td>
</tr>
<tr>
<td>Computational Tools</td>
<td>4-6</td>
<td>Ethics and Professional Practice</td>
<td>5-8</td>
</tr>
<tr>
<td>Ethics and Professional Practice</td>
<td>4-6</td>
<td>Engineering Economics</td>
<td>4-6</td>
</tr>
<tr>
<td>Engineering Economics</td>
<td>4-6</td>
<td>Materials Science</td>
<td>3-5</td>
</tr>
<tr>
<td>Statics</td>
<td>7-11</td>
<td>Environmental Science and Chemistry</td>
<td>11-17</td>
</tr>
<tr>
<td>Dynamics</td>
<td>4-6</td>
<td>Risk Assessment</td>
<td>5-8</td>
</tr>
<tr>
<td>Mechanics of Materials</td>
<td>7-11</td>
<td>Fluid Mechanics</td>
<td>9-14</td>
</tr>
<tr>
<td>Materials</td>
<td>4-6</td>
<td>Thermodynamics</td>
<td>3-5</td>
</tr>
<tr>
<td>Fluid Mechanics</td>
<td>4-6</td>
<td>Water Resources</td>
<td>10-15</td>
</tr>
<tr>
<td>Hydraulics and Hydrologic Systems</td>
<td>8-12</td>
<td>Water and Wastewater</td>
<td>14-21</td>
</tr>
<tr>
<td>Structural Analysis</td>
<td>6-9</td>
<td>Air Quality</td>
<td>10-15</td>
</tr>
<tr>
<td>Structural Design</td>
<td>6-9</td>
<td>Solid and Hazardous Waste</td>
<td>10-15</td>
</tr>
<tr>
<td>Geotechnical Engineering</td>
<td>9-14</td>
<td>Groundwater and Soils</td>
<td>9-14</td>
</tr>
<tr>
<td>Transportation Engineering</td>
<td>8-12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Environmental Engineering</td>
<td>6-9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>4-6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surveying</td>
<td>4-6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A more complete breakdown of the FE Exam Content can be found at:
Student Resources

Center for Career Services
235 Schine Student Center
x-3616
http://careerservices.syr.edu/

The Center for Career Services gives students advice on resume and cover letter writing, interviewing, researching employers and careers, networking, and preparing for graduate school. Students can attend workshops on the aforementioned topics or can meet individually with a career counselor. The center organizes career fairs in both fall and spring, and also organizes on campus interviews with a wide variety of companies.

Chaplains
Lower Level, Hendricks Chapel
x-2901
http://hendricks.syr.edu

The Hendricks Chapel staff members and chaplains serving the University community have a wide range of experience in personal and group counseling including grief counseling, spiritual guidance, premarital and marital counseling, sexuality, abortion, drugs, and family problems, as well as personal and spiritual difficulties. Appointments can be arranged with the chaplains or staff members directly, or through the Coordinator of Counseling.

Counseling Center
200 Walnut Place.
x-4715
http://counselingcenter.syr.edu/

The Counseling Center provides evaluation, counseling and psychotherapy services for a wide range of emotional/psychological problems and concerns. Services include: short-term individual and group counseling/psychotherapy, crisis intervention, specialized outreach/educational programs in alcohol and mental health issues, readmission evaluations, family consultations and referrals. Emergency on-call services during evenings and weekends. Appointments are necessary. All information is strictly confidential.

CSTEP
203 Bowne Hall
x-2622
http://cstep.syr.edu

The Collegiate Science and Technology Entry Program (CSTEP) is an enrichment program designed to help students enhance their experience at SU through participation in specially constructed activities. In order to participate in CSTEP, a student must be a
New York state resident, a member of a minority or disadvantaged group, and a citizen or permanent resident alien.

**Office of Student Assistance**
306 Steele Hall  
x-HELP (4357)  
http://www.syr.edu/currentstudents/studentassistance.html

The Office of Student Assistance is comprised of the Counseling Center, the Office of Student Life, the Office of Judicial Affairs, the Office of Off-Campus Student Services, the Office of Orientation and Transitions Services, and the Office of Prevention Services, comprised of the Substance Abuse Prevention and Health Enhancement Program, and the University Rape Advocacy, Prevention, and Education Center.

