



Undergraduate Student Handbook  
2012-2013



October 2012

Dear First-Year Students:

On behalf of the students, faculty, and staff of the L.C. Smith College of Engineering & Computer Science, I am delighted to have this opportunity to welcome you into our community. We are all looking forward to working alongside you to help make sure that your experience as an LCS student is both rewarding and successful.

The next several years will be a challenging and exciting time for you. As you embark on an LCS undergraduate program that will help prepare you to become a future leader in engineering and computer science, you can look forward to receiving the enthusiastic support of faculty and staff who are firmly committed to your success.

Your success as an LCS student will be based, in part, upon the choices that you make over the course of the next several years. With that in mind, we have assembled this handbook for your use. Please think of this handbook as a resource guide that is available to you and your faculty advisor as you meet to discuss your academic goals and plans.

Inside this handbook, you will find information on rules, regulations, procedures, and worksheets that relate to your program of study. These materials will help you to keep track of your academic progress and will also provide you with important guidelines for registration, advising, and program-of-study adjustments. You will find that sections of this handbook refer you to a separate document, *The University Bulletin: Academic Rules and Regulations*, which is available online at <http://coursecatalog.syr.edu/2012/rules/>.

Perhaps the most important and valuable resource that is available to you is the assistance and support that you find from your advisor and from the staff members of your department and the LCS Student Records Office. Our door is always open to your thoughts, ideas, concerns, and accomplishments - please feel free to share them with us at any time. For your information, our office is located at 130 Link Hall; telephone number 315-443-5191.

We all wish you the very best for continued success, good health, and happiness.

Warm regards,



Can Isik, Ph.D.  
Senior Associate Dean

**SYRACUSE UNIVERSITY**

**L.C. SMITH COLLEGE OF ENGINEERING  
AND  
COMPUTER SCIENCE**

**UNDERGRADUATE STUDENT HANDBOOK  
2012-2013**

**Prepared by Nicole Adkins**

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# L.C. Smith College of Engineering and Computer Science Office Directory

**(315) 443-5191**

<b>Dean's Office Suite</b>		223 Link	X-2545
<b>Dean</b>	Dr. Laura J. Steinberg	223 Link	X-4341
<i>Assistant to the Dean</i>	<i>Stephanie Vasta</i>	<i>223 Link</i>	<i>X-4341</i>
<b>Senior Associate Dean</b>	Dr. Can Isik	223 Link	X-3604
<i>Assistant to the Dean</i>	<i>Susan Karlik</i>	<i>223 Link</i>	<i>X- 3604</i>
<b>Associate Dean for Student Affairs</b>	Dr. Julie Hasenwinkel	223 Link	X-2545
<b>Associate Dean for Research &amp; Doctoral Programs</b>	Dr. Mark Glauser	223 Link	X-2105
<b>Assistant Dean of Advancement</b>	Steve Savage	223 Link	X-4414
<b>Assistant Dean of External Relations</b>	Ariel DuChene	223 Link	X-2546
<b>Director of Development</b>	Alan Greene	223 Link	X-3314
<b>Assistant Director of Leadership Annual Giving</b>	Debra Perkins	223 Link	X-3129
<b>Assistant Director of Alumni Relations</b>	Denise Hendee	223 Link	X-4345
<i>Administrative Assistant</i>	<i>Ellen Robb</i>	<i>223 Link</i>	<i>X-4777</i>
<b>Director of Space &amp; Facilities</b>	Patricia Shanahan	223 Link	X-4343
<b>Director of Fiscal Operations</b>	Christina Rhinehart	223 Link	X-2988
<b>Director of Computer &amp; IT Services</b>	Kevin Barnett	247 Link	X-3839
<b>Director of Student Support Programs</b>	Kathryn Pynn	123 Link	X-2582
<i>Student Support Programs Coordinator</i>	<i>Sarah Mack</i>	<i>123 Link</i>	<i>X-3513</i>
<i>SOAR Office</i>		<i>123 Link</i>	<i>X-2582</i>
<b>Assistant Dean for Student Recruitment</b>	Kathleen Joyce	123 Link	X-2219
<i>Undergraduate Recruitment Specialist</i>	<i>Jonathan Hoster</i>	<i>131 Link</i>	<i>X-5348</i>
<i>Recruiting Assistant</i>	<i>Terry Monto</i>	<i>125 Link</i>	<i>X-1044</i>
<b>Associate Director of Career Development &amp; Service Learning</b>	Karen Davis	123 Link	X-2582
<i>Career Services Coordinator</i>	<i>Jennifer Squire</i>	<i>127 Link</i>	<i>X-2582</i>
<b>First Year Student Advisor</b>	Giovanna Colosi	135 Link	X-3978
<b>First Year Student Advisor</b>	R. Scott Freeney	133 Link	X-2582
<b>Director of Student Records &amp; Study Abroad</b>	Maria Marceau	129 Link	X-5191
<i>Assistant to the Director</i>	<i>Nicole Adkins</i>	<i>130 Link</i>	<i>X-5191</i>
<b>Fax Number for the Dean's Office</b>		223 Link	X4936
<b>Fax Number for Student Records Office</b>		130 Link	X4459
<b>Fax Number for SOAR Office</b>		123 Link	X1065

## ACADEMIC PROGRAMS DIRECTORY 2012-2013

<b>Department</b>	<b>Chairs</b>		
Biomedical & Chemical Engineering	Dr. Radhakrishna Sureshkumar	121 Link	X-1931
Civil & Environmental Engineering	Dr. Chris Johnson	151 Link	X-2311
Electrical Engr & Computer Science	Dr. Chilukuri Mohan	4-177 CST	X-2322
Mechanical & Aerospace Engineering	Dr. Achille Messac	263 Link	X-2341

<b>Program</b>	<b>Directors</b>		
Aerospace Engineering	Dr. Achille Messac	263 Link	X-2341
Bioengineering	Dr. Andrew Darling	121 Link	X-1931
Chemical Engineering	Dr. Katie Cadwell	121 Link	X-1931
Civil Engineering	Dr. Dawit Negussey	151 Link	X-3304
Computer Engineering	Dr. Roger Chen	4-133 CST	X-4179
Computer Science	Dr. Jae Oh	4-206 CST	X-2562
Electrical Engineering	Dr. Prasanta Ghosh	4-206 CST	X-4440
Environmental Engineering	Dr. Chris Johnson	151 Link	X-2311
Mechanical Engineering	Dr. Utpal Roy	263 Link	X2592
Systems & Information Science	Dr. Robert Irwin	4-206 CST	X2562

<b>Research Center</b>	<b>Directors</b>		
Institute for Sensory Research – ISR <a href="http://www.ecs.syr.edu/dept/ben/research.html">www.ecs.syr.edu/dept/ben/research.html</a>	Dr. Robert Smith	621 Skytop Rd	X-4164
CASE Center <a href="http://case.syr.edu">http://case.syr.edu</a>	Dr. Pramod Varshney	2-212 CST	X-1060
The Systems Assurance Institute <a href="http://sai.syr.edu">http://sai.syr.edu</a>	Dr. Steve Chapin	4-295 CST	X-4457
Environmental Quality Systems (STAR Center) <a href="http://eqs.syr.edu">http://eqs.syr.edu</a>	Dr. H. Ezzat Khalifa	462 Link+	X-2545
Geofoam Research Center <a href="http://geofoam.syr.edu">http://geofoam.syr.edu</a>	Dr. Dawit Negussey	251 Link	X-3129
Center of Excellence	Dr. Edward Bogucz	727 E. Washington Street	X4445

## Computer & Information Technology Services

The L.C. Smith College of Engineering & Computer Science (LCS) provides and extensive list of computing resources for its students. There are LCS customized PCs in several public labs (listed below) and in numerous faculty labs. In addition to the standard office productivity tools like Microsoft Office and Adobe Professional, there are a broad range of the latest engineering tools (CAD, FEA, math and simulation) and software development tools. The LCS Windows and Mac computing labs use the campus NetID and password and a home directory quota of 1GB. All PCs have DVD Optical Drives and USB ports for portable storage; please do not attempt to store data on the local hard drive. All of the LCS public labs are open 24x7 and are located as follows:

Location	Quantity	OS
011 Link Hall (“MADlab”) <sup>1</sup>	31	Windows 7
201 Link Hall	18	Windows 7
202 Link Hall	34	Windows 7
274 Link Hall	35	Windows 7
3-116 Center for Science & Technology	40	Windows 7
1-231 Center for Science & Technology <sup>2</sup>	37	MacOS
1-242 Center for Science & Technology <sup>2</sup>	20	Solaris

<sup>1</sup> Closed weekends

<sup>2</sup> Door keycode required for access

All LCS students who need a Unix account are given a home directory storage quota of 200 MB. This account can be requested online at <http://helpdesk.lcs.syr.edu/>. Also, the server nyx.syr.edu is accessible remotely via Secure Shell (ssh).

Please visit <http://listserv.syr.edu> and review your ListServ subscriptions by using the "Subscriber's Corner".

All LCS Students	LCS-students@listserv.syr.edu
All LCS Graduates	LCS-grad@listserv.syr.edu
All LCS Undergraduates	LCS-undergrad@listserv.syr.edu
All LCS First Year	LCS-2016@listserv.syr.edu
All LCS Sophomores	LCS-2015@listserv.syr.edu
All LCS Juniors	LCS-2014@listserv.syr.edu
All LCS Seniors	LCS-2013@listserv.syr.edu
All LCS Fifth Year Seniors	LCS-2012@listserv.syr.edu

**\*\*\*NOTE:** Subscribing to any of the class lists automatically subscribes you to LCS UNDERGRAD and LCS-STUDENTS where appropriate. You only need to subscribe to your class' mailing list.

For frequently asked questions and other information about LCS computing, please visit <http://helpdesk.lcs.syr.edu>. Email questions and requests can be sent [help@lcs.syr.edu](mailto:help@lcs.syr.edu) or by visiting the CIT Help Desk in 204 Link Hall during business hours.



## L.C. Smith College of Engineering and Computer Science Student Societies

SOCIETIES		Contact
<b>AIAA</b>	American Institute for Aeronautics & Astronautics	<a href="mailto:aiaa@syr.edu">aiaa@syr.edu</a>
<b>AIChE</b>	American Institute of Chemical Engineers	<a href="mailto:aiche@syr.edu">aiche@syr.edu</a>
<b>AOE</b>	Alpha Omega Epsilon Engineering Sorority	<a href="mailto:aopepsln@syr.edu">aopepsln@syr.edu</a>
<b>ASCE</b>	American Society for Civil Engineers	<a href="mailto:asce@syr.edu">asce@syr.edu</a>
<b>ASHRAE</b>	American Society of Heating, Refrigerating & Air Conditioning Engineers	<a href="mailto:ashrae@syr.edu">ashrae@syr.edu</a>
<b>ASME</b>	American Society for Mechanical Engineers	<a href="mailto:asme@syr.edu">asme@syr.edu</a>
<b>AWWA</b>	American Water Works Association	<a href="mailto:awwa@syr.edu">awwa@syr.edu</a>
<b>BMES</b>	Biomedical Engineering Society	<a href="mailto:bmes@syr.edu">bmes@syr.edu</a>
<b>Chi Epsilon</b>	Civil Engineering Honor Society	<a href="mailto:chiepsln@syr.edu">chiepsln@syr.edu</a>
<b>EWB</b>	Engineers Without Borders	<a href="mailto:ewb@syr.edu">ewb@syr.edu</a>
<b>IEEE</b>	Institute of Electrical & Electronics Engineers	<a href="mailto:ieee@syr.edu">ieee@syr.edu</a>
<b>NSBE</b>	National Society for Black Engineers	<a href="mailto:nsbe@syr.edu">nsbe@syr.edu</a>
<b>Pi Tau Sigma</b>	Mechanical Engineering Honor Society	<a href="mailto:ptausig@syr.edu">ptausig@syr.edu</a>
<b>SAE</b>	Society of Automotive Engineers	<a href="mailto:sae@syr.edu">sae@syr.edu</a>
<b>SASE</b>	Society of Asian Scientists and Engineers	<a href="mailto:sase@syr.edu">sase@syr.edu</a>
<b>SEE</b>	Society of Environmental Engineers	<a href="mailto:lcssee@syr.edu">lcssee@syr.edu</a>
<b>SHPE</b>	Society of Hispanic Professional Engineers	<a href="mailto:lcsshpe@syr.edu">lcsshpe@syr.edu</a>
<b>Sigma Gamma Tau</b>	Aerospace Engineering Honor Society	<a href="mailto:sigmatau@syr.edu">sigmatau@syr.edu</a>
<b>SWE</b>	Society for Women Engineers	<a href="mailto:swe@syr.edu">swe@syr.edu</a>
<b>Tau Beta Pi</b>	National Engineering Honor Society	<a href="mailto:taubeta@syr.edu">taubeta@syr.edu</a>
<b>Theta Tau</b>	National Engineering Fraternity	<a href="mailto:thetatau@syr.edu">thetatau@syr.edu</a>

For general LCS society inquiries email: [society@lcs.syr.edu](mailto:society@lcs.syr.edu)  
 For SU society inquiries contact the Office of Student Life:  
 126 Schine Student Center – <http://studentlife.syr.edu> – (315) 443-2718

# ACADEMIC CALENDAR

## FALL 2012

Opening Day . . . . .	Friday, August 24
Registration/Schedule Adjustment for New Students . . . . .	Saturday-Sunday, August 25-26
First Day of Classes . . . . .	Monday, August 27
Late Registration . . . . .	Monday-Tuesday, August 27-September 4
Late Schedule Adjustment . . . . .	Monday-Tuesday, August 27-September 4
Labor Day (no classes) . . . . .	Monday, September 3
Last Day of Late Registration . . . . .	Tuesday, September 4
Last Day to Add a Course . . . . .	Tuesday, September 4
Last Day to Adjust a Pass/Fail/Audit Option . . . . .	Monday, September 10
Financial Deadline for Dropping Courses . . . . .	Monday, September 17
Mid-Term.....	Monday, October 15
Academic Deadline for Dropping Courses . . . . .	Monday, October 22
Undergraduate Registration for Spring 2013 . . . . .	Wednesday-Friday, November 7-December 14
Deadline to Withdraw from a Course. . . . .	Friday, November 16
Thanksgiving Vacation (no classes) . . . . .	Sunday-Sunday, November 18-November 25
Last Day of Classes . . . . .	Thursday, December 13
Reading Days . . . . .	Saturday & Sunday, December 8-9 Tuesday & Thursday (am Only), December 11&13
Final Exams . . . . .	Monday, Wednesday & Friday, December 10, 12, & 14 Tuesday & Thursday (pm Only), December 11 & 13

## SPRING 2013

Registration for New Students .....	Sunday, January 13
First Day of Classes .....	Tuesday, January 14
Late Registration / Schedule Adjustment .....	Monday-Tuesday, January 14-22
Martin Luther King Day (no classes) . . . . .	Monday, January 21
Add Deadline.....	Tuesday, January 22
Last Day to Adjust a Pass/Fail/Audit Option . . . . .	Monday, January 28
Financial Deadline for Dropping Courses . . . . .	Monday, February 4
Mid-Term.....	Monday, March 4
Spring Break . . . . .	Sunday-Sunday, March 10-17
Academic Deadline for Dropping Courses . . . . .	Tuesday, March 19
Undergraduate Registration for Fall 2013. ....	Monday-Wednesday, April 8-May 8
Deadline to Withdraw from a Course. . . . .	Tuesday, April 16
Last Day of Classes . . . . .	Tuesday, April 30
Reading Days (no classes) . . . . .	Wednesday, May 1 Saturday-Sunday, May 4-5
Final Examinations . . . . .	Thursday-Friday, May 2-3 Monday, Tuesday & Wednesday, May 6-8
College Convocation . . . . .	Saturday, May 11
Commencement . . . . .	Sunday, May 12

## SUMMER 2013

U.C. Summer Session. . . . . May 13-August 9

For deadlines and a list of classes for the summer please visit: [www.YeSU.syr.edu](http://www.YeSU.syr.edu)

## LCS ACADEMIC INTEGRITY

All formal education is a partnership between teachers and students. This partnership works best when all involved share common values and goals. To achieve this, students must clearly understand what is expected of them (and what they should expect of themselves) and teachers must reciprocate by making their educational objectives and expectations clear. When these objectives and expectations are fulfilled, all involved can have a rewarding and empowering experience.

Engineering and Computer Science are *professions*. The possession of a B.S. in an engineering or computer science discipline asserts that not only has its possessor mastered core educational requirements but also has experience of working in teams and presenting the resulting data to varied audiences. It is important that understanding of the privileges and responsibilities of an engineering or computer science degree be communicated by faculty and understood by student.

The college follows the Syracuse University Academic Integrity Policies and Procedures, which can be found at the following link. The college Committee on Academic Affairs manages the academic integrity hearings and the chair of that committee serves as the college's Academic Integrity Officer.

View the Academic Integrity Office Website --> <http://academicintegrity.syr.edu/>

## **PROGRAMS ROOTED IN DEVELOPING EXCELLENCE - PRIDE**

At **Syracuse University's L.C. Smith College of Engineering and Computer Science (LCS)**, we are committed to the success of each individual. It is a commitment that is found not only in our classrooms, but also in the programs and experiences that we provide to our students. These opportunities support our students' development in the academic, personal, and professional skills that are so critical for success and leadership in today's society.

This commitment to student success is at the heart of LCS PRIDE (Programs Rooted In Developing Excellence). PRIDE is on a mission to challenge and support students with experiences and opportunities that will ensure their success well beyond the Syracuse University campus.

PRIDE supports all students in the L.C. Smith College of Engineering and Computer Science, with an emphasis on supporting and including women and students of color. PRIDE programs challenge, inspire, and encourage students to pursue and achieve academic, personal, and professional excellence. The programs offered under the umbrella of PRIDE assure opportunities for success through every stage of a student's college - before, during, and after life on campus.

PRIDE gives students the opportunity to develop a strategy for success that will lift them through their studies at Syracuse University and that will last a lifetime. The PRIDE program is a key to the success of LCS students in the first semester and beyond

The Academic Excellence Workshop (AEW) is an optional active-learning program offered to students taking Pre-Calculus, Calculus I, II, and III. It has also been expanded to several key engineering foundation courses and higher level mathematics courses.

AEW delivers a unique approach to calculus instruction by supplementing classroom teaching through a highly interactive, small-group session. Trained undergraduate facilitators, who excelled in the course previously, work with six to eight students who have volunteered for the extra time commitment week required by AEW. The facilitators present the AEW participants with a worksheet developed in conjunction with the course instructor that reinforces key principles recently taught in class. The facilitator is trained not to do the work for the students, but to encourage them to work in teams, using the language of the course to solve the problems.

The result is a lively, interactive session where students work together to solve problems that enhance their understanding of the subject material. The goal of AEW is to encourage subject mastery, and not merely memorization. At the same time, students develop strengths in other areas to, including their communication, teamwork, problem solving, and presentation skills.

**Student chapters of professional engineering societies** focus on student success by providing academic support to members, including tutoring, study circles, and mentoring.

Student societies also promote professional development by hosting guest speakers from industry, and by sponsoring visits to area companies. Other activities include participation in regional and national conferences and competitions where students enjoy additional opportunities to network with their peers from other schools and with professionals from industry. Students often join several societies to share common interests, network, and prepare for life beyond college.

**Students helping students, that is the goal of LCS Pathfinders**, a program that facilitates interactions between upper-class students and new LCS students. Pathfinders are undergraduate peer advisors who assist first-year and transfer students in their transition to life as new members of the SU community. Pathfinders offer guidance, support, and friendship to new students in the first semester and beyond.

**The Students Taking Academic Responsibility (STAR)** program is dedicated to helping students achieve their full academic potential by offering individualized assistance from a professional counseling staff. The STAR staff offers both group and individual counseling on an array of topics, which includes to improve academic performance through study habit development, better time management and improved organizational skills.

**The WISE program at Syracuse University was established to inspire**, encourage, and support undergraduate women in engineering, computer science, and the natural sciences. WISE strives to promote a supportive community for undergraduate women in engineering and science with each other, faculty members, and professionals in industry. The components of the WISE program include:

- A mentoring program that pairs undergraduate women in engineering with a professional from industry. The WISE program allows undergraduate women an opportunity to learn about careers in engineering and technology. It also eases the transition into college, and later into the workplace.
- A campus lecture series featuring prominent women scientists and engineers.
- A WISE living/learning community. Located in an undergraduate residence hall, the WISE community provides a residential experience for undergraduate women to live and learn with their peers.

**For Additional Information on PRIDE Contact:**

Kate Pynn  
Director of PRIDE and Student Support Programs  
123 Link Hall  
Syracuse University  
Syracuse, NY 13244  
(315) 443-2582  
[www.pride.syr.edu](http://www.pride.syr.edu)

## STUDENT CAREER OPPORTUNITIES

### Cooperative Education Program

The LCS 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 on time may be affected. To be eligible, students must be enrolled full time in the L.C. College of Engineering and Computer Science.

### For Additional Co-Op Information Contact:

Karen Davis  
Director  
123 Link Hall  
Syracuse University  
Syracuse, NY 13244-1240  
(315) 443-2239



## STUDY ABROAD PROGRAM

In a time of rapidly growing global complexity and opportunity, international study is an increasingly important and relevant component of undergraduate study, especially for students preparing for careers in engineering or computer science. Of all the major professions, engineering and computer science are the most likely to involve international activity. In addition to strong technical skills, employers are increasingly looking for international experience, cross-cultural skills and perspectives, and an understanding of the world's diversity

For over 20 years, LCS in a partnership with SU Abroad, has been a national leader in providing distinctive international study opportunities. These opportunities include :

- Year Abroad Program in London
- Spring Semester in Madrid
- Fall and Spring semester in Hong Kong, Australia and Dublin
- Spring Semester in Turkey
- Summer Programs through SU Abroad in France & Spain
- Global-Engineering Education Exchange

LCS international study programs give students the opportunity to gain global experience, develop new ways of viewing the world, form lasting friendships abroad, and deepen their connection to other countries, languages and cultures. Students with these experiences gain a competitive edge in today's multinational, multicultural environment.

To participate, students must be in good academic standing with a cumulatively GPA of 3.0 and in one of Syracuse University's engineering or computer science programs or in an equivalent program elsewhere. Participants must also meet any language requirements of the host country.

For further information, contact the L.C. Smith College of Engineering and Computer Science Study Abroad Office in 130 Link Hall or Syracuse University Abroad, 106 Walnut Place ([suabroad.syr.edu](http://suabroad.syr.edu)).

### **For Additional Information Contact:**

Maria Marceau  
Director  
129 Link Hall  
Syracuse, NY 13244  
(315) 443-5191  
[mcmarce@syr.edu](mailto:mcmarce@syr.edu)



## STUDY GROUPS AND TUTORING SERVICES

In order to help students achieve academic excellence, the L.C. Smith College of Engineering and Computer Science offers free study groups for various courses. You can get current information about these groups in the Student Support Programs (SSP) Office, 123 Link Hall or viewing the “Tutoring Support” on our website [www.pride.syr.edu](http://www.pride.syr.edu) .

It is important for all LCS students to recognize that good study technique includes studying together. You master course content more thoroughly, with better retention when you explain it to others. Successful students not only join study groups, they start them. We encourage all LCS students to do both. It is one of our priorities to help students interested in forming study groups. If you would like some assistance, please stop by the SSP Office and let us know of your interest.

Also Tutoring and Study Center offers a variety of seminars and workshops in learning strategies and techniques essential to academic achievement. Conducted in small group settings, these workshops are also available upon request to campus organizations, faculty/instructors, college advising offices, and Residence Life staff. The office selects and trains undergraduate and graduate student tutors. Students may request one-on-one tutorials and/or study group facilitators for undergraduate level courses.

### **For Additional Information Contact:**

Tutoring and Study Center  
11 Waverly Ave.  
Suite 220  
Syracuse University  
Syracuse, NY 13244  
(315) 443-2005  
[www.tutoring.syr.edu](http://www.tutoring.syr.edu)

Kate Pynn  
Director of PRIDE and Student  
Support Programs  
123 Link Hall  
Syracuse University  
Syracuse, NY 13244  
(315) 443-2582

# SYRACUSE UNIVERSITY INTERNSHIP PROGRAM (SUIP)

## Syracuse University Internship Program

SUIP provides information about elective internships in Syracuse and elsewhere to **undergraduate and graduate students** from all schools and colleges of the University, helping them find internships that will offer them the opportunity to link theory with practice, explore possible careers, and meet their individual learning goals.

SUIP works with **faculty and staff** throughout the University to facilitate the academic and administrative aspects of internships taken for elective academic credit.

SUIP works with a variety of **organizations** both in the local Syracuse area and across the country, helping them find suitable interns and facilitating an effective, productive internship experience for both student and employer.

## The Program

Students may choose elective internships from either of two categories—SUIP internships, taken for academic credit, or **experience-only internships**. SUIP staff members help students identify the sort of internship experience they want, guide them as they search and apply for appropriate placements, and help with paperwork related to academic credit for SUIP internships.

**Experience-only internships** are similar to work experience, where the student learns what the organization wants to teach. The student usually has a much smaller role (if any) in identifying learning goals and in selecting projects and tasks; there may be no formal identification of learning outcomes.

An SUIP **Internship** is a planned learning experience, taken for academic credit, which is sponsored and overseen by a professor with knowledge of the internship subject area.

There are three main types of SUIP Internship:

1. **Local internships**: These are taken with a local (Syracuse) company or organization that has an Affiliation Agreement with Syracuse University.
2. **National internships**: These are internships taken away from Syracuse, usually over the summer.
3. **Independent internships**: These are internships taken with companies with which SU has no Affiliation Agreement. These may be in Syracuse or elsewhere—most national internships are also independent internships.

An SUIP Internship:

- Can be taken in any semester or summer session
- Must be supervised on site by an experienced member of the host organization or company
- Must allow the student the opportunity to reach identified learning goals

- Must be taken for between 1 and 6 academic credits
- Requires 45 hours on site per semester for each credit (during fall and spring semesters this works out to be about 4 hours per week per credit.)
- Must be registered for credit before or during the semester in which the internship is taken (no retroactive credit is possible)
- Must have a faculty sponsor who is an SU faculty member who has expertise in the area of the internship
- Is assessed by the faculty sponsor, using reports from the site supervisor to assist in making the assessment
- Must be paid for, like any other course taken for credit (in fall and spring semesters, the regular tuition fee covers up to 19 credits for undergraduates, and students can usually include an internship among these 19; in summer, students pay for each credit they take.)
- May be paid or unpaid

**For Additional Information Contact:**

SUIP

235 Schine Student Center

Syracuse University

Syracuse, NY 13244

(315) 443-3616

<http://students.syr.edu/careerservices/undergrad/int-find.htm>

# SYRACUSE UNIVERSITY STATEMENT ON ACADEMIC ADVISING

## ACADEMIC ADVISING

Academic advising is an essential component of a Syracuse University education. The University is committed to providing the individual advice and assistance that students need at every step throughout their degree programs. A successful system of academic advising is highly dependent upon a shared commitment of students, faculty, and staff to process and availability of timely, accurate information.

**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. Advisors will be available to students on a regular basis, monitor their advisees' progress, assist in considering career options, and make appropriate referrals to other campus offices.

**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 help faculty and staff develop effective advising and support services, and to make improvements where necessary. The University also acknowledges the important contribution advisors make to the community through appropriate recognition within the institutional reward system.

## ACADEMIC DISHONESTY

The following statement is drawn from the General Academic Rules and Regulations of Syracuse University.

**\*\*Please see Pg 12 for the L.C. Smith College of Engineering & Computer Science Academic Integrity Policy**

## ACADEMIC STANDARD – Plagiarism

The submission of any work by a student is taken as a guarantee that the thoughts and expressions in it are the student's *own except* when properly credited to another.

## ACADEMIC POLICIES AND PROCEDURES

Violations of this principles include giving or receiving aid in an exam or where otherwise prohibited, fraud, plagiarism, the falsification or forgery of any record, or any other deceptive act in connection with academic work. Plagiarism is the representation of another's words, ideas, programs, formulae, opinions, or other products of the work as one's own, either overtly or by failing to attribute them to their true source. Sanctions for violations will be imposed by the dean, faculty, or Student Standards Committee of the appropriate school or college. Documentation of such academic dishonesty may be included in an appropriate student file at the recommendation of the academic dean.

In keeping with this University regulation, the L.C. Smith College of Engineering and Computer Science has adopted the following statement of policy concerning academic dishonesty:

An instructor may respond to a suspected infraction by one of two means:

**A.** When the infraction is confined to the limits of the course s/he may handle it personally or s/he may refer to the matter to the Associate Dean.

The maximum sanction, which may be assigned by the instructor, is a course grade of F. Lesser sanctions related to evaluation of course work may be assigned by the instructor at his/her discretion. An instructor assigning any sanction will notify the student of his/her right to appeal to the Associate Dean of the College. When the grade, "F", for the course is assigned, it must be reported to the Department Chair and to the Associate Dean who will also notify the student by letter of his/her right to appeal.

It is desirable that a charge of cheating or some other infraction be made in the presence of either the Associate Dean or some other responsible witness.

This is to protect the rights both of the student and of the faculty member involved.

**B.** When the infraction involves the purchase, distribution, or the sale of the papers, examinations or answers, the matter must be referred to the Associate Dean.

More serious infractions, such as illegal entry or forgery of University documents, will be handled as outlined in the General and Undergraduate Academic Rules Regulations.

***“Engineers... are not mere technicians and should not approve or lend their name to any project that does not promise to be beneficent to man and the advancement of civilization.”***

***John Fowler***

## **ACADEMIC POLICIES AND PROCEDURES**

### **ACADEMIC PROBATION AND SUSPENSION POLICY**

To be in good standing a student must meet all of the following conditions:

- 1) Maintain at least a 2.00 cumulative grade point average
- 2) Maintain at least a 2.00 semester grade point average.
- 3) Maintain at least a 2.00 cumulative grade point average in all LCS, mathematics, and science courses taken at Syracuse University.
- 4) Meet grade and/or cumulative average requirements for specific courses
- 5) Show satisfactory progress by completing a minimum 12 credit hours in one semester and 24 credit hours toward the degree in the last calendar year

Students failing to meet one or more of the above conditions will receive notice of probation status. Students may be suspended from the L.C. Smith College of Engineering and Computer Science if they do not achieve the minimum GPA.

**HOURS COMPLETED** refers to credit hours toward the degree program and includes all transfer credits. Minimum GPA refers to the cumulative grade point average for courses taken at Syracuse University. Students classified as Juniors or Seniors (54 credit hours or more) must have at least a 2.00 cumulative average, whether or not they are transfer students. Students not meeting the minimum requirements in the **SUSPENSION TABLE** in any two consecutive semesters may be suspended from the College.

For **GRADUATION**, students must have at least a 2.00 cumulative GPA and at least a 2.00 GPA in all ECS, mathematics, and science course taken at Syracuse University. In addition, students must meet all degree requirements specific to the chosen major.

Students are placed on academic probation when their academic records fail to meet specific minimum criteria for progress toward degree completion. Probationary status is determined by the Associate Dean for Academic Programs in consultation with program directors. The classifications of probation are listed below. Probationary status is

## ACADEMIC POLICIES AND PROCEDURES

indicated on the student's record maintained in the Dean's Office. The following are the various levels of probation status:

### **COP College Probation**

- cumulative average in Mathematics, Science, and LCS courses below is a 2.00 and/or
- grade or cumulative average in program-specific courses is below required minimum and/or
- unsatisfactory progress toward the degree and/or
- semester average is below 2.00 and/or
- cumulative average is below 2.00

### **PST Probation With One Semester Trial**

- students academic record is showing major deficiencies warranting explicit actions for immediate improvement in the following semester.

### **PAW Probation With Advice to Withdraw**

- students academic record continues to show major deficiencies with little evidence of improvement; student is advised to consider alternatives to continuing in the college

### **IRE Ineligible to Register In Engineering and Computer Science**

- students academic record reflects continued poor performance with no improvement; students is academically withdrawn (**suspended**) from the Syracuse University.

## ACADEMIC POLICIES AND PROCEDURES

### ADVISING

All Engineering and Computer Science students are assigned professional or faculty advisors. The advisor signs all academic forms (add/drops, petitions). Each semester, prior to registration, students meet with their advisors to discuss the upcoming semester and to prepare for registration. It is important to plan carefully for this meeting to be sure that you will be taking the appropriate courses. You should also feel free to meet regularly with your advisor during the term to discuss program plans for the next term as well as any problems or concerns you may have.

Please feel free to let your advisor know about the good things that are happening to you (scholarships, awards, activities). The more an advisor knows about you, the better equipped they will be able to advise and to make suggestions and recommendations.