**English Language Institute**
Syracuse University Continuing Education  
700 University Ave., Room 207  
x-2390  
http://eli.syr.edu/

The English Language Institute offers a program of instruction to international students in English grammar, writing, reading, and speaking/listening skills, for four hours per day, five days a week. There are two semester-long sessions yearly and one six-week summer session. In addition, special activities such as home visits, trips, films, and University lectures help expose students to situations that make it easier for them to attain proficiency in English. SU domestic students and student organizations can volunteer as conversation partners, head conversation/interest groups, or engage in 50/50 English and another language with ELI students for up to one hour a week.

**Health Services**
111 Waverly Ave.  
x-9005  
http://health.syr.edu/

The Health Center offers full medical care to Syracuse University Students. Services include everything from physicals to cold clinics. The clinic is staffed by nurses 24 hours a day. Physicians and nurse practitioners are available 8:30 am to 5:00 pm during the week. Appointments are not necessary, but can be made.

**ECS Student Services**
121 Link Hall  
x-2582  
http://pride.syr.edu/

The Student Services Office is committed to the success of each individual ECS student, both inside and outside the classroom. In the Student Services office, ECS students can obtain information about Academic Excellence Workshops (AEWs), tutoring, counseling,
ECS Pathfinders program, and student organizations, as well as many other student opportunities and support services. In addition, ECS students should visit the Student Services Office for career counseling including workshops, resume building, co-ops, internships, and full-time employment opportunities.

**Learning Communities**  
111 Waverly Avenue, Suite 006  
x-2079  
http://lc.syr.edu/  

The mission of the Office of Learning Communities is to promote, enhance, and support students' academic, personal, and professional growth and success through the development of residential and non-residential learning communities at Syracuse University.

**Lesbian, Gay, Bisexual and Transgender (LGBT) Resource Center**  
750 Ostrom Avenue  
x-3983  
http://lgbt.syr.edu/  

The mission of the Syracuse University LGBT Resource Center is to provide education, advocacy, support, and safe communal space for lesbian, gay, bisexual, transgender, questioning, and straight-allied students, staff, faculty, parents, and alumni of Syracuse University. The LGBT Resource Center works collaboratively with all faculty, staff, and students to promote shared responsibility for a campus climate that is safe, developmentally supportive, and respectful for students, faculty, staff, and alumni who are LGBT or questioning.

**Office of Disability Services**  
804 University Avenue, Suite 303  
x-4498  
http://disabilityservices.syr.edu  

Syracuse University is committed to full compliance with Section 504 of the Rehabilitation Act of 1973 as amended, and with the Americans with Disabilities Act of 1990 (ADA). Our community values diversity and seeks to promote meaningful access to educational opportunities for all students. To be eligible for disability-related services, students must 1) meet the definition of disability as stated in the ADA and 2) have a disability-related impairment that prevents academic access. The above website contains detailed information on the various types of services and accommodations this office provides to assist students with learning and physical disabilities to succeed at Syracuse University.
Office of Student Rights and Responsibilities
310 Steel Hall
x-3728
http://studentconduct.syr.edu/

The mission of the Office of Student Rights and Responsibilities is to achieve civility and good citizenship within the Syracuse University community by building self-esteem, developing effective communication skills, instilling motivation, encouraging goal-setting, and supporting the inclination to seize opportunities.

Parents Office
228F Schine Student Center
x-1200
http://parents.syr.edu

The mission of the Parents office is to facilitate parental involvement at Syracuse University in accordance with institutional policy. It acts as a liaison between parents and the University; orients parents to Syracuse University organization and process; and provides quality resources, publications, and events that enable parents to assist their students in learning and to help themselves throughout the SU experience.

Psychological Services Center
804 University Avenue, Room 201
x-3595
http://psychweb.syr.edu/PsychologicalServicesCenter/index.html

Individual and couples therapy is available by appointment from the Psychological Services Center. There is no fee for students who have paid their health fee. The staff is composed of advanced graduate students in clinical and school psychology under the supervision of New York State licensed psychologists. Confidentiality is strictly protected in accordance with the code of ethics of the American Psychological Association. The Center offers assistance for most psychological problems including (but not limited to) anxiety, depression, eating disorders (including anorexia and bulimia), sexual functioning, relationship difficulties, and a range of adjustment problems. A full range of services for children of students is also available.

Slutzker Center for International Services
310 Walnut Place
x-2457
http://international.syr.edu

This center advises international students and scholars on a variety of topics: immigration, visas, passports, insurance, employment authorization, travel, and dependents' concerns. Counseling and support in academic, social, financial and personal areas are also provided. A special international orientation program is held at the beginning of each semester. During the academic year, the center offers many
additional programs, which aid in cultural adjustment, getting to know Americans, and learning about the Syracuse community. The center also works with AISSU, the Association of International Students at Syracuse University.

**Student Employment Services**
210 Steele Hall  
x-2268  
http://seo.syr.edu

The Student Employment Services maintain information about ALL student jobs: Positions on and off campus, work study and non-work study, and community service. Students registered for six or more hours may access job information through JOBNET, on the campus-wide information system. The office also assists students with job placement, and answers questions concerning job training and work-related problems.

**Student Legal Services**
760 Ostrom Ave.  
x-4532  
http://www.studentlegal.net/

Student Legal Services provides free legal advice, on every topic from parking tickets to divorce, to Syracuse University Students. They also provide free legal representation in the Syracuse City Court on a case-by-case basis. The offices are open during business hours, please call for an appointment.

**Options Program**
200 Walnut Place  
x-4715  
http://counselingcenter.syr.edu/alcohol-and-drugs/services.html

*Options* is a free and confidential alcohol and drug education, referral and assessment program instituted within the Counseling Center at Syracuse University. The program is designed to work with students to identify and build on individual strengths. Our mission is to work with students and promote an understanding of the physical, social, sexual, psychological, and intellectual impact of alcohol and drugs.

**The Tutoring & Study Center**
111 Waverly Ave., Suite 220  
x-2005  
http://tutoring.syr.edu/

The Tutoring & Study Center provides individual and group tutorial services in undergraduate courses. Students seeking help with classwork should contact the Deans' Offices of their individual Schools and Colleges for assistance and advice.
Frequently Asked Questions

1. **Can a student use ROTC courses to satisfy the SS/HUM requirement?**
   No, unless the ROTC courses in question have the approved SS/HUM prefixes.

2. **Can language courses be used as Professional electives?**
   No, they can only be used as SS/HUM electives.

3. **Can ROTC courses be used as Professional electives?**
   No, unless they are offered with prefixes found in the list of Schools/Colleges and Departments approved for professional electives.

4. **Can Independent Study courses be used as Professional electives?**
   Yes, if they are registered as 300 or above in the approved list of Schools/Colleges or Departments, and endorsed by the student’s advisor, the instructor and the department chair.

5. **Can Physical Education courses be used as Free electives?**
   No, physical education courses cannot be used by engineering students to count as free electives.

6. **What are Technical electives?**
   Technical electives are upper level courses (courses numbered 300 and above) with the CIE prefix. Courses without the CIE prefix can be used as Technical electives only through petition. These petitions will only be approved if the course is equivalent to courses that are typically offered in civil and environmental engineering departments.

7. **Can Independent Study courses be used as Technical Electives?**
   Yes, if they are registered as CIE 490, and approved by the student’s advisor, the instructor and the department chair.

8. **Can a student take a course and its required prerequisite(s) concurrently?**
   No. Before a student can enroll in a course, all the required prerequisites must be successfully completed.

9. **What is the difference between the course sequence WRT105, WRT205 and ENG207, ENG211, ENG213?**
   WRT105 and WRT205 are for students whose native language is English. ENG207, ENG211 and ENG213 are for students whose native language is not English. It is possible for students whose native language is not English to take WRT105 and WRT205 in place of ENG207, ENG211 and ENG213, but they must get approval from the director of the Writing Program. Students whose native language is English cannot take ENG207, ENG211 and ENG213 in place of WRT105 and WRT205.
10. Must a student enroll in the designated discipline-specific WRT 307 section?
To get the most out of WRT 307, a student should enroll in the discipline-specific section of WRT307. Students who attended the English Language Institute (ELI) prior to enrollment are strongly encouraged to register for the special WRT307 section. However, if there are time conflicts or other schedule problems, a student can register for other WRT307 sections.