Professional or faculty advisor assignments may be changed for the following reasons:

1. **Student Request** – A student who prefers another advisor should see the Student Records Office in 130 Link Hall.
2. **Student Change of Major** – A student who changes his/her major will have a professional faculty advisor from the new academic unit assigned to them.
3. **Advisor Department** – When faculty advisors leave their academic units or the University, their advisees are reassigned to another advisor in the same program. The new advisor will advise these students until they complete their degree requirements.
4. **Advisor on Leave of Absence** – If faculty advisors are unable to meet with their advisees during registration or during the academic year, their students are assigned temporary advisors. This is not a permanent assignment; when regular advisors return they will resume their advising duties.

### ADVANCED CREDIT EXAMINATIONS

Matriculated Syracuse University students may earn credit in an SU course by taking an Advanced Credit Examination. The examination must be approved by the department chair concerned, the student's advisor, and the Associate Dean. It is administered and graded by a member of the faculty. Only A, B, and C grades are acceptable as passing grades. Both credits and grade points are recorded on the student's transcript. By University policy, this option may not be used to repeat a course and flag the first course grade.

For more information, including examination fees, refer to the General Academic Rules and Regulations and to the booklet on Tuition, Fees and Related Policies.

<http://coursecatalog.syr.edu/2012/rules/>



## **ACADEMIC POLICIES AND PROCEDURES**

### **ADVANCED PLACEMENT EXAMINATIONS**

Syracuse University is authorized to award academic credit to students who have successfully passed examinations administered by Advanced Placement Program of the College Entrance Examination Board (CEEB). Scores from these examinations must be sent from the agency administering the examination directly to the College. Since the award of credit for AP courses depends on academic major, students should contact their academic advisors or the Student Records Office (130 Link Hall) for additional information.

Academic credit for AP examinations is indicated in the student's record. Advanced Placement Examinations are scored 1 through 5. A score of at least 3 is required for the award of up to 8 credits. These credits count just as if the student has taken the corresponding course while in college although no grades are assigned. The credits are counted toward the total required for the degree.

***\*\*Please see page 39 for the AP Table.***

### **AUDITING COURSES**

Students may audit courses with the approval of the appropriate department and subject to the restrictions made by the instructor.

Students auditing courses may not be responsible for fulfilling the academic requirements of the course and, therefore, do not receive academic credit for auditing courses. Audited courses appear on student transcripts with a grade of AU, which means no academic credit was earned. Audited courses do not affect the calculation of the grade point average, nor do they count toward hours for graduation. Tuition charges for audited courses are published annually by the Bursar's Office in the booklet "Tuition, Fees, and Related Policies".

[http://comptroller.syr.edu/comptroller/ckfinder/userfiles/files/108868\\_SUPUB\\_TuitionPolicy\\_Cover\\_Guts-ART.pdf](http://comptroller.syr.edu/comptroller/ckfinder/userfiles/files/108868_SUPUB_TuitionPolicy_Cover_Guts-ART.pdf)

Students must decide by the end of the second week of classes whether or not they wish to audit a course. They may not rescind their selection of the audit option after the first two weeks of classes. Students may drop or withdraw from an audited course in accordance with standard procedures. See the Student Records Office in 130 Link Hall if you need assistance.

### **CHANGE OF MAJOR**

In order to select or change a major, students must obtain a formal approval from the department chair or program director of the new major. Students may do this by obtaining a Change of Major Petition in the Student Records Office or the LCS website ([http://www.lcs.syr.edu/student/petition%20forms/petition\\_forms.aspx](http://www.lcs.syr.edu/student/petition%20forms/petition_forms.aspx)) and following the procedure below:

1. Meet with Chairperson or Program Director of the new major.

## ACADEMIC POLICIES AND PROCEDURES

2. Complete a Petition Form clearly stating the current Major and the new major.
3. Obtain the signature of the Chairperson or the Program Director of the new major. A review of the student's file may be necessary before making a decision. If the petition is approved, the Chairperson will assign a new faculty advisor to the student.

### CORRECTED GRADES

Once a grade has been reported, it may not be changed except to correct a clerical error. If an error has been made in reporting the grade, the instructor must submit a Change of Grade Form with accompanying documentation of the need for the change to the Chair of department in which the course was taught. The form will then be sent to the student's home college and finally submitted to the Registrar's Office. UNDER NO CIRCUMSTANCES MAY A STUDENT HAND-CARRY A CHANGE OF GRADE FORM

### DEAN'S LIST

The minimum semester grade point average for the Dean's list is 3.40. Students earning Dean's List standing are notified each semester by a congratulatory notice from the Dean's Office; the name will be posted in their hometown local newspaper and will be posted online at <http://sunews.syr.edu/honorroll/index.html>. The Dean's List will be generated one week after semester grades are sent out to students. To be eligible for Dean's List recognition, the students must have earned a minimum of 12 credits and must have no missing or incomplete grades.

### FLAGGING COURSES

Students who transfer into the L.C. Smith College of Engineering and Computer Science and who have accumulated courses that cannot be included in the new program of study may petition to have these courses flagged for exclusion from the calculation of the grade point average (GPA) following admission to the College. The flagged courses and grades are not deleted from the transcript. Students should be aware such action could affect their eligibility for TAP awards. The consequences with regard to TAP eligibility could be positive or negative. Students are advised to consult with a financial aid counselor BEFORE initiating the action of flagging courses.

### GRADUATE LEVEL COURSES

LCS students may register for graduate level courses (600 level) under the following conditions:

1. A senior whose overall academic record normally would qualify him or her for admission to the Graduate School may enroll in a 600-level course for undergraduate credit by petition and must have the approval of:  
*Instructor, Department Chairperson and Associate Dean*

## ACADEMIC POLICIES AND PROCEDURES

2. Graduating seniors who anticipate enrolling in the Graduate School of Syracuse University may submit a petition to the Graduate School to request graduate credit. **Courses taken for graduate credit may not be applied toward an undergraduate degree.**

### GRADUATION HONORS

Graduation honors are based on the following cumulative grade point averages:

Cum Laude.....	3.400
Magna Cum Laude.....	3.600
Summa Cum Laude.....	3.800

Students must complete at least 60 credit hours at Syracuse University in order to be eligible for graduation honors.

### INCOMPLETE

The symbol of I (Incomplete) may be granted to a student only if it can be demonstrated that it would be unfair to hold the student to the normal time limits of the course. Illness or other exceptional circumstances are the usual basis for consideration. To receive an Incomplete, a student must complete a Request for Incomplete Form, available in the Student Records Office. The form becomes a contract between the student and the course instructor, specifying the reasons for granting the Incomplete and the conditions and time limit for removing it.

An Incomplete grade is calculated as an F in the grade point average immediately. A student may graduate with Incompletes outstanding provided the cumulative average equals or exceeds 2.0 and the number of earned credits meets the requirements for the degree. This decision should be made with great care; once a student has graduated, s/he can not remove the Incomplete from her/his transcript. It remains a part of the permanent record.

Incompletes are not removed by re-registering for the course. Even though an instructor may require a student to repeat certain elements of a course to remove an Incomplete, the student should not register for the course a second time.

Further information concerning the removal of an incomplete can be found in Section 6.6.2 in the Academic Rules and Regulations Bulletin.

## ACADEMIC POLICIES AND PROCEDURES

### INDEPENDENT STUDY

Students who wish to explore a special problem or study an area in which a formal course does not exist must submit a plan of study using the Proposal for Independent Study Form. The plan must be approved by the supervising instructor or faculty sponsor, the student's faculty advisor, the course department chair, and the Associate Dean for Academic Programs. The form must be submitted to the Registrar's Office in 106 Steele Hall. Students should check carefully with their faculty advisors and with the Associate Dean prior to registering for an Independent Study to be sure that the course will be accepted toward the completion of requirements for a degree.

In addition to Independent Study arranged within the College, students may take advantage of the Syracuse University Internship Program (SUIP). This program places students in off-campus field positions related to their academic career or personal goals. Students can earn free elective, pass/fail academic credit for participation in local and national internships which are offered each semester and during the summer sessions. Additional information may be obtained by contacting the SUIP Office, 235 Schine Student Center, x-3616.



*“Computers are useless. They can only give you answers.”  
Pablo Picasso (1881-1973)*

# ACADEMIC POLICIES AND PROCEDURES

## INTRA-UNIVERSITY TRANSFER (IUT-IN)

### 1) Transfer Into the L.C. Smith College of Engineering and Computer Science.

Students who wish to transfer to any program within the L.C. Smith College of Engineering and Computer Science should have a strong record of achievement and demonstrated success in key technical courses. Specifically, it is critical for the applicant to excel in following and meet GPA requirements:

- Complete at least one of MAT 295, 296 or 397 with a grade of B- or better
- Complete at least one set of PHY 211/212 or CHE 150/151 with a grade of B- or better
- A minimum 3.0 grade point average

### 2) Transfer into Computer and Information Science (CIS) programs only

Students who wish to major in CIS must also complete the following:

- CIS 252 with a grade of at least a B (3.0), along with the above requirements

Obtain an Intra-University Transfer Form (IUT) from the Student Records Office, 130 Link Hall or on-line: <http://www.syr.edu/registrar/forms/index.html>

Submit the completed IUT Form. If there are any special circumstances that should be noted at the time the application is reviewed, they should be attached to the application.

At the end of each semester and following receipt of the latest grades, applications are reviewed by the Associate Dean and the appropriate Academic Chair. The schedule for review is as follows:

<b>Applications for</b>	<b>Reviewed</b>	<b>Student notification</b>
<i>Fall Semester</i>	<i>May</i>	<i>June</i>
<i>Spring Semester</i>	<i>Dec-Jan</i>	<i>January</i>

### 3) Transfer Out of the L.C. Smith College of Engineering and Computer Science

- Obtain an Intra-University Transfer Form (IUT) from the Student Records Office, 130 Link Hall or online: <http://www.syr.edu/registrar/forms/index.html>
- Check with the office of college/school into which you wish to transfer. Many have special requirements and application deadlines.
- Obtain the signature of the accepting (new) Dean.
- Submit the IUT form to the Registrar's Office, 106 Steele Hall

## ACADEMIC POLICIES AND PROCEDURES

### 4) Transfer To University College (Part-time Study)

Please note the following special rules and regulations regarding an IUT into University College (UC).

- Students registered on the Main Campus during the spring semester may not transfer to UC for the purpose of summer study.
- Students who have completed eight regular semesters as a full-time student may petition to complete the remaining eleven or less credit hours at UC tuition rates and still receive a Main Campus diploma. These students do not transfer to UC (see also “Tuition, Fees, and Related Policies” booklet)

### LEAVE OF ABSENCE AND WITHDRAWAL

Students desiring to take a Leave of Absence from the University must initiate such action in the Student Records Office, 130 Link Hall. Students should indicate the approximate date they intend to return to the University. The signature of the Associate Dean is required.

If a student takes a Leave of Absence before midterm, all courses are dropped from the transcript. Only the effective date of the leave of absence is recorded on the transcript.

After midterm, courses for which the student was registered remain on the transcript and grades of WD are recorded. Following the deadline to receive a WD, an F grade is recorded for all courses unless an approved petition has been filed with the Registrar’s Office. Students who take a leave of absence may not receive incomplete grades in courses for which they were registered. Only grades of WD or F can be recorded on the transcript.

### MISSING GRADES

Missing grades (grades not reported by the instructor) do not calculate into the student's grade point average. The student should contact his/her instructor to determine why a grade is missing from the record. If the instructor cannot be located, the student should see the Chair of the department in which the course was taught.

To report a missing grade, the instructor submits a Missing Grade Report to the Chair of the department in which the course was taught. The form will then be sent to the student's home college and finally submitted to the Registrar’s Office. **UNDER NO CIRCUMSTANCES MAY A STUDENT HAND-CARRY A MISSING GRADE REPORT.**

## ACADEMIC POLICIES AND PROCEDURES

### NEVER ATTENDED- (NA)

The grading symbol “NA” is used when a student has registered for a course and one of the following conditions applies:

- the student never attended the course
- the student stopped attending the course so early in the semester that no basis for evaluation exists.

The “NA” means that student failed to exercise his/her responsibility to withdraw officially from the course.

### PASS/FAIL OPTION

**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.

**For students in Computer Science major:** only free elective courses may be taken pass/fail.

### PETITIONS

Petition forms may be obtained in the Student Records Office, 130 Link Hall or online at [http://www.syr.edu/registrar/forms/Petition\\_to\\_Faculty.pdf](http://www.syr.edu/registrar/forms/Petition_to_Faculty.pdf) . When petitioning, students must obtain the following signatures (in this order), unless otherwise noted below:

1. Faculty Advisor
2. Department Chair or Program Director
3. Associate Dean

**Example:** you may petition to take a course in place of another; or you may petition to take an overload of courses, more than 19 credits; or you may petition to fulfill your Social Science/Humanities requirements with only Social Sciences, etc.

Students are responsible for checking with the Registrar’s Office and/or the Student Records Office to make sure the petition has been processed.

Petitions should be written as clearly and concisely as possible. They should contain all pertinent information since, in many cases, they are used in place of an interview. If the intention of the petition is not clear, it may be returned to the student for further clarification, and thus, delay the processing.

## **ACADEMIC POLICIES AND PROCEDURES**

### **READMISSION/TERMINATION OF LEAVE OF ABSENCE**

Students who have taken a leave of absence or been withdrawn from the University must apply for readmission through the LCS Student Records office 130 Link Hall, Syracuse, NY 13244, (315) 443-5191. **Readmission** is contingent on space availability in the college and in the program to which the student seeks readmission. It is also dependent on the student's ability to demonstrate potential for completing the program of study successfully.

A student suspended for academic reasons is eligible to apply for readmission after at least one calendar year has elapsed from the date of the suspension. A student suspended for other reasons is eligible to apply for readmission according to the terms of the suspension. Students may be placed on academic probation for the first semester after reentering the University.

If the Leave of Absence from the University was for health reasons, the attending physician must submit a medical evaluation of the student's present state of health to the Office of the Vice President for Student Affairs, 306 Steele Hall, Syracuse, NY 13244-1120, (315) 443-4357. Health clearance must be granted by Student Affairs before an application for readmission can be considered.

### **REGISTRATION**

Syracuse University uses a computerized registration system known as MySlice. LCS undergraduate students are put on Advising Hold and must meet with their advisor before they can register.

### **REPEATING A COURSE**

It is not necessary to petition to retake a course that was failed. Equivalent courses taken at other institutions are not counted as repeated courses. Courses may not be repeated after a student receives an undergraduate degree.

If a student repeats a course a third time, both the second and the third grades will be used to calculate the GPA. If a student repeats a course a fourth time, the third and fourth grades will be used to calculate the GPA.

### **NEW YORK STATE TAP RECIPIENTS**

#### **REPEATED COURSES/TAP ELIGIBILITY**

For purposes of TAP eligibility, a student must be enrolled full time (a minimum of 12 credits per semester). In some circumstances, the credits for repeating a course in which a



## ACADEMIC POLICIES AND PROCEDURES

student has already received a passing grade may not be included in the determination of full time enrollment for TAP purposes. If you have questions about this determination, you may contact the TAP coordinator in the Bursar's Office, 443-2444.

### **Please Note:**

WE HAVE BEEN REQUESTED BY THE OFFICE OF STUDENT ASSISTANCE TO ALERT STUDENTS TO THE FOLLOWING STATEMENT REGARDING REASONABLE ACADEMIC PROGRESS:

"University, state, and federal regulations require that students receiving financial aid make reasonable academic progress toward a degree. This entails completing one-sixth of the program of study for each year of attendance. Financial aid progress regulations are established separately and may differ from your college's academic progress regulations. If you suspect your aid could be in jeopardy you should make an appointment with your Financial Aid Counselor."

### **REGISTRATION FOR MORE THEN 19 CREDIT HOURS (OVERLOAD)**

Undergraduate students who wish to register for more than 19 credits must present an approved petition to the Bursar's Office. The petition, available from the Student Records Office, 130 Link Hall, must be approved by the student's advisor and the Associate Dean.

Juniors and seniors with a grade point average of at least 3.5 or higher cum GPA, with no outstanding incomplete grades and registered as a fulltime student at Syracuse University for the preceding two semesters, may take an overload without added tuition by completing the above petition.

Honors students may sign up for this credit overload in the Honors Office. (For more information see the most current version of Tuition, Fees, and Related Policies).

### **SCHEDULE ADJUSTMENT**

#### **Adding Courses during the first two weeks of classes.**

During the first two weeks of the semester (see Academic Deadlines in section I), students may change their schedules (adding and/or dropping courses) using MySlice on the web at [www.MySlice.syr.edu](http://www.MySlice.syr.edu) and by using the LCS Registration Form. These forms are available in the Student Records Office. If a student is on *advising hold*, he/she must meet with his/her advisor.

The Faculty or Professional Advisor signature is required on the LCS Registration Form for all undergraduate students in LCS programs of study.

## ACADEMIC POLICIES AND PROCEDURES

The advisor will keep a copy of the form in the student's folder. Student will drop off a copy of the LCS Registration Form to the Student Records Office who will then process the removal of the advising hold within a 24 hour period.

### **Dropping a Course after the first two weeks of classes.**

Students may drop courses up to the Academic Deadline for Dropping Courses. The add/drop form is used for this purpose. Forms are available at the Student Records Office, or from the Registrar's Office, 106 Steele Hall.

The following signatures/stamps are required on the add/drop form:

1. Advisor
2. Course Instructor
3. LCS stamp, provided by Student Records Office in 130 Link Hall

The form must be delivered to the Registrar's Office, 106 Steele Hall. Courses dropped by the deadline date are not recorded on the student's transcript and are not counted in the calculation of the grade point average.

**PLEASE NOTE:** If you fail to complete a course (as a result of dropping, withdrawing, failing, or receiving an incomplete grade) you **will not** be able to register for additional courses for which the uncompleted course is a prerequisite.

**ALSO NOTE:** Courses with start and end dates different from those published in the Time Schedule of Classes may have different add/drop deadlines. For example, during the summer sessions, the last day to drop a course with a tuition refund is one week after the first day of classes. See the booklet, "Tuition, Fees, and Related Policies" for a complete statement of the University's policy regarding the effect of add/drops on tuition charges.

[http://comptroller.syr.edu/comptroller/ckfinder/userfiles/files/108868\\_SUPUB\\_TuitionPolicy\\_Cover\\_Guts-ART.pdf](http://comptroller.syr.edu/comptroller/ckfinder/userfiles/files/108868_SUPUB_TuitionPolicy_Cover_Guts-ART.pdf)

### **SUMMER COURSES**

Students wishing to take summer courses at Syracuse University should contact University College, Division of Continuing Education, 700 University Ave, Syracuse, NY 13244, (315) 443-4174 for enrollment information.

## ACADEMIC POLICIES AND PROCEDURES

Students wishing to obtain transfer credit for summer courses taken at another university must meet the requirements below:

1. Complete a Transfer Credit Approval Petition prior to taking the course
  - The Petition must contain:
    - ❖ The name of the school
    - ❖ The Name and number of the course
    - ❖ A description of each course from an official catalog, bulletin, or school website.
    - ❖ The number of credits for each course.
    - ❖ The equivalent S.U. course.
    - ❖ Any special circumstances, i.e., students who plan to transfer into the college of LCS should state this clearly
  - Obtain the advisor's and department chairperson of the course signatures
  - Return the petition to the Student Records Office
2. Receive a grade of **C** or better (pass/fail grades are not acceptable)
3. No petition is needed if the course has been approved, see a list of approved courses in the Transfer Credit database:  
[http://lcs.syr.edu/forms/transfer\\_credit.asp](http://lcs.syr.edu/forms/transfer_credit.asp)
4. Have an official transcript showing the course taken sent to:

**Syracuse University**  
L.C. Smith College of Engineering & Computer Science  
Student Records Office  
130 Link Hall  
Syracuse, New York  
13244-1240  
P:315-443-5191\*\*\*F:315-443-4459  
Attn: Maria Marceau

Students should check the regulations of the school they are planning to attend as early as possible since many schools require written permission for non-matriculated students to register.

### WITHDRAWAL FROM A COURSE

Students may withdraw from a course up until usually two weeks before the last day of classes. A WD will appear on the student's record but will not be counted in determining the grade point average.

Withdrawal petitions are available in the Student Records Office. The petition must be completed by the student and then the following signatures must be obtained:

1. Course Instructor
2. Student's Advisor
3. Associate Dean for Academic Programs

Submit a withdrawal petition to the Registrar's Office, 106 Steele Hall.

**Withdrawal petitions will not be accepted after the deadline.**

## **ALL UNIVERSITY REQUIREMENTS**

### **English Courses for Foreign Students**

All international students (and all students whose native language is not English) must take the English Language Proficiency and Placement Examination upon arrival at Syracuse University. The results will determine what sequence of Writing or English courses must be taken. The sequence becomes a requirement for graduation in the L.C. Smith College of Engineering and Computer Science and meets the University writing requirement. This sequence may result in extra credit hours required for graduation.

NOTE: Remedial English courses (ENL 201,202,203) do not count towards degree requirements.

### **Writing Courses**

Writing Studio I and II (WRT 105,205) are required for all students. Some students may satisfy the requirement by scoring 3, 4 or 5 on the Advanced Placement English Language & Composition Exam of the CEEB or by earning 6 credits in SU's Project Advance English course.

ENL 211 and 213, fulfill Syracuse University's writing requirement for undergraduate students. Thus, after completing these courses, a student has taken the equivalent of WRT 105 and 205 and is ready to enroll in any other writing course that may be required.

## **ALL- COLLEGE REQUIREMENTS**

### **Introduction to Engineering and Computer Science**

All first-year LCS students are required to complete ECS 101, Introduction to Engineering and Computer Science. You will be registered for a section of this course by the major you have chosen or by the designation, undeclared. The section for each major is taught by a faculty member from that major; the sections for undeclared students are taught by senior faculty members in the College who have a broad, general knowledge of the majors. In the course, you will receive an introduction to each major offered in the College. In addition, you will spend the semester working with other students and a faculty instructor in developing a baseline of mathematical and scientific skills which you will apply in future course work.

### **Mathematics**

All LCS students **except CIS** are required to complete the following calculus courses, MAT 295, MAT 296, and MAT 397. All programs of study require additional mathematics courses beyond these three courses.

### **Natural Sciences**

All LCS students are required to complete at least one semester of calculus-based physics. All programs of study require additional natural science courses beyond the physics course.

### **Physical Education Courses (PED)**

Physical Education Courses are not required.

*For CIS Majors:* **PED** courses may be used for free-elective credit only.

### **Remedial Courses**

The following courses are considered by the College Faculty to be remedial and credit for these courses will not be counted toward the total credit hour requirement for graduation:

ENL 201 – Intermediate English for Non-Native Speakers

ENL 202 – Intermediate English for Non-Native Speakers

ENL 203 – Speaking and Listening for Non-Native Speakers of English

MAT 193 – Algebra Infused Pre-Calculus

MAT 194 – Pre-Calculus

### **ROTC Courses**

An ROTC course, which is cross-listed, with another Syracuse University course is treated in the same manner as the cross-listed course and may thus be used to satisfy degree requirements. ROTC courses, which are not cross-listed, will not count toward degree requirements. For CIS students, the courses, which are not cross-listed, may be used for free-elective credit.

## **SENIOR YEAR**

**Academic Advisement Report is available on myslice, this is not an official contract. Responsibility for the verification of information in this report rests with you, the student. Final verification of all degree requirements are done by your school/college.**

This should be done prior to registration for the final semester. It is advisable that you do a preliminary check before registration for the final two semesters.

**FILE DIPLOMA REQUEST** – When an undergraduate student attains Junior standing (54 credits or more), the File Diploma Request link becomes available under Student Services in MySlice. Students must use this link to specify the term in which they intend to graduate and to provide information for their diploma. Students must also contact their home school or college to review all graduation requirements.

**DIPLOMAS & STATUS VERIFICATION** – Graduating students notify the University of their intention to graduate through the File Diploma Request process, accessed through MySlice. This process must be completed to ensure inclusion in the degree certification review process and receipt of commencement information and, eventually, a diploma. Any questions or problems about diplomas should be directed to the Diploma Office, 107 Steele Hall, 443-2222.

During the interim period between certification and the receipt of the diploma, students may request a letter verifying their degree from the Student Records Office, 130 Link Hall. After you have received your diploma your degree can be verified through the National Clearinghouse, <http://www.studentclearinghouse.org>.

**GRADUATION** – All students must have a minimum cumulative GPA of 2.00 and at least a 2.00 GPA in all LCS, Math & Science courses taken at Syracuse University. In addition, students must meet all degree requirements specific to their chosen major. Seniors graduating in May or August may attend the May Commencement Ceremony. December graduates attend graduation ceremonies held in the following May. For more information concerning commencement, contact the Special Events Office, 210 Women’s Building, 443-4631.

In addition to commencement, there is an annual College Convocation for seniors and their parents. All graduates are welcome to attend this event. Information about the LCS Convocation will be available during the Spring Semester.

**PLACEMENT SERVICES** – During the fall of the final year, seniors interested in job placement should sign up with the Center for Career Services, 235 Schine Center, 443-3616 or Karen Davis , Associate Director of Career Development in 123 Link Hall. Seniors interested in graduate study should contact the schools of interest to request catalogs and applications. Be sure to discuss the schools with your faculty advisor who can assess the program’s strength in your particular area (s) of interest.

**PROFESSIONAL ENGINEER EXAM** – The fundamentals of Engineering Exam is the first part of the licensing process in New York State. The exam is given twice a year. For more information please visit the SOAR Office, 123 Link Hall, 443-2582.

### **UNDESIGNATED/FREE ELECTIVES**

Any course approved by the faculty advisor may be assigned to the undesignated or free area. These may be technical or social science/humanities courses. **For engineering majors**, physical education and remedial courses may not be included.



**“It is a great profession. There is the satisfaction of watching a figment of the imagination emerge through the aid of science to a plan on paper. Then it moves realization in stone or metal or energy. Then it brings jobs and homes to men/women. Then it elevates the standards of living and adds to the comforts of life.”**

**That is the engineer’s high privilege.**

**Herbert Hoover  
The Profession of Engineering  
(from his memoirs)**

## ADVANCED PLACEMENT EXAMINATIONS

Exam Subject/Title	Minimum Score	Awardable Credit	Equivalent SU Course	Recommending School/College	Additional School/College Requirements or Qualifications
Art/Drawing	5	3	Studio Elective	Visual and Performing Arts	<i>Visual and Performing Arts</i> Does not count toward Art and Design Freshman Foundation studio courses.
Art/2-D Design	5	3	Studio Elective	Visual and Performing Arts	<i>Visual and Performing Arts</i> Does not count toward Art and Design Freshman Foundation studio courses.
Art History	3	6	HOA 105,106	Arts and Sciences	
Biology	4	8	BIO 121, 123 and 124	Arts and Sciences	
Chemistry	3 4,5	3 8	CHE 103 CHE 106/107 & 116/117	Arts and Sciences	<i>Arts and Sciences</i> Only a score of 5 counts as a sequence in natural sciences and mathematics. Pre-medical students should consult with health professions advising before accepting AP chemistry credit.
Chinese	3 4	4 4	CHI 102 CHI 201	Arts and Sciences Arts and Sciences	<i>Public Communications</i> Must also place out of CHI 102 (with a score of 3) or CHI 201 (with a score of 4 or 5) on the placement exam.
Comparative Government & Politics	3	3	PSC 123	Arts and Sciences	
Computer Science A or Computer Science AB	3	3	CPS 196	Engineering and Computer Science	<i>Engineering and Computer Science</i> Students will receive this credit only upon approval of their department chair.
English Language and Composition	3	6	WRT 105-205	Arts and Sciences	<i>Education (Inclusive)</i> will accept a score of 3 only after a grade of B+ or higher is earned in an SU writing course.
English Literature and Composition	4	6	ETS151 (or 117 or 118 or 152 or 153) and WRT 105	Arts and Sciences	<i>Arts and Sciences</i> Students scoring 4 or better will receive 3 credits for <a href="#">ETS 151</a> . Such students who subsequently elect to take <a href="#">ETS 151</a> may transfer the credit to one of the following: <a href="#">ETS 117</a> , <a href="#">118</a> , <a href="#">152</a> , or <a href="#">153</a> . 3 additional credits are awarded for <a href="#">WRT 105</a>
Environmental Science	3	3	EAR 200	Arts and Sciences	
European History	4	6	HST 111,112	Arts and Sciences	
French Language	3	4	FRE 102	Arts and Sciences	<i>Public Communications</i> Must also place out of FRE 102 on the placement examination
French Literature	3 4	4 4	FRE 102 FRE 201	Arts and Sciences	<i>Public Communications</i> Must also place out of FRE 102 (with a score of 3) or FRE 201 (with a score of 4 or 5) on the placement examination.
German Language	3	4	GER 102	Arts and Sciences	<i>Public Communications</i> Must also place out of GER 102 on the placement examination
Human Geography	4	3	GEO 105 or 171	Arts and Sciences	
Latin,Catullus-Horace and/or Latin, Virgil	3	4	LAT 102	Arts and Sciences	<i>Public Communications</i> Must also place out of LAT 102 on the placement examination
Italian Language and Culture	3	4	ITA 102	Arts and Sciences	<i>Public Communications</i> Must also place out of ITA 102 (with score of 3) or ITA 201 (with score of 4 or 5) on the placement exam.
Japanese language and Culture	3 4	4 4	JPS 102 JPS 201	Arts and Sciences	<i>Public Communications</i> Must also place out of JPS 102 (with a score of 3) or JPS 201 (with a score of 4 or 5) on the placement examination
Macroeconomics*	4	3	ECN 102	Arts and Sciences	
Microeconomics*	4	3	ECN 101	Arts and Sciences	
Mathematics— Calculus AB	3 4	3 6 or 4	MAT 285 MAT 285 and 286 or MAT 295	Arts and Sciences	<i>Engineering and Computer Science</i> 4 credits awarded for MAT 295 only, pending results of the math placement examination
Mathematics— Calculus BC	4	8	MAT 295,296	Arts and Sciences	<i>Engineering and Computer Science</i> Up to 8 credits awarded for MAT 295 only, pending results of the math placement examination.
Mathematics— Calculus BC-AB subscore	3 4	3 6 or 4	MAT 285 MAT285 and 286 or MAT 295	Arts and Sciences	<i>Arts and Sciences</i> Exemption from Quantitative Skills and substitute for MAT 285 in natural sciences and mathematics.
Mathematics Level II <sup>†</sup>	3	3	MAT 194	Arts and Sciences	
Music Theory	3	6	HOA 125,126	Arts and Sciences	
Physics B	3	8	PHY 101,102	Arts and Science	<i>Education (Inclusive)</i> will accept a score of 3 only after a grade of B+ or higher is earned in an SU lab/science course.
Physics C (Mechanics)	3	4	PHY 101 or 211,221	Arts and Sciences	
Physics C (Electricity and Magnetism)	3	4	PHY 102 or 212,222	Arts and Sciences	
Psychology	4	3	PSY 205	Arts and Sciences	
Spanish Language	3	4	SPA 102	Arts and Sciences	<i>Public Communications</i> Must also place out of SPA 102 on the placement examination
Spanish Literature	3 4	4 4	SPA 102 SPA 201	Arts and Sciences	<i>Public Communications</i> Must also place out of SPA 102 (with a score of 3) or SPA 201 (with a score of 4 or 5) on the place examination
Statistics	3	3	MAT 121,221 or STT 101	Arts and Sciences	<i>Management</i> Credit accepted as MAS 261
U.S. Government & Politics	3	3	PSC 121	Arts and Sciences	
U.S. History	4	6	HST 101,102	Arts and Sciences	
World History	4	6	HST 121, 122	Arts and Sciences	

## **Attention all LCS Students!**

**ANT 131,431, 433, CFS courses, GEO 155, 215, 316, 326, 482, HNR 250, 255, 350,355, 450, 455 and PSY 223, 252, 323, 324, 334**  
**ARE NOT Social Science/ Humanities Courses**

For the complete list of exceptions please see  
[www.coursecatalog.syr.edu/2012](http://www.coursecatalog.syr.edu/2012)

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List of acceptable Social Science/ Humanities courses:

### **Social Sciences Division**

AAS (African American Studies)	HST (History)	PSY (Psychology)
ANT (Anthropology)	MAX (Maxwell)	SOC (Sociology)
ECN (Economics)	PAF (Public Affairs)	WSP (Women's Studies)
GEO (Geography)	PSC (Political Science)	

### **Humanities Division**

AAS (African American Studies)	HST (History)	PHI (Philosophy)
ANT (Anthropology)	HUM (Humanities)	QX (LGBT)
ETS (English Textual Studies)	LIN (Linguistics)	REL (Religion)
LIT (Literature)	WSP (Women's Studies)	
HOM & HOA (Art & Music Histories)		
All Foreign Languages		