11. Are there designated minors that a student can take?
A list of official minors is given in the SU Bulletin-Undergraduate Course Catalog. The list is updated periodically when new minors are approved (or dropped). The required coursework for each minor is described in the Bulletin. (Also see the information in this handbook).

12. Can an undergraduate student take 600 level graduate courses?
An undergraduate student can take 600 level graduate courses by petition. Seniors are often well-prepared for these courses, and are encouraged to consider them as technical or professional electives. However, undergraduate students are not allowed to take course numbered 700 or above.

13. Can a student take courses outside of SU to count toward his/her degree?
Yes, provided that the course credits and content are comparable to those of the SU course and that a petition is filed and approved. Also, the student must obtain a grade of C or better for the course to be transferable. Note that only the course credits but not the course grade, will be transferred. Courses taken outside of SU will not be used to compute the student’s GPA, nor can they be used to flag any grades on the student’s transcript.

14. Can a student enroll through University College (UC) to complete his/her degree?
Yes, especially if the student is only one or two courses short of satisfying the degree requirement. Enrolling through UC allows the student to pay the UC tuition rate, which is based on the number of credits enrolled. However, the student will lose his/her full time status, which may affect the terms of his/her financial aid eligibility for family health insurance and other benefits.

15. Can a student apply course credits beyond what are required for the B.S. degree toward a graduate degree?
Yes, if those additional courses are graduate-level courses pertinent to the graduate degree that the student is seeking. Most graduate schools accept up to six credit hours of transfer credits toward a graduate degree. The student needs to receive a grade of B or better before the course can be accepted for graduate credits.

16. Can a student register for less than 12 credit hours in a given semester?
If a student is an American student, he/she can register for less than 12 hours of coursework in a given semester. However, by doing so the student becomes a part-time student and this may affect the terms of his/her financial aid. If the student is an
international student on F-1 visa, registering for less than 12 hours in a given semester is a violation of U.S. Immigration Law. To ensure that no problem will arise, you should contact the Slutzker Center of International Services for assistance.

17. Is a student required to repeat courses with D grades?
Students are required to repeat MAT295 and MAT296 if they receive Ds in these courses. For other courses, students are advised to consult with their advisors. The department has no policy to require students to repeat Ds, but depending on the course and the circumstances, it may be advisable for a student to repeat a low-grade course. For instance, if the course is an important prerequisite for the discipline that the student is pursuing, it is probably a good idea to advise the student to repeat the course.

18. What does flagging a course mean?
If a student receives a low (but passing) grade for a course taken at SU, he/she can choose to repeat the same course at SU. The new grade received for the course (regardless of whether it is higher or lower than the previous grade) will be used in place of the old grade to compute the student’s GPA. However, it should be noted that even though the old grade will not be used to compute GPA, it will remain on the student’s transcript. Also, a course can be flagged only twice. What this means is after the third time, all grades obtained from the third time onward will be used to compute the student’s GPA.

19. Is ECS 101 (Introduction to Engineering) required for transfer students?
It depends on the situation. If the transfer student knows how to use computer software for drafting, spreadsheets and math (e.g., AutoCAD, EXCEL, Mathcad, MATLAB, etc.), he/she probably does not need to take ECS101. He/she should be advised to petition to apply any unused math, science, engineering, or technology credits toward ECS101. If there are no unused math, science, engineering or technology credits, he/she should be advised to take a math/science/engineering course that is appropriate for his/her discipline and use the credits for ECS101.