**\*See back of curriculum sheets for Major specific requirements\***



College of Engineering and Computer Science										
Aerospace Engineering					Name _____					
Fall 2012					SUID _____					
CREDIT	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR	
	GRADE	F	S	F	S	F	S	F		S
<b>MATHEMATICS (18)</b>										
MAT295	Calculus 1	(4)_____	4							
MAT296	Calculus 2	(4)_____		4						
MAT397	Calculus 3	(4)_____			4					
MAT331	Linear Algebra	(3)_____			3					
MAT414	Intro. Differential Equations	(3)_____				3				
<b>SCIENCES (12)</b>										
CHE150	General Chem. for Engineers	(3)_____	3							
CHE151	General Chem. for Engineers Lab	(1)_____	1							
PHY211	General Physics 1	(3)_____		3						
PHY221	General Physics Lab 1	(1)_____		1						
PHY212	General Physics 2	(3)_____			3					
PHY222	General Physics Lab 2	(1)_____			1					
<b>ENGLISH/SOCIAL SCIENCE/HUMANITIES (12)</b>										
WRT105	Studio 1: Practices of Academic Writing	(3)_____	3							
WRT205	Studio 2: Critical Research and Writing	(3)_____			3					
SSH Elective	_____	(3)_____	3							
SSH Elective	_____	(3)_____		3						
<b>PROGRAM CUSTOMIZATION (18)</b>										
Course1	_____	(3)_____			3					
Course2	_____	(3)_____				3				
Course3	_____	(3)_____					3			
Course4	_____	(3)_____							3	
Course5	_____	(3)_____						3		
Course6	_____	(3)_____							3	
<b>ENGINEERING (26)</b>										
ECS101	Intro. to Engr. & Comp. Sci.	(3)_____	3							
ECS104	Engr. Comp. Tools	(3)_____		3						
ECS221	Statics	(3)_____			3					
ECS222	Dynamics	(3)_____				3				
ECS325	Mechanics of Solids	(4)_____				4				
ECS326	Engr. Materials, Prop. & Proc.	(3)_____					3			
ELE231	Elec. Engr. Fundamentals 1	(3)_____					3			
ELE291	Electrical Laboratory I	(1)_____					1			
ELE312	Control Systems	(3)_____						3		
<b>AEROSPACE ENGINEERING (42)</b>										
AEE342	Aerodynamics	(4)_____					4			
AEE343	Compressible Flow	(3)_____					3			
AEE427	Dynamics of Aero. Vehicles	(4)_____						4		
AEE446	Propulsion	(3)_____						3		
AEE471	Des. & Anal. of Aero. Struct.	(4)_____						4		
AEE472	Syn. of Aerospace Systems	(4)_____							4	
AEE577	Space Flight	(3)_____							3	
MAE184	Engr. Graphics & CAD	(3)_____		3						
MAE251	Thermodynamics	(4)_____			4					
MAE315	Mech/Aero Lab I	(3)_____				3				
MAE321	Dynamics of Mechanical Systems	(3)_____					3			
MAE341	Fluid Mechanics	(4)_____					4			
<b>TOTAL CREDITS</b>		<b>128</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>16</b>	<b>14</b>	<b>13</b>

**AEROSPACE ENGINEERING**  
**Curriculum Notes**  
**2012-2013**

1. There are a total of 24 elective credits in the B.S. AEE program. These credits may be distributed in one of the following two ways:
  - Option 1:** A student may complete any University minor that requires at least 12 credit hours beyond the core AEE curriculum. In addition to, or as part of, this minor, at least 9 credit hours must be taken from the social sciences or humanities (SS/H). Excluding those courses that count towards the minor, a maximum of 6 credit hours that are neither SS/H nor technical electives may be taken as part of the 24 elective credits.
  - Option 2:** A student who does not complete a University minor must take at least 9 credits from the social sciences or humanities (SS/H), at least 6 credits of technical electives, and a maximum of 6 credit hours that are neither SS/H nor technical electives.
2. Technical electives consist of all 300 level and above courses offered by any department within the college of engineering and computer science or by the math or physics departments, except for ECS 391, ECS 392 and any course numbered 300, 400 or 500 that is offered outside of the MAE department. However, in some instances, these courses may be approved by petition. In addition, no more than 3 credit hours of technical electives may be taken outside of the MAE department.
3. Many technical electives in the MAE Department are scheduled on a 2-year rotation, so students should make themselves aware of technical elective offerings starting in their third year.
4. Students who take an additional math course (usually MAT 517) in order to obtain a mathematics minor can use this course towards fulfillment of the 24 elective credit hours if their overall distribution of courses meets the above requirements

College of Engineering and Computer Science											
Bioengineering				Name _____							
Effective Fall 2012				SUID _____							
CREDIT	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR		
	GRADE	F	S	F	S	F	S	F	S	+/-	
<b>MATHEMATICS (15)</b>											
MAT295	Calculus 1	(4)___	4								
MAT296	Calculus 2	(4)___		4							
MAT397	Calculus 3	(4)___			4						
MAT485	Diff. Equations & Matrix Algebra	(3)___				3					
<b>SCIENCES (24)</b>											
CHE106	General Chemistry 1	(3)___	3								
CHE107	General Chemistry Lab 1	(1)___	1								
CHE116	General Chemistry 2	(3)___		3							
CHE117	General Chemistry Lab 2	(1)___		1							
CHE275	Organic Chemistry 1	(3)___			3						
CHE276	Organic Chemistry Lab 1	(2)___			2						
PHY211	General Physics 1	(3)___		3							
PHY221	General Physics Lab 1	(1)___		1							
PHY212	General Physics 2	(3)___			3						
PHY222	General Physics Lab 2	(1)___			1						
BIO 327	Genetics and Cell Biology II	(3)___					3				
<b>ENGLISH/SOCIAL SCIENCE/HUMANITIES (24)</b>											
WRT105	Studio 1: Practices of Academic Writing	(3)___	3								
WRT205	Studio 2: Critical Research and Writing	(3)___			3						
SSH Elective	_____	(3)___	3								
SSH Elective	_____	(3)___			3						
SSH Elective	_____	(3)___				3					
SSH Elective	_____	(3)___					3				
SSH Elective	_____	(3)___						3			
SSH Elective	_____	(3)___							3		
<b>ENGINEERING (18)</b>											
ECS101	Intro. to Engr. & Comp. Sci	(3)___	3								
ECS104	Engr. Comput. Tools	(3)___		3							
ECS221	Statics	(3)___			3						
ECS326	Engr. Materials, Prop. & Proc.	(3)___				3					
ELE231	Elec. Engr. Fundamentals 1	(3)___			3						
ELE232	Elec. Engr. Fundamentals 2	(3)___				3					
<b>BIOENGINEERING (40)</b>											
BEN212	Exp. Methods in Chem Eng & Bioengee	(3)___			3						
BEN231	Mass and Energy Balances	(3)___		3							
BEN301	Biological Prin. for Engineers	(4)___				4					
BEN333	Fluid Transport	(3)___				3					
BEN341	Fund. of Heat & Mass Transfer	(4)___					4				
BEN364	Quantitative Physiology	(4)___					4				
BEN465	Biomechanics	(3)___						3			
BEN468	Biomaterials	(3)___							3		
BEN481	Bioinstrumentation	(3)___						3			
BEN485	Bioengineering Laboratory	(4)___						4			
BEN487	Bioengineering Capstone Design	(3)___							3		
BEN575	Process Control	(3)___					3				
<b>ELECTIVES (9)</b>											
Tech Elec	_____	(3)___						3			
Tech Elec	_____	(3)___							3		
Tech Elec	_____	(3)___							3		
<b>TOTAL CREDITS</b>			<b>130</b>	<b>17</b>	<b>15</b>	<b>16</b>	<b>18</b>	<b>16</b>	<b>17</b>	<b>16</b>	<b>15</b>

## **BIOENGINEERING Curriculum Notes 2012-2013**

### **Social Science/Humanities Requirements:**

Bioengineering students must complete 18 credit hours in the Social Science/Humanities using any one of the following options:

- Option 1:** Complete the Social Science division\* (minimum of 12 credits) AND complete 6 credits of courses from the Humanities list.
- Option 2:** Complete the Humanities division\* (minimum of 12 credits) AND complete 6 credits of courses from the Social Science list.
- Option 3:** Complete the Social Science division\* (minimum of 12 credits) AND complete a minimum of 6 credits of a foreign language sequence (must not be student's native language).
- Option 4:** Students may elect to complete 18 credits of Social Science and Humanities courses by petition. Students pursuing this option must petition early in their degree program, before the end of their third year. The petition must be endorsed by the student's advisor and Department Chair. Students are encouraged to adopt an 18 credit minor in humanities or social sciences.

\* A division is defined as a collection of four 3- or 4-credit courses from the Social Sciences or Humanities lists, as appropriate for the division type. In a division, two of the courses must constitute a sequence, a pair of courses with related content. The divisional perspective is drawn from the College of Arts and Sciences policy, which is described with lists of appropriate courses and approved sequences in the Undergraduate Course Catalog 2011-2012 on page 84 (page 43 in the abridged catalog for advising.) Sequences not appearing on this list, including pairs of thematically related courses from multiple departments, may be approved by petition.

### **Technical electives:**

Technical electives broadly encompass Math, Science (excluding Social Science), or Engineering courses not included in the required bioengineering curriculum. These courses are intended to be challenging (200-level or higher), although relevant AP credits and introductory biology courses (BIO 121 and BIO 123/124) may also count towards the technical elective requirement. The breadth of technical elective options is intended to be flexible to allow students to develop skill-sets for their chosen careers. It is highly recommended that students work with academic advisors to identify technical electives to build towards their long-term career objectives. Technical electives are subject to academic advisor and program director approval, and courses not included in the description above may be approved by petition if found to have sufficient technical content.

**College of Engineering and Computer Science**  
 Chemical Engineering Name \_\_\_\_\_  
 Fall 2012 SUID \_\_\_\_\_

	CREDIT GRADE	FIRST YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR #-
		F	S	F	S	F	S	F	S	
<b>MATHEMATICS (15)</b>										
MAT295 Calculus 1	(4)___	4								
MAT296 Calculus 2	(4)___		4							
MAT397 Calculus 3	(4)___			4						
MAT485 Diff. Equations & Matrix Algebra	(3)___				3					
<b>SCIENCES (29)</b>										
CHE106 General Chemistry 1	(3)___		3							
CHE107 General Chemistry Lab 1	(1)___	1								
CHE116 General Chemistry 2	(3)___		3							
CHE117 General Chemistry Lab 2	(1)___		1							
CHE275 Organic Chemistry 1	(3)___			3						
CHE276 Organic Chemistry Lab 1	(2)___			2						
CHE346 Physical Chemistry 1	(3)___					3				
CHE347 Physical Chemistry Lab 1	(2)___					2				
CHE356 Physical Chemistry 2	(3)___						3			
PHY211 General Physics 1	(3)___		3							
PHY221 General Physics Lab 1	(1)___		1							
PHY212 General Physics 2	(3)___			3						
PHY222 General Physics Lab 2	(1)___			1						
<b>ENGLISH/SOCIAL SCIENCE/HUMANITIES (27)</b>										
WRT105 Studio 1: Practices of Academic Writing	(3)___	3								
WRT205 Studio 2: Critical Research and Writing	(3)___			3						
WRT307 Adv. Wrt Studio: Professional Writing	(3)___					3				
SSH Elective _____	(3)___	3								
SSH Elective _____	(3)___			3						
SSH Elective _____	(3)___					3				
SSH Elective _____	(3)___							3		
SSH Elective _____	(3)___							3		
SSH Elective _____	(3)___								3	
<b>ENGINEERING (9)</b>										
ECS101 Intro. to Engr. & Comp. Sci.	(3)___	3								
ECS104 Engr. Comput. Tools	(3)___		3							
ECS326 Engr. Materials, Prop. & Proc.	(3)___				3					
<b>CHEMICAL ENGINEERING (36)</b>										
CEN212 Exp. Methods in Chem & Bioengr.	(3)___				3					
CEN231 <b>Mass and Energy Balances</b>	(3)___			3						
CEN252 Chem.Engr. Thermodynamics 1	(3)___				3					
CEN311 Chemical Engineering Lab 1	(2)___						2			
CEN333 <b>Fluid Transport</b>	(3)___					3				
CEN341 Fund. Of Heat & Mass Trnsfr	(4)___						4			
CEN353 Chem.Engr. Thermodynamics 2	(3)___					3				
CEN412 Chemical Engineering Lab 2	(2)___							2		
CEN542 Mass & Heat Trans.Operation	(3)___							3		
CEN574 Process Design	(4)___								4	
CEN575 <b>Process Control</b>	(3)___						3			
CEN587 Chemical Reaction Engr.	(3)___							3		
<b>TECH ELECTIVE (12)</b>										
Tech Elective _____	(3)___						3			
Tech Elective _____	(3)___							3		
Tech Elective _____	(3)___								3	
Tech Elective _____	(3)___									3
<b>TOTAL CREDITS</b>		<b>128</b>	<b>17</b>	<b>15</b>	<b>16</b>	<b>18</b>	<b>17</b>	<b>15</b>	<b>17</b>	<b>13</b>

**CHEMICAL ENGINEERING**  
**Curriculum Notes**  
**2012-2013**

1. Chemical engineering students must complete a minimum of **12 credits of technical electives** from mathematics, natural sciences, and engineering courses not included in the required chemical engineering curriculum. All technical electives are subject to approval by the student's academic advisor and program director. Courses not included in the description above may be approved by petition if found to have sufficient technical content. **At least one technical elective must be in chemical engineering.**
  
2. Chemical engineering students must complete a minimum of **18 credits in the Social Science or Humanities** disciplines using any one of the following options:
  - Option 1:** Complete the Social Sciences Division\* (minimum of 12 credits) AND complete 6 credits of courses from the Humanities List or 6 credits of a foreign language sequence (must not be student's native language).
  
  - Option 2:** Complete the Humanities Division\* (minimum of 12 credits) AND complete 6 credits of courses from the Social Sciences List or 6 credits of a foreign language sequence (must not be student's native language).
  
  - Option 3:** Petition to complete an established non-technical minor of at least 18 credits or the Engineering and Computer Science Management minor.
  
  - Option 4:** Petition to complete 18 credits of Social Sciences and Humanities courses with a unifying theme. **Students pursuing this option must petition by the end of their third year.** A petition for this option will not be approved simply because care has not been taken to follow another acceptable option in prior course selection.

Students may petition to substitute *ECS 392- Engineering Ethics* for three (3) Division credits under Option 1 or Option 2.

\*The Social Sciences Division and Humanities Division are drawn from the College of Arts and Sciences policy, which includes the Humanities List and Social Sciences List of appropriate courses and approved sequences in the Undergraduate Catalog for Advising ([coursecatalog.syr.edu](http://coursecatalog.syr.edu)).

- A Division is defined as a collection of four 3- or 4-credit courses from the Social Sciences List or the Humanities List, as appropriate for the Division type.
  
- Two of the courses **from the Division** must constitute a sequence: a pair of courses with related content. If a student follows Option 1, the sequence must be in the Social Sciences List; if a student follows Option 2, the sequence must be in the Humanities List. Pre-approved sequences are designated in the Social Sciences and Humanities Lists by hyphens (-).
  
- Sequences composed of a pair of thematically related courses not specifically approved of in the Social Sciences or Humanities Lists may be approved by petition.
  
- Foreign language courses only count toward the Humanities Division (Option 2) if numbered 202 or above. Sequential foreign language courses of lower number count as a foreign language sequence, which does not replace the Divisional sequence.