20. What happens if the number of credits of a course taken by a transfer student from another institution is less than that of a similar SU course?
One way to remedy the discrepancy is for the student to take an independent study for the number of credits that are short. For instance, consider a student who has taken a mechanics of materials course for 3 credits in another institution. That course, by itself, cannot be used to satisfy the requirement for ECS 325-Mechanics of Solids, which is a 4-credit course. In this scenario, the student can take a 1-credit independent study with the instructor of ECS 325. The 3-credit course plus this 1-credit independent study can then be used to satisfy the requirement for ECS 325.
National Society of Professional Engineers Code of Ethics for Engineers

Preamble

Engineering is an important and learned profession. As members of this profession, engineers are expected to exhibit the highest standards of honesty and integrity. Engineering has a direct and vital impact on the quality of life for all people. Accordingly, the services provided by engineers require honesty, impartiality, fairness and equity, and must be dedicated to the protection of the public health, safety, and welfare. Engineers must perform under a standard of professional behavior that requires adherence to the highest principles of ethical conduct.

I.  Fundamental Canons

1.  Engineers, in the fulfillment of their professional duties, shall:
   a.  Hold paramount the safety, health and welfare of the public.
   b.  Perform services only in areas of their competence.
   c.  Issue public statements only in an objective and truthful manner.
   d.  Act for each employer or client as faithful agents or trustees.
   e.  Avoid deceptive acts.
   f.  Conduct themselves honorably, responsibly, ethically, and lawfully so as to enhance the honor, reputation, and usefulness of the profession.

II.  Rules of Practice

1.  Engineers shall hold paramount the safety, health, and welfare of the public.
   a.  If engineers' judgment is overruled under circumstances that endanger life or property, they shall notify their employer or client and such other authority as may be appropriate.
   b.  Engineers shall approve only those engineering documents that are in conformity with applicable standards.
   c.  Engineers shall not reveal facts, data or information without the prior consent of the client or employer except as authorized or required by law or this Code.
   d.  Engineers shall not permit the use of their name or associate in business ventures with any person or firm that they believe are engaged in fraudulent or dishonest enterprise.
   e.  Engineers shall not aid or abet the unlawful practice of engineering by a person or firm.
   f.  Engineers having knowledge of any alleged violation of this Code shall report thereon to appropriate professional bodies and, when relevant, also to public authorities, and cooperate with the proper authorities in furnishing such information or assistance as may be required.

2.  Engineers shall perform services only in the areas of their competence.
a. Engineers shall undertake assignments only when qualified by education or experience in the specific technical fields involved.

b. Engineers shall not affix their signatures to any plans or documents dealing with subject matter in which they lack competence, nor to any plan or document not prepared under their direction and control.

c. Engineers may accept assignments and assume responsibility for coordination of an entire project and sign and seal the engineering documents for the entire project, provided that each technical segment is signed and sealed only by the qualified engineers who prepared the segment.

3. Engineers shall issue public statements only in an objective and truthful manner.

   a. Engineers shall be objective and truthful in professional reports, statements, or testimony. They shall include all relevant and pertinent information in such reports, statements, or testimony, which should bear the date indicating when it was current.

   b. Engineers may express publicly technical opinions that are founded upon knowledge of the facts and competence in the subject matter.

   c. Engineers shall issue no statements, criticisms, or arguments on technical matters that are inspired or paid for by interested parties, unless they have prefaced their comments by explicitly identifying the interested parties on whose behalf they are speaking, and by revealing the existence of any interest the engineers may have in the matters.

4. Engineers shall act for each employer or client as faithful agents or trustees.

   a. Engineers shall disclose all known or potential conflicts of interest that could influence or appear to influence their judgment or the quality of their services.

   b. Engineers shall not accept compensation, financial or otherwise, from more than one party for services on the same project, or for services pertaining to the same project, unless the circumstances are fully disclosed and agreed to by all interested parties.

   c. Engineers shall not solicit or accept financial or other valuable consideration, directly or indirectly, from outside agents in connection with the work for which they are responsible.

   d. Engineers in public service as members, advisors, or employees of a governmental or quasi-governmental body or department shall not participate in decisions with respect to services solicited or provided by them or their organizations in private or public engineering practice.

   e. Engineers shall not solicit or accept a contract from a governmental body on which a principal or officer of their organization serves as a member.