**College of Engineering & Computer Science**

Civil Engineering

Fall 2012

Name \_\_\_\_\_

SUID \_\_\_\_\_

	CREDIT GRADE	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR #/-
		F	S	F	S	F	S	F	S	
<b>MATHEMATICS (15)</b>										
MAT295 Calculus 1	(4) _____	4								
MAT296 Calculus 2	(4) _____		4							
MAT397 Calculus 3	(4) _____			4						
MAT485 Diff. Equations & Matrix Algebra	(3) _____				3					
<b>SCIENCES (16)</b>										
CHE150 General Chem for Engrs	(3) _____	3								
CHE151 General Chem for Engrs lab	(1) _____	1								
PHY211 General Physics 1	(3) _____		3							
PHY221 General Physics Lab 1	(1) _____		1							
PHY212 General Physics 2	(3) _____			3						
PHY222 General Physics Lab 2	(1) _____			1						
<b>Select one of the following two courses:</b>	(4) _____		<b>4 or 4</b>							
EAR101 Dynamic Earth (4)										
EAR203 Earth System Science (4)										
<b>ENGLISH (9)</b>										
WRT105 Studio 1: Practices of Academic Writing	(3) _____	3								
WRT205 Studio 2: Critical Research and Writing	(3) _____			3						
WRT307 Adv Writing Studio: Professional Writing	(3) _____					3				
<b>SOCIAL SCIENCE/HUMANITIES (18)</b> (See curriculum notes)										
SSH Elective _____	(3) _____	3								
SSH Elective _____	(3) _____		3							
SSH Elective _____	(3) _____		<b>3 or 3</b>							
SSH Elective _____	(3) _____					3				
SSH Elective _____	(3) _____							3		
SSH Elective _____	(3) _____								3	
<b>ENGINEERING (16/17)</b>										
ECS101 Intro. to Engr. & Comp. Sci.	(3) _____	3								
ECS221 Statics	(3) _____			3						
ECS325 Mechanics of Solids	(4) _____				4					
ECS326 Engineering Materials	(3) _____						3			
<b>Select One of the Following 3 Courses:</b>	( ) _____				3 or 4					
ECS222 Dynamics (3)										
ELE231 Elec. Engr. Fundamentals I (3 or 4)										
MAE251 Thermodynamics (4)										
<b>CIVIL ENGINEERING (41) D=16.00</b>										
CIE272 Civil Engineering Analysis	(3) _____			3						
CIE274 Civil & Environmental Engr. Sy	(3) _____				3					
CIE327/MAE341 Fluid Mechanics	(4) _____					4				
CIE331 Analysis of Structures and Materials	(3) _____					3				
CIE332 Design of Concrete Structure: 2.00	(3) _____						3			
CIE337 Intro to Geotechnical Engineer 1.00	(4) _____					4				
CIE338 Foundation Engineering 2.00	(3) _____						3			
CIE341 Intro to Environmental Engr. 1.00	(3) _____					3				
CIE352 Water Resources Engr. 2.00	(4) _____						4			
CIE442 Treatment Proc. In Envir. Engr 2.00	(4) _____							4		
CIE443 Transportation Engineering 2.00	(3) _____							3		
CIE475 Capstone Design 4.00	(4) _____								4	
<b>ELECTIVES (12)</b>										
Free Elective _____	(3) _____							3		
Prof. Elective _____	(3) _____								3	
Tech Elective _____	(3) _____							3		
Tech Elective _____	(3) _____								3	
<b>TOTAL CREDITS</b>	<b>127-128</b>	<b>17</b>	<b>14-15</b>	<b>17-18</b>	<b>16-17</b>	<b>17</b>	<b>16</b>	<b>16</b>	<b>13</b>	

## DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

### Curriculum Notes

### 2012-2013

#### SS/HUM ELECTIVES

All CIE students are required to complete at least 18 credits of SS/HUM electives. A *minimum* of one course (or 3 credits) must be chosen from each of the three groups of designated courses listed below. The remaining three SS/HUM electives (or 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 that are listed on their Humanities and Social Sciences lists in the SU Bulletin – Undergraduate Course Catalog
- any foreign language courses (except student’s native language)
- ECS 391 – Legal Aspects of ECS
- ECS 392 – Ethical Aspects of ECS.

<b>Group 1: Economics and Social Issues</b>
ECN 203 – Economics Ideas and Issues
ECN 301* – Intermediate Microeconomics
ECN 302* – Intermediate Macroeconomics
ECN 365* – The World Economy
GEO 353 – Environmental Justice
PSC 383 – Civil Society and Democracy
SOC 101 – Introduction to Sociology
SOC 102 – Social Problems
SOC 363 – Urban Sociology
STS/BPS 101 – Introduction to Science, Technology and Society

\*requires ECN 203 as prerequisite

<b>Group 2: Global Affairs</b>
ECN 365 – The World Economy
GEO 103 – America and the Global Environment
GEO 105 – World Geography
GEO 215 – Global Environmental Change
GEO 272 – World Cultures
GEO 273 – World Political Economy
MAX 123 – Critical Issues for the U.S.
MAX 132 – Global Community
PAF 351 – Global Social Problems
PSC 124/129 – International Relations
PSC 355 – International Political Economy

<b>Group 3: Public Policy and Policy Studies</b>
ECN/WGS 358 – Economics of US Poverty & Discrimination
GEO 203 – Society and the Politics of Nature
GEO 314 – Hazardous Geographic Environments
GEO 356 – Environmental Ideas & 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 – Legislative Process and US Congress
PSC 308 – The Politics of US Public Policy
PSC 312 – Urban Government & Politics
PSC 318 – Technology, Politics & Environment

+ requires PAF101 as prerequisite

#### 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; as well as ECS 222, ELE 231, and MAE 251 that have not been used for degree credits), 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 are courses offered in the following schools/colleges with the indicated prefixes that meet the above stated criteria.

<b>School/College</b>	<b>Course Prefix</b>
Architecture	ARC
Arts and Sciences	AST, BCM, BIO, CHE, ECN, GEO, GOL, MAX, MAT, PAF, PHY
Engineering and Computer Science	All course prefixes
Information Studies	IST
Whitman	ACC, BUA, EEE, FIN, INB, LPP, MAR, O&M, OPM, SHR, SOM
Newhouse	COM
VPA	CRS
SUNY-ESF	All course prefixes



College of Engineering and Computer Science										
Computer Engineering					Name _____					
Effective Fall 2012					SUID _____					
Minor/Second Major (if any): _____										
CREDIT	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR	
GRADE	F	S	F	S	F	S	F	S	+/-	
<b>MATHEMATICS (19)</b>										
CIS275	Intro to Discrete Mathematics		(3) _____		3					
MAT295	Calculus 1		(4) _____	4						
MAT296	Calculus 2		(4) _____		4					
MAT397	Calculus 3		(4) _____			4				
CIS321	Intro. to Probability and Statistics*		(3) _____				4			
<b>SCIENCES (12)</b>										
CHE150	General Chem. for Engineers		(3) _____	3						
CHE151	General Chem. for Engineers Lab		(1) _____	1						
PHY211	General Physics 1		(3) _____		3					
PHY221	General Physics Lab 1		(1) _____		1					
PHY212	General Physics 2		(3) _____			3				
PHY222	General Physics Lab 2		(1) _____			1				
<b>ENGLISH (12)</b>										
WRT105	Studio 1: Practices of Academic Writing		(3) _____	3						
WRT205	Studio 2: Critical Research and Writing		(3) _____			3				
WRT307	Adv. Wrt Studio: Professional Writing		(3) _____				3			
WRT401	Technical Comm. Design Methodology		(2) _____					2		
WRT402	Technical Comm. Prototyping & Constr.		(1) _____						1	
<b>SOC. SCIENCE/HUMANITIES/GEN. ED. (12)</b>										
ECS392	Ethical Aspects of ECS		(3) _____				3			
PHI 251	Logic		(3) _____	3						
SSH Elective _____			(3) _____		3					
SSH Elective _____			(3) _____				3			
<b>ENGINEERING (14)</b>										
ECS101	Intro. to Engr. & Comp. Sci.		(3) _____	3						
ECS102	Intro. to Computing		(3) _____		3					
ELE231	Electrical Engr. Fundamentals I		(3) _____			3				
ELE232	Electrical Engr. Fundamentals II		(3) _____				3			
ELE291	Electrical Lab. 1		(1) _____			1				
ELE292	Electrical Lab. 2		(1) _____				1			
<b>COMPUTER ENGINEERING (37)</b>										
CSE261	Digital Logic Design		(3) _____			3				
CSE281	Comp. Org. & Assem. Lang.		(3) _____			3				
CSE283	Intro. To Object-Oriented Design		(3) _____		3					
CSE381	Computer Architecture		(3) _____				3			
CSE382	Algorithms & Data Structures		(3) _____			3				
CSE397	Computer Laboratory 1		(3) _____				3			
CSE400	Systems Programming**		(3) _____				3			
CSE458	Data Networks: Basic Principles		(3) _____					3		
CSE398	Computer Laboratory 2		(3) _____					3		
CSE471	Intro. To Embedded System Design		(3) _____					3		
CSE486	Design of Operating Systems		(3) _____					3		
CSE491	Senior Design Project		(1) _____						1	
CSE492	Senior Design Project		(3) _____							3
<b>TECHNICAL ELECTIVES (15)</b>										
Tech Elective _____			(3) _____					3		
Tech Elective _____			(3) _____					3		
Tech Elective _____			(3) _____					3		
Tech Elective _____			(3) _____						3	
Tech Elective _____			(3) _____						3	
<b>NON-ENG./COMP. SCIENCE ELECTIVES (9)***</b>										
Non-Eng./Comp. Sci. Elective _____			(3) _____		3					
Non-Eng./Comp. Sci. Elective _____			(3) _____					3		
Non-Eng./Comp. Sci. Elective _____			(3) _____						3	
<b>TOTAL CREDITS</b>	<b>130</b>	<b>17</b>	<b>17</b>	<b>18</b>	<b>16</b>	<b>18</b>	<b>16</b>	<b>15</b>	<b>13</b>	

\* CIS 321 can be waived if a student takes both MAT521 and MAT525. \*\*\*At least 3 of the 9 credits must be from the College of Arts & Sciences.

## Computer Engineering Curriculum Notes 2012-2013

### Technical Electives

Students fulfill 15 credits of technical electives by completing at least 6 credits from group A technical electives and the remaining from group B technical electives. Special topic technical courses, which from time to time are offered, may be assigned to either group A or group B as determined by Computer Engineering program committee. Every year the computer engineering program committee will review the list and may make change(s).

#### Group A (*at least 6 credits*):

- ❖ Please see the Program Director for a list of courses.

#### Group B (*remaining credits*):

- ❖ ELE331 - Digital Circuits and Systems
- ❖ CSE 565 - Digital Design Test and Verification
- ❖ CSE 591 - Topics in Computer Systems Engineering: Topics Related to Hardware
- ❖ CIS 483 - Introduction to Computer and Network Security
- ❖ CIS 543/ELE 516 - Control of Robots
- ❖ ELE 333 - Analog Circuits
- ❖ ELE 346 - Semiconductor Devices
- ❖ ELE 351 - System and Signal Analysis
- ❖ ELE 424 - Fundamentals of RF and Microwaves

#### Group B (*remaining credits*):

The Computer Engineering Program Committee will determine if a specific 'special topics' course can be used to fulfill the technical elective requirement.

### Social Sciences and Humanities Electives

This 6-credit requirement may be fulfilled by any combination of courses whose contents are in the social science and humanities area. A glossary of course designations with such contents can be found in the Humanities Division and the Social Sciences Division of the College of Arts and Sciences with the exception of the following Anthropology - Physical courses: ANT 131, 331, 431, 432, and 433. These glossaries are given in The College of Arts and Sciences section of the Undergraduate Catalog.

### Non-Engineering/Computer Science Electives

The purpose of this 9-credit requirement of non-engineering/computer science elective courses is to provide students with a broad educational experience in a diversity of subjects.

More specifically, technical courses offered by (or crosslisted with) the College of Engineering and Computer Science (ECS), courses with pass/fail grades, CPS courses, and 100-level courses in CHE, MAT, and PHY cannot be used to

- ❖ ELE 431 - Analog Circuits and Systems
- ❖ CIS 453 - Software Specification and Design
- ❖ CSE 482 - Principles of Software Engineering
- ❖ CSE 581 - Introduction to Database Management Systems
- ❖ CSE 588 - Translator Design
- ❖ CIS 352 - Programming Languages: Theory and Practice
- ❖ CIS 373 - Introduction to Automata Theory
- ❖ CIS 425 - Introduction to Computer Graphics
- ❖ CIS 467 - Introduction to Artificial Intelligence
- ❖ CIS 473 - Logic and Computability Theory
- ❖ CIS 483 - Introduction to Computer and Network Security
- ❖ CIS 500 - Programming in Java 5.0
- ❖ CIS 543/ELE 516 - Control of Robots
- ❖ CIS 581 - Concurrent Programming

satisfy this requirement. IST courses will require permissions from academic advisors.

### General Information

Note that you cannot take CIS 554 – Object-Oriented Programming in C++, to fulfill any requirement in the Computer Engineering undergraduate program. This is because a considerable amount of material covered in this course overlaps with the material covered in the core course CSE 283 – Introduction to Object-Oriented Design.

Note that CPS courses cannot be taken to fulfill any of the requirements for the Computer Engineering undergraduate program. These courses are designed for non-majors in Computer Engineering or in Computer Science.

### Minors

In order to promote interdisciplinary study and facilitate the pursuit of minors, students may use up to 6 credits of technical electives towards completing minor requirements (in programs other than MAT and ELE). In this case, at least 6 credits of technical electives have to be from Group A (shown above). This special rule applies only when a student actually completes a minor requirement.

# College of Engineering and Computer Science

Electrical Engineering  
Fall 2012

Name \_\_\_\_\_  
SUID \_\_\_\_\_

Track: \_\_\_\_\_  
Minor: \_\_\_\_\_

	CREDIT GRADE	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR +/-
		F	S	F	S	F	S	F	S	
<b>MATHEMATICS (18)</b>										
MAT295 Calculus 1	(4) _____	4								
MAT296 Calculus 2	(4) _____		4							
MAT397 Calculus 3	(4) _____			4						
MAT485 Diff. Equations & Matrix Algebra	(3) _____				3					
MAT521 Probability and Statistics+	(3) _____					3				
<b>SCIENCES (15)</b>										
CHE150 General Chem. for Engineers	(3) _____	3								
CHE151 General Chem. for Engineers Lab	(1) _____	1								
PHY211 General Physics 1	(3) _____		3							
PHY221 General Physics Lab 1	(1) _____		1							
PHY212 General Physics 2	(3) _____			3						
PHY222 General Physics Lab 2	(1) _____			1						
Science/Math Elective _____	(3) _____							3		
<b>ENGLISH (12)</b>										
WRT105 Studio 1: Practices of Academic Writing	(3) _____	3								
WRT205 Studio 2: Critical Research and Writing	(3) _____			3						
WRT307 Adv. Writing Studio: Professional Writing	(3) _____					3				
WRT401 Adv. Wrkshp Tech Com: Desgn Mthd	(2) _____							2		
WRT402 Adv. Wrkshp Tech Com: Proto. & Constr.	(1) _____							1		
<b>SOC. SCIENCE/HUMANITIES/GEN. ED. (18)</b>										
SSH Elective _____	(3) _____	3								
SSH Elective _____	(3) _____		3							
SSH Elective _____	(3) _____			3						
ECS392 Ethical Aspects of ECS	(3) _____							3		
Non-Tech Elective _____	(3) _____		3							
Non-Tech Elective _____	(3) _____								3	
<b>ENGINEERING (10)</b>										
ECS101 Intro. to Engr. & Comp. Sci.	(3) _____	3								
ECS102 Intro. to Computing	(3) _____		3							
ECS 204 Mathematical Programming for Engineers#	(1) _____			1						
CSE261 Digital Logic Design	(3) _____				3					
<b>ELECTRICAL ENGINEERING (36)</b>										
ELE231 Electrical Engr. Fundamentals I	(3) _____			3						
ELE232 Electrical Engr. Fundamentals II	(3) _____				3					
ELE291 Electrical Engr. Lab. I	(1) _____			1						
ELE292 Electrical Engr. Lab. II	(1) _____				1					
ELE324 Electromagnetics I	(3) _____					3				
ELE325 Electromagnetics II*	(3) _____						3			
ELE331 Digital Circuits & Systems	(3) _____					3				
ELE333 Analog Circuits	(3) _____						3			
ELE346 Semiconductor Devices*	(3) _____			3						
ELE351 System and Signal Analysis	(3) _____					3				
ELE391 Digital Circuits Laboratory	(3) _____					3				
ELE392 Analog Circuits Laboratory	(3) _____						3			
ELE491 Senior Design Project 1	(1) _____							1		
ELE492 Senior Design Project 2	(3) _____								3	
<b>TECHNICAL ELECTIVES (18)</b>										
<b>Select Two of the Following 3 Courses:</b>	( ) _____						3			
ELE312 Control Systems* (3)	( ) _____						3			
ELE352 Digital Signal Processing (3)										
ELE424 Fund.of RF and Microwaves (3)										
<b>And Another 4 Technical Electives:</b>										
Tech Elective _____	(3) _____							3		
Tech Elective _____	(3) _____							3		
Tech Elective _____	(3) _____								3	
Tech Elective _____	(3) _____								3	
<b>FREE ELECTIVES (5)</b>										
Free Elective _____	(3) _____						3			
Free Elective _____	(2) _____								2	
<b>TOTAL CREDITS</b>	<b>132</b>	<b>17</b>	<b>17</b>	<b>16</b>	<b>16</b>	<b>18</b>	<b>18</b>	<b>13</b>	<b>17</b>	

# ELECTRICAL ENGINEERING

## Curriculum Notes

2012-2013

1. Electrical Engineering (EE) students must complete 18 credit hours in social sciences/humanities/Non-Technical electives using any one of the following options:
  - Option 1:** Students may use their electives to complete a non-technical minor. Students pursuing this option must plan early in their degree program.
  - Option 2:** Complete the divisional perspective requirements of humanities division and take the remaining electives from the social sciences division.
  - Option 3:** Complete the divisional perspective requirements of social sciences division and take the remaining electives from the humanities division.
2. In the EE program, tracks of specialization (described in the 2012-2013 Syracuse University online Undergraduate Course Catalog: [http://coursecatalog.syr.edu/2012/programs/electrical\\_engineering](http://coursecatalog.syr.edu/2012/programs/electrical_engineering)) and minors are used to regulate technical electives. A student must complete four technical elective courses in Electrical Engineering or Computer Engineering. At a minimum, two of these courses must complete one EE track. Students with an LCS technical minor needs to complete only one EE track (two EE elective courses). If a student chooses to complete two tracks, there are 12 credits of technical electives. If a student chooses to complete one EE track and a technical ECS minor, the technical electives are increased to 21 credits. Courses that are not required for students who complete a technical minor are ELE 346, 325 and 312.
3. First year courses in Physics, Mathematics and computer programming may not be used as unspecified electives.

### Footnotes to the Curriculum Table:

- + CIS 321 can be substituted if a student does not want a mathematics minor.
- # ECS 204 is in the process of being approved. In the meantime, students may take ECS 200 (Introduction to MATLAB).
- \* Students who choose to complete a technical ECS minor may replace these courses with technical electives.

### Tracks (Technical Electives)

Tracks are intended to provide a cohesive set of technical electives for electrical engineering students. A track usually consists of a group of four courses (12 credits). In the Department of Electrical Engineering and Computer Science there are four tracks in electrical engineering.

#### Communications Track:

ELE 351	System and Signal Analysis	3	
ELE 352	Digital Signal Processing	3	
<b>and two of the following:</b>			
ELE 551	Communication Systems	3	
ELE 458	Data Networks: Basic Principles	3	
ELE 591	Special Topics in Communications	3	

#### Electromagnetics Track:

ELE 324	Electromagnetics I	3	
ELE 325	Electromagnetics II *	3	
<b>and two of the following:</b>			
ELE 424	Fundamentals of RF & Microwaves	3	
ELE 425	Microwave Engineering	3	
ELE 524	Introduction to Applied Optics	3	
ELE 525	Electromagnetics Compatibility	3	

#### Power Track:

ELE 324	Electromagnetics I	3	
ELE 333	Analog Circuits	3	
<b>and two of the following:</b>			
ELE 416	Electromechanical Devices	3	
ELE 514	Electric Power Systems	3	
ELE 400	Power Electronics	3	
ELE 400	Sensors and Measurements	3	
ELE 591	Distributed Source Integration in Smart Grid	3	

#### VLSI Track:

ELE 331	Digital Circuits & System	3	
ELE 346	Semiconductor Devices *	3	
<b>two technical electives:</b>			
ELE 464	Introduction to VLSI Design	3	
ELE 541	Integrated Circuits	3	

\* Students who choose to complete a technical ECS minor may replace these courses (ELE346, ELE325) with technical electives.

# College of Engineering & Computer Science

Environmental Engineering  
Fall 2012

Name \_\_\_\_\_  
SUID \_\_\_\_\_

	CREDIT GRADE	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR +/-
		F	S	F	S	F	S	F	S	
<b>MATHEMATICS (15)</b>										
MAT295 Calculus 1	(4)___	4								
MAT296 Calculus 2	(4)___		4							
MAT397 Calculus 3	(4)___			4						
MAT485 Diff. Equations & Matrix Algebra	(3)___				3					
<b>SCIENCES (20)</b>										
CHE106 General Chemistry I	(3)___	3								
CHE107 General Chemistry I Lab	(1)___	1								
CHE116 General Chemistry 2	(3)___		3							
CHE117 General Chemistry Lab 2	(1)___		1							
PHY211 General Physics 1	(3)___		3							
PHY221 General Physics Lab 1	(1)___		1							
EAR203 Earth System Science	(4)___				4					
GEO383 Geographic Information System	(4)___						4			
<b>ENGLISH (6)</b>										
WRT105 Studio 1: Practices of Academic Writing	(3)___	3								
WRT205 Studio 2: Critical Research and Writing	(3)___				3					
<b>SOCIAL SCIENCE/HUMANITIES (18)</b> (See curriculum notes)										
SSH Elective _____	(3)___	3								
SSH Elective _____	(3)___		3							
SSH Elective _____	(3)___			3						
SSH Elective _____	(3)___			3						
SSH Elective _____	(3)___					3				
SSH Elective _____	(3)___					3				
<b>ENGINEERING (16/17)</b>										
ECS101 Intro. to Engr. & Comp. Sci.	(3)___	3								
ECS221 Statics	(3)___			3						
ECS325 Mechanics of Solids	(4)___				4					
GNE461 Air Pollution Engineering	(3)___							3		
<b>Select One of the Following 5 Courses:</b>	( )						3 or 4			
ECS222 Dynamics (3)										
ECS326 Engineering Materials										
ELE231 Elec. Engr. Fundamentals (3 or 4)										
MAE251 Thermodynamics (4)										
CHE346 Physical Chemistry (3)										
<b>ENVIRONMENTAL ENGINEERING (35) D=12</b>										
CIE272 Civil & Envir. Engr Measurements	(3)___			3						
CIE274 Civil & Environmental Engr. Systems	(3)___				3					
CIE327/MAE341 Fluid Mechanics	(4)___					4				
CIE337 Intro to Geotechnical Engineering 1.00	(4)___					4				
CIE341 Intro Environmental Engineering 1.00	(3)___					3				
CIE352 Water Resources Engr. 2.00	(4)___						4			
CIE442 Treatment Proc. In Environmental Engr 2.00	(4)___							4		
CIE471 Env. Chemistry Analysis 1.00	(3)___							3		
CIE472 Applied Env. Microbiology 1.00	(3)___							3		
CIE475 Capstone Design 4.00	(4)___								4	
<b>ELECTIVES (18)</b>										
Prof. Elective _____	(3)___						3			
Prof. Elective _____	(3)___						3			
Prof. Elective _____	(3)___							3		
Tech Elective _____	(3)___							3		
Tech Elective _____	(3)___							3		
Free Elective _____	(3)___							3		
<b>TOTAL CREDITS</b>	<b>128-129</b>	<b>17</b>	<b>15</b>	<b>16</b>	<b>17</b>	<b>17</b>	<b>17-18</b>	<b>16</b>	<b>13</b>	

## DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING

### Curriculum Notes

### 2012-2013

#### SS/HUM ELECTIVES

All CIE students are required to complete at least 18 credits of SS/HUM electives. A *minimum* of one course (or 3 credits) must be chosen from each of the three groups of designated courses listed below. The remaining three SS/HUM electives (or 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 that are listed on their Humanities and Social Sciences lists in the SU Bulletin – Undergraduate Course Catalog
- any foreign language courses (except student’s native language)
- ECS 391 – Legal Aspects of ECS
- ECS 392 – Ethical Aspects of ECS.

<b>Group 1: Economics and Social Issues</b>
ECN 203 – Economics Ideas and Issues
ECN 301* – Intermediate Microeconomics
ECN 302* – Intermediate Macroeconomics
ECN 365* – The World Economy
GEO 353 – Environmental Justice
PSC 383 – Civil Society and Democracy
SOC 101 – Introduction to Sociology
SOC 102 – Social Problems
SOC 363 – Urban Sociology
STS/BPS 101 – Introduction to Science, Technology and Society

\*requires ECN 203 as prerequisite

<b>Group 2: Global Affairs</b>
ECN 365 – The World Economy
GEO 103 – America and the Global Environment
GEO 105 – World Geography
GEO 215 – Global Environmental Change
GEO 272 – World Cultures
GEO 273 – World Political Economy
MAX 123 – Critical Issues for the U.S.
MAX 132 – Global Community
PAF 351 – Global Social Problems
PSC 124/129 – International Relations
PSC 355 – International Political Economy

<b>Group 3: Public Policy and Policy Studies</b>
ECN/WGS 358 – Economics of US Poverty & Discrimination
GEO 203 – Society and the Politics of Nature
GEO 314 – Hazardous Geographic Environments
GEO 356 – Environmental Ideas & 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 – Legislative Process and US Congress
PSC 308 – The Politics of US Public Policy
PSC 312 – Urban Government & Politics
PSC 318 – Technology, Politics & Environment

+ requires PAF101 as prerequisite

#### 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; as well as ECS 222, ELE 231, and MAE 251 that have not been used for degree credits), 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 are courses offered in the following schools/colleges with the indicated prefixes that meet the above stated criteria.

<b>School/College</b>	<b>Course Prefix</b>
Architecture	ARC
Arts and Sciences	AST, BCM, BIO, CHE, ECN, GEO, GOL, MAX, MAT, PAF, PHY
Engineering and Computer Science	All course prefixes
Information Studies	IST
Whitman	ACC, BUA, EEE, FIN, INB, LPP, MAR, O&M, OPM, SHR, SOM
Newhouse	COM
VPA	CRS
SUNY-ESF	All course prefixes

# College of Engineering and Computer Science

Mechanical Engineering  
Fall 2012

Name \_\_\_\_\_  
SUID \_\_\_\_\_

	CREDIT GRADE	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR +/-
		F	S	F	S	F	S	F	S	
<b>MATHEMATICS (21)</b>										
MAT295 Calculus 1	(4)___	4								
MAT296 Calculus 2	(4)___		4							
MAT397 Calculus 3	(4)___			4						
MAT331 Linear Algebra	(3)___			3						
MAT414 Intro. Differential Equations	(3)___				3					
MAT521 Intro. to Probability & Stats	(3)___							3		
<b>SCIENCES (12)</b>										
CHE150 General Chem for Engrs	(3)___	3								
CHE151 General Chem for Engrs Lab	(1)___	1								
PHY211 General Physics 1	(3)___		3							
PHY221 General Physics Lab 1	(1)___		1							
PHY212 General Physics 2	(3)___			3						
PHY222 General Physics Lab 2	(1)___			1						
<b>ENGLISH/SOCIAL SCIENCE/HUMANITIES (12)</b>										
WRT105 Studio 1: Practices of Academic Writing	(3)___	3								
WRT205 Studio 2: Critical Research and Writing	(3)___					3				
ECN 203 Economics Ideas & Issues	(3)___	3								
SSH Elective _____	(3)___		3							
<b>PROGRAM CUSTOMIZATION (21)</b>										
Course1 _____	(3)___			3						
Course2 _____	(3)___					3				
Course3 _____	(3)___						3			
Course4 _____	(3)___							3		
Course5 _____	(3)___							3		
Course6 _____	(3)___								3	
Course7 _____	(3)___								3	
<b>ENGINEERING (26)</b>										
ECS101 Intro. to Engr. & Comp. Sci.	(3)___	3								
ECS 104 Engr. Comp Tools	(3)___		3							
ECS221 Statics	(3)___			3						
ECS222 Dynamics	(3)___				3					
ECS325 Mechanics of Solids	(4)___				4					
ECS326 Engr. Materials, Prop. & Proc.	(3)___					3				
ELE231 Elec. Engr. Fundamentals 1	(3)___					3				
ELE291 Elec. Engr. Laboratory 1	(1)___					1				
ELE312 Control Systems	(3)___								3	
<b>MECHANICAL ENGINEERING (36)</b>										
MAE184 Engr. Graphics & CAD	(3)___		3							
MAE251 Thermodynamics	(4)___				4					
MAE315 Mech/Aero Lab I	(3)___					3				
MAE321 Dynamics of Mech. Systems	(3)___						3			
MAE341 Fluid Mechanics	(4)___					4				
MAE355 Heat Transfer	(4)___						4			
MEE332 Intro. Mach. Des. & Mfg.	(4)___						4			
MEE416 Mechanical Engr. Lab	(1)___							1		
MEE471 Syn. Mech. Systems I	(3)___							3		
MEE472 Syn. Mech. Systems II	(4)___								4	
MFE 331 Manufacturing Processes	(3)___				3					
<b>TOTAL CREDITS</b>		<b>128</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>13</b>	<b>13</b>

**MECHANICAL ENGINEERING**  
**Curriculum Notes**  
**2012-2013**

1. Mechanical engineering students must complete at least 3 credit hours in the Social Science/Humanities in addition TO ECN203, and complete one of the following options for a total of eight electives (27 credit hours):  
  
**Option 1:** Complete a non-technical minor of at least 18 credits and 3 additional free credits.  
  
**Option 2:** Complete 3 additional credits in the social sciences/humanities and at least 18 credits towards a technical minor.  
  
**Option 3:** Complete at least 6 additional credits in the social sciences/humanities and 6 credits of free electives and 9 credits of technical electives.
2. Technical electives must be taken within the Mechanical and Aerospace Engineering (MAE) Department.
3. Many technical electives in the MAE Department are scheduled on a 2-year rotation, so students should make themselves aware of technical elective offerings starting in their third year.
4. Students seeking to complete a mathematics minor by taking an additional math course (usually MAT 517) can use this course as a free elective but must still complete one of the 3 options listed above.



# College of Engineering and Computer Science

Systems & Information Science

Fall 2012

Name \_\_\_\_\_

SUID \_\_\_\_\_

Minor: \_\_\_\_\_

	CREDIT	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR
		GRADE	F	S	F	S	F	S	F	
<b>Communication Skills (9 cr)</b>										
WRT105 Studio 1: Practices of Academic Writing	(3) _____	3								
WRT205 Studio 2: Critical Research and Writing	(3) _____				3					
<b>Select one of the following three courses:</b>	(3) _____						3			
CRS/CAS325 Presentational Speaking (3)	(3) _____									
IST 444 Info. Reporting & Presentations (3)	(3) _____									
<b>Arts &amp; Sciences Elec (39 cr) 6 cr Hum, 6 cr SS, 6 cr Nat Sci. &amp; Math, 21 cr from any A&amp;S division or VPA</b>										
Humanities _____	(3) _____	3								
Humanities _____	(3) _____		3							
Soc.Scie _____	(3) _____		3							
Soc.Scie _____	(3) _____		3							
NS/Math _____	(3) _____			3						
NS/Math _____	(3) _____				3					
SSH/VPA _____	(3) _____					3				
SSH/VPA _____	(3) _____						3			
SSH/VPA _____	(3) _____						3			
SSH/VPA _____	(3) _____							3		
SSH/VPA _____	(3) _____							3		
SSH/VPA _____	(3) _____								3	
SSH/VPA _____	(3) _____									3
<b>Free Electives (6 cr)</b>										
Free Elec _____	(3) _____			3						
Free Elec _____	(3) _____								3	
<b>Mathematics Foundations (13 cr)</b>										
MAT194 Pre-Calculus	(4) _____	4								
PHI 251 Logic	(3) _____		3							
CIS 275 Intro to Discrete Math	(3) _____			3						
CIS 223 Statistical Reasoning and Practice	(3) _____				3					
<b>SIS Core (33 cr)</b>										
ECS 101 Intro to ECS	(3) _____	3								
IST 101 Freshman Forum	(1) _____	1								
<b>Computing Core (20 Cr)</b>										
ECS102 Intro. to Systems Programming	(3) _____	3								
CIS 252 Intro to Computer Science	(4) _____		4							
CIS 351 Data Structures	(4) _____			4						
CIS/CSE 386 Princ of Computer Systems Des.	(3) _____					3				
CIS 453 Software Specifications & Design	(3) _____							3		
CIS 454 Software Implementations	(3) _____								3	
<b>Information Management Core (9 cr)</b>										
IST 335 Intro to Information-Based Organ.	(3) _____			3						
IST 352 Information Analysis of Organ Sys.	(3) _____				3					
IST 445 Managaging Information Sys Projects	(3) _____					3				
<b>Technical Specializations (6 cr)</b>										
Tech Spec _____	(3) _____						3			
Tech Spec _____	(3) _____					3				
<b>Focus Area (18 cr)</b>										
Elective _____	(3) _____					3				
Elective _____	(3) _____			3						
Elective _____	(3) _____						3			
Elective _____	(3) _____							3		
Elective _____	(3) _____								3	
Elective _____	(3) _____									3
<b>TOTAL CREDITS</b>		<b>124</b>	<b>17</b>	<b>16</b>	<b>16</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>	<b>15</b>

\*Please see Robert Irwin – Program Director, for Technical Specializations and Focus Area courses.