5. Engineers shall avoid deceptive acts.

   a. Engineers shall not falsify their qualifications or permit misrepresentation of their or their associates' qualifications. They shall not misrepresent or exaggerate their responsibility in or for the subject matter of prior assignments.
Brochures or other presentations incident to the solicitation of employment shall not misrepresent pertinent facts concerning employers, employees, associates, joint venturers, or past accomplishments.

b. Engineers shall not offer, give, solicit or receive, either directly or indirectly, any contribution to influence the award of a contract by public authority, or which may be reasonably construed by the public as having the effect of intent to influencing the awarding of a contract. They shall not offer any gift or other valuable consideration in order to secure work. They shall not pay a commission, percentage, or brokerage fee in order to secure work, except to a bona fide employee or bona fide established commercial or marketing agencies retained by them.

III. Professional Obligations

1. Engineers shall be guided in all their relations by the highest standards of honesty and integrity.
   a. Engineers shall acknowledge their errors and shall not distort or alter the facts.
   b. Engineers shall advise their clients or employers when they believe a project will not be successful.
   c. Engineers shall not accept outside employment to the detriment of their regular work or interest. Before accepting any outside engineering employment they will notify their employers.
   d. Engineers shall not attempt to attract an engineer from another employer by false or misleading pretenses.
   e. Engineers shall not promote their own interest at the expense of the dignity and integrity of the profession.

2. Engineers shall at all times strive to serve the public interest.
   a. Engineers are encouraged to participate in civic affairs; career guidance for youths; and work for the advancement of the safety, well-being of their community.
   b. Engineers shall not complete, sign, or seal plans and/or specifications that are not in conformity with applicable engineering standards. If the client or employer insists on such unprofessional conduct, they shall notify the proper authorities and withdraw from further service on the project.
   c. Engineers are encouraged to extend public knowledge and appreciation of engineering and its achievements.
   d. Engineers are encouraged to adhere to the principles of sustainable development in order to protect the environment for future generations.

3. Engineers shall avoid all conduct or practice that deceives the public.
a. Engineers shall avoid the use of statements containing a material misrepresentation of fact or omitting a material fact.
b. Consistent with the foregoing, engineers may advertise for recruitment of personnel.
c. Consistent with the foregoing, engineers may prepare articles for the lay or technical press, but such articles shall not imply credit to the author for work performed by others.

4. Engineers shall not disclose, without consent, confidential information concerning the business affairs or technical processes of any present or former client or employer, or public body on which they serve.
   a. Engineers shall not, without the consent of all interested parties, promote or arrange for new employment or practice in connection with a specific project for which the engineer has gained particular and specialized knowledge.
   b. Engineers shall not, without the consent of all interested parties, participate in or represent an adversary interest in connection with a specific project or proceeding in which the engineer has gained particular specialized knowledge on behalf of a former client or employer.

5. Engineers shall not be influenced in their professional duties by conflicting interests.
   a. Engineers shall not accept financial or other considerations, including free engineering designs, from material or equipment suppliers for specifying their product.
   b. Engineers shall not accept commissions or allowances, directly or indirectly, from contractors or other parties dealing with clients or employers of the engineer in connection with work for which the engineer is responsible.

6. Engineers shall not attempt to obtain employment or advancement or professional engagements by untruthfully criticizing other engineers, or by other improper or questionable methods.
   a. Engineers shall not request, propose, or accept a commission on a contingent basis under circumstances in which their judgment may be compromised.
   b. Engineers in salaried positions shall accept part-time engineering work only to the extent consistent with policies of the employer and in accordance with ethical considerations.
   c. Engineers shall not, without consent, use equipment, supplies, laboratory, or office facilities of an employer to carry on outside private practice.

7. Engineers shall not attempt to injure, maliciously or falsely, directly or indirectly, the professional reputation, prospects, practice, or employment of other engineers. Engineers who believe others are guilty of unethical or illegal practice shall present such information to the proper authority for action.
a. Engineers in private practice shall not review the work of another engineer for the same client, except with the knowledge of such engineer, or unless the connection of such engineer with the work has been terminated.

b. Engineers in governmental, industrial, or educational employ are entitled to review and evaluate the work of other engineers when so required by their employment duties.

c. Engineers in sales or industrial employ are entitled to make engineering comparisons of represented products with products of other suppliers.