## **This Section applies only to Computer Science Majors**

### **1. Summary**

The current Computer Science (CS) undergraduate curriculum was approved by the faculty of the department of Electrical Engineering and Computer Science in the Spring of 2011.

The requirements for the program of study are divided into three categories: *general education*, *mathematics* and *major*. The general education category has requirements in writing, presentation skills, natural science and engineering, and a requirement for courses offered by the College of Arts and Sciences or the College of Visual and Performing Arts. The major category has two parts—the computer science core, and the upper-division electives.

#### **GENERAL EDUCATION**

- 6 Writing (WRT 105, WRT 205)
- 3 Presentation Skills
- 18 Natural Science and Engineering (including ECS 101, 102 and PHY 211, 221)
- 21 Arts, Humanities, and Social Sciences (including PHI 251, ECS 392)
- 9 free electives

#### **MATHEMATICS**

- 15 or 16 Mathematics

#### **MAJOR**

- 33 Computer and Information Science core courses
  - 18 upper-division courses
- 
- 123 or 124 Credit hours total

Table 1: Credit hours required for the CS Bachelor’s program.

### **2. Important Notes on Course Restrictions**

The restrictions on courses listed below are *not* comprehensive. Students unclear about the appropriateness of courses for meeting a distribution requirement must petition for acceptance of the course(s) through the CIS program committee *before* taking the course.

Prior to registration each semester, students *must* meet with their faculty advisors for assistance in choosing appropriate courses.

### **3. General-Education Requirements**

The intent of the general-education requirements is to ensure that students graduate with knowledge of subjects beyond Computer Science, with particular emphasis on writing skills.

#### **3.1. Writing Requirements**

The following two courses are required:

WRT 105 *Writing Studio 1*

WRT 205 *Writing Studio 2*

#### **3.2. Presentation Skills Requirement**

Students must successfully complete at least one of the following courses:

CRS 255                    *Public Advocacy*  
CAS 325/CRS 325   *Presentational Speaking*  
IST 444                    *Information Reporting and Presentation*

### 3.3. Natural Science and Engineering Requirements

Eighteen credits of natural science and engineering courses are required: six in engineering and twelve in science. These engineering courses are required:

ECS 101   *Introduction to Engineering and Computer Science*  
ECS 102   *Introduction to Computing*

The twelve credits of science must include a two-semester sequence in a laboratory science, as well as the following courses:

PHY 211   *General Physics*  
PHY 221   *General Physics Lab*

A student may take the second physics course (PHY 212) and its associated lab (PHY 222) to satisfy the two-semester requirement; the student would still have to take an additional four credits of science. Possible two-course sequences include the following:

- PHY 211/221 (*General Physics I and Laboratory*)  
    *and*  
    PHY 212/222 (*General Physics II and Laboratory*)
- CHE 106/107 (*General Chemistry Lecture and Laboratory*)  
    *and*  
    CHE 116/117 (*General Chemistry Lecture II and Laboratory*)
- BIO 121 (*General Biology*)  
    *and*  
    BIO 123 (*General Biology II*)
- EAR 101 (*Dynamic Earth*)  
    *and*  
    EAR 333 (*Structural Geology*)

Additional courses that may be used to complete the science requirement include those in the following departments, except those courses specifically excluded or whose content relates primarily to computing and/or mathematics, or to social and historical issues. Such courses may be appropriate for other distribution requirements.

Anthropology, Physical (ANT 131, 331, 431, 432, 433)	Biology (BIO)
Chemistry (CHE)	Earth Sciences (EAR)
Materials Science (MTS)	Physics (PHY)

The following courses **do not** satisfy the science requirement:

Social, Cultural Anthropology (ANT)	Astronomy (AST)
BIO 211	BIO 215
CHE 103, 113	Geography (GEO)
EAR 102, 105	NEU 211
PHY 101/111, 102/112, 105, 106	

### 3.4. Arts, Humanities, and Social Sciences Requirements

Students are required to take PHI 251 (*Logic*), ECS 392 (*Ethical Aspects of Engineering and Computer Science*), and fifteen additional credit hours of courses in fine arts, humanities, and/or social sciences. These courses (A/H/SS) are to be drawn from the offerings of the College of Arts and Sciences and the College of Visual and Performing Arts. Courses from the following departments may be used:

Art Photography (APH)	African American Studies (AAS)
Applied Music (AMC)	American Studies (AMS)
Anthropology–Social and Cultural (ANT)	Art (ART)
Ceramics (CER)	Chinese (CHI)
Communications Design (CMD)	Drama (DRA)
Economics (ECN)	English and Textual Studies (ETS)
Fine Arts (FIA)	Fiber Arts (FIB)
Film (FIL)	Foundation (FND)
French (FRE)	Fashion Illustration (FSH)
Geography (GEO)	German (GER)
Greek (GRE)	Hebrew (HEB)
Hindi (HIN)	History (HIS)
Humanities (HUM)	Illustration (ILL)
International Relations (IRP)	Interior Design (ISD)
Italian (ITA)	Latin (LAT)
Linguistics (LIN)	Literature in Translation (LIT)
Metalsmithing (MET)	Music History & Literature (MHL)
Museum Studies (MUS)	Public Affairs & Citizenship (PAF)
Philosophy (PHI)	Polish (POL)
Political Science (PSC)	Psychology (PSY)
Printmaking (PRT)	Painting (PTG)
Religion (REL)	Russian (RUS)
Sculpture (SCU)	Comm. and Rhetorical Studies (CRS)
Sociology (SOC)	Social Science (SOS)
Spanish (SPA)	Surface Pattern Design (SPD)
Studio Arts (STA)	Art Video (VID)
Writing (WRT)	Women’s Studies (WSP)

The following courses/departments **cannot** be used:

Art Education (AED)	Astronomy (AST)
Advertising Design (ADD)	Anthropology–Physical (see above)
Biology (BIO)	Chemistry (CHE)
Cognitive Science (COG)	Comm. Sciences & Disorders (CSD)
Computer Graphics (CGR)	GEO 155
Earth Sciences (EAR)	Industrial Design (IND)
Mathematics (MAT)	Music Education (MUE)
Non-departmental AS (NAS)	Physics (PHY)
PSY 223, PSY 273	Science Teaching (SCI)
Undergraduate Research Program (URP)	WRT 105, WRT 205

Also excluded are any courses cross-listed in the College of Arts and Sciences and the School of Education.

### 3.5. Free Electives

Any and all courses may be taken as free electives, with the following exception: CPS courses **do not count** as free-elective credits for CS majors.

## 4. Mathematics Requirements

Fifteen or sixteen credit hours of Mathematics courses are required. No grade below C<sup>-</sup> is acceptable. Students *must* take both:

MAT 295 *Calculus I*

MAT 296 *Calculus II*

Students *must* also take at least one of:

MAT 397 *Calculus III*

MAT 331 *Linear Algebra*

Students *must* also take:

CIS 321 *Introduction to Probability and Statistics*

MAT 295, 296, and 397 are four-credit courses, as is CIS 321. MAT 331 is a three-credit course.

## 5. Course Requirements for the Major

No grade below C- is acceptable for a course in the major category.

### 5.1. CIS Core Course Requirements

The following eleven courses (33 credit hours) are required. These courses **must** be completed with a core GPA of at least 2.666. No grade below C<sup>-</sup> is acceptable for a course in the major category.

CIS 252 *Introduction to Computer Science*

CIS 275 *Introduction to Abstract Mathematics*

CIS 341 *Computer Organization and Programming Systems*

CIS 342 *Introduction to Systems Programming*

CIS 351 *Data Structures*

CIS 352 *Programming Languages: Theory and Practice*

CIS 453 *Software Specification and Design*

CIS 454 *Software Implementation*

CIS 473 *Computability Theory*

CIS 477 *Introduction to Analysis of Algorithms*

CIS 486 *Design of Operating Systems*



The diagram above shows the prerequisite structure of the core courses. Note that a few of these prerequisites have some flexibility (e.g., CIS 252 and MAT 295 can be taken concurrently). As always, check with the course catalog and the course instructor for details.

## 5.2. Upper-Division Course Restrictions

Eighteen credit hours of upper-division courses are required. At least 9 of the 18 credits must be computer science or computer engineering courses.

Upper-division courses include the following:

CIS 390	<i>Honors Seminar in Computer and Information Science</i>
CIS 400	<i>Selected Topics</i>
CIS 425	<i>Introduction to Computer Graphics</i>
CIS 428	<i>Introduction to Cryptography</i>
CIS 467	<i>Introduction to Artificial Intelligence</i>
CIS 471	<i>Optimization Methods</i>
CIS 478	<i>Introduction to Quantum Computing</i>
CIS 483	<i>Introduction to Computer and Network Security</i>
CIS 531	<i>Compiler Construction</i>
CIS/MAT 545	<i>Finite Mathematics</i>
CIS 543/ELE 516	<i>Control of Robots</i>
CIS 553	<i>Software Systems Implementation</i>
CIS 554	<i>Object Oriented Programming in C++</i>
CIS/ELE 558	<i>Data Networks: Basic Principles</i>
CIS/IST 563	<i>Natural Language Processing</i>
CIS 565	<i>Introduction to Artificial Neural Networks</i>
CIS 567	<i>Knowledge Representation and Reasoning</i>
CIS 583	<i>Systems Assurance Seminar</i>
CSE 397	<i>Computer Laboratory I</i>
CSE 398	<i>Computer Laboratory II</i>
CSE 483	<i>Windows Programming</i>
CSE 561	<i>Digital Machine Design</i>
CSE 581	<i>Introduction to Database Management Systems</i>
PHI 378	<i>Minds and Machines</i>
PHI 551	<i>Symbolic Logic</i>
PHI 552	<i>Modal Logic</i>

Students may choose any other CIS course numbered above 300, except those that carry no credit hours. Courses that do **not** qualify as upper-division electives include:

CIS 470 *Experience Credit*

CS students may also choose any MAT courses numbered above 400, **except** for the following:

MAT 485 *Differential Equations and Matrix Algebra for Engineers*

MAT 521 *Introduction to Probability and Statistics*

CS students may also choose topics courses (e.g., PHI 460 *Logic and Foundations of Mathematics*); however, they must petition the CIS program committee to have the specific course accepted *before* taking the course.

## 6. Representative CIS Undergraduate Programs

Here is a fairly typical CIS undergraduate program for a student who initially places into MAT 295.

	<b>Fall</b>	<b>Spring</b>
<b>First Year</b>	ECS 101 ECS 102 MAT 295 WRT 105 A/H/SS elective *	CIS 252 MAT 296 PHY 211, PHY 221 PHI 251
<b>Second Year</b>	CIS 275 CIS 351 MAT 397 or MAT 331 A/H/SS elective	CIS 321 CIS 341, CIS 342 CIS 352 WRT 205 free elective
<b>Third Year</b>	CIS 453 CIS 477 CIS 486 presentation-skills elective science elective	CIS 454 CIS 473 upper-division course A/H/SS elective science elective
<b>Fourth Year</b>	upper-division course upper-division course upper-division course ECS 392 A/H/SS elective	upper-division course upper-division course A/H/SS elective free elective free elective

\*Students wishing to preserve the option of transferring to an engineering major at the end of the first semester should take CHE 106/107 in place of the A/H/SS elective.

Here is a fairly typical CIS undergraduate program for a student who initially places into MAT 194.

	<b>Fall</b>	<b>Spring</b>
<b>First Year</b>	ECS 101 ECS 102 MAT 194 WRT 105 A/H/SS elective*	CIS 252 MAT 295 PHY 211, PHY 221 PHI 251
<b>Second Year</b>	CIS 275 CIS 351 MAT 296 A/H/SS elective	CIS 321 CIS 341, CIS 342 WRT 205 MAT 397 or MAT 331 free elective
<b>Third Year</b>	CIS 453 CIS 477 CIS 486 presentation-skills elective science elective	CIS 454 CIS 473 CIS 352 A/H/SS elective science elective
<b>Fourth Year</b>	upper-division course upper-division course upper-division course ECS 392	upper-division course upper-division course upper-division course A/H/SS elective

\*Students wishing to preserve the option of transferring to an engineering major at the end of the first semester should take CHE 106/107 in place of the A/H/SS elective.



**College of Engineering and Computer Science**  
 Computer Science Name \_\_\_\_\_  
 Fall 2012 SUID \_\_\_\_\_

Minor: \_\_\_\_\_

CREDIT GRADE	FIRST-YEAR		SOPHOMORE		JUNIOR		SENIOR		VAR +/-
	F	S	F	S	F	S	F	S	

<b>G</b>	<b>English (6 cr) Minimum Grade C-</b>									
	WRT105	Studio 1: Practices of Academic Writing	(3) _____	3						
<b>N</b>	WRT205	Studio 2: Critical Research and Writing	(3) _____			3				

<b>E</b>	<b>Presentational Skills (3 cr) Minimum Grade C-</b>									
	Select one of the following three courses (3) _____									
	CRS 255	Public Advocacy (3)					3			
	CRS/CAS325	Presentational Speaking (3)								
<b>E</b>	IST 444	Info. Reporting & Presentations (3)	(3) _____							

<b>D</b>	<b>SSHVPA (21 credits)</b>									
	ECS 392	Ethical Aspects of ECS	(3) _____						3	
	PHI 251	Logic	(3) _____	3						
	SSHVPA	_____	(3) _____	3						
	SSHVPA	_____	(3) _____		3					
	SSHVPA	_____	(3) _____				3			
	SSHVPA	_____	(3) _____					3		
<b>N</b>	SSHVPA	_____	(3) _____						3	

<b>R</b>	<b>Natural Sciences (12 cr) Two semester lab sequence in Natural Sciences</b>									
	PHY211	General Physics 1	(3) _____	3						
	PHY221	General Physics Lab 1	(1) _____	1						
	NS/ENGR	_____	(4) _____				4			
	NS/ENGR	_____	(4) _____					4		

<b>M</b>	<b>Free Electives (9 cr)</b>									
	Free Elec	_____	(3) _____			3				
	Free Elec	_____	(3) _____						3	
<b>S</b>	Free Elec	_____	(3) _____						3	

<b>M</b>	<b>Mathematics (15-16 cr) Minimum Grade of C-</b>									
	MAT295	Calculus 1	(4) _____	4						
	MAT296	Calculus 2	(4) _____		4					
	MAT397/ 331	Calculus or Linear Algebra	(4-3) _____			4 or 3				
<b>J</b>	CIS321	Intro. to Probability & Statistics	(4) _____				4			

<b>R</b>	<b>Engineering Courses (6 cr)</b>									
	ECS101	Intro. to Engineering & Computer Sci	(3) _____	3						
	ECS102	Intro. to Computing	(3) _____	3						

<b>R</b>	<b>Comp Sci Core (33 cr) 2.667 GPA &amp; Minimum Grade C-</b>									
	CIS252	Intro. to Computer Science	(4) _____		4					
	CIS275	Intro. to Discrete Mathematics	(3) _____			3				
	CIS341	Comp. Organization & Prog. Systems	(3) _____				3			
	CIS342	Intro. to Systems Programming	(1) _____					1		
	CIS351	Data Structures	(4) _____			4				
	CIS352	Programming Lang: Theory & Prac.	(3) _____						3	
	CIS453	Software Specification & Design	(3) _____							3
	CIS454	Software Implementation	(3) _____							3
	CIS473	Computability Theory	(3) _____							3
<b>R</b>	CIS477	Intro. to Analysis of Algorithms	(3) _____						3	
<b>E</b>	CIS486	Operating Systems	(3) _____						3	

<b>M</b>	<b>Upper Division Courses (18 cr) Minimum Grade C- At least 9 credits of Upper Division MUST be in Computer Science</b>									
	Upper Div	_____	(3) _____						3	
	Upper Div	_____	(3) _____							3
	Upper Div	_____	(3) _____							3
	Upper Div	_____	(3) _____							3
	Upper Div	_____	(3) _____							3

<b>TOTAL CREDITS</b>			123-124	16	15	13-14	17	16	16	15	15
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### GPA WORKSHEET

**REQUIREMENTS: Minimum grade of C- in English, Mathematics, Core, and Upper Division Courses**

- 