8. Engineers shall accept personal responsibility for their professional activities, provided, however, that engineers may seek indemnification for services arising out of their practice for other than gross negligence, where the engineer's interests cannot otherwise be protected.

a. Engineers shall conform with state registration laws in the practice of engineering.

b. Engineers shall not use association with a non-engineer, a corporation, or partnership as a "cloak" for unethical acts.

9. Engineers shall give credit for engineering work to those to whom credit is due, and will recognize the proprietary interests of others.

a. Engineers shall, whenever possible, name the person or persons who may be individually responsible for designs, inventions, writings, or other accomplishments.

b. Engineers using designs supplied by a client recognize that the designs remain the property of the client and may not be duplicated by the Engineer for others without express permission.

c. Engineers, before undertaking work for others in connection with which the Engineer may make improvements, plans, designs, inventions, or other records that may justify copyrights or patents, should enter into a positive agreement regarding ownership.

d. Engineers' designs, data, records, and notes referring exclusively to an employer's work are the employer's property. Employer should indemnify the Engineer for use of the information for any purpose other than the original purpose.

e. Engineers shall continue their professional development throughout their careers and should keep current in their specialty fields by engaging in professional practice, participating in continuing education courses, reading in the technical literature, and attending professional meetings and seminars.

Footnote 1 “Sustainable development” is the challenge of meeting human needs for natural resources, industrial products, energy, food, transportation, shelter, and effective waste management while conserving and protecting environmental quality and the natural resource base essential for future development.
As Revised July 2007

“By order of the United States District Court for the District of Columbia, former Section 11(c) of the NSPE Code of Ethics prohibiting competitive bidding, and all policy statements, opinions, rulings or other guidelines interpreting its scope, have been rescinded as unlawfully interfering with the legal right of engineers, protected under the antitrust laws, to provide price information to prospective clients; accordingly, nothing contained in the NSPE Code of Ethics, policy statements, opinions, rulings or other guidelines prohibits the submission of price quotations or competitive bids for engineering services at any time or in any amount.”

Statement by NSPE Executive Committee

In order to correct misunderstandings which have been indicated in some instances since the issuance of the Supreme Court decision and the entry of the Final Judgment, it is noted that in its decision of April 25, 1978, the Supreme Court of the United States declared: "The Sherman Act does not require competitive bidding."

It is further noted that as made clear in the Supreme Court decision:

1. Engineers and firms may individually refuse to bid for engineering services.
2. Clients are not required to seek bids for engineering services.
3. Federal, state, and local laws governing procedures to procure engineering services are not affected, and remain in full force and effect.
4. State societies and local chapters are free to actively and aggressively seek legislation for professional selection and negotiation procedures by public agencies.
5. State registration board rules of professional conduct, including rules prohibiting competitive bidding for engineering services, are not affected and remain in full force and effect. State registration boards with authority to adopt rules of professional conduct may adopt rules governing procedures to obtain engineering services.
6. As noted by the Supreme Court, "nothing in the judgment prevents NSPE and its members from attempting to influence governmental action . . ."

NOTE: In regard to the question of application of the Code to corporation’s vis-à-vis real persons, business form or type should not negate nor influence conformance of individuals to the Code. The Code deals with professional services, which services must be performed by real persons. Real persons in turn establish and implement policies within business structures. The Code is clearly written to apply to the Engineer, and it is incumbent on members of NSPE to endeavor to live up to its provisions. This applies to all pertinent sections of the Code.
Engineers' Creed

As a Professional Engineer, I dedicate my professional knowledge and skill to the advancement and betterment of human welfare.

I pledge:

To give the utmost of performance;
To participate in none but honest enterprise;
To live and work according to the laws of man and the highest standards of professional conduct;
To place service before profit, the honor and standing of the profession before personal advantage, and the public welfare above all other considerations.

In humility and with need for Divine Guidance, I make this pledge.

Adopted by National Society of Professional Engineers, June 1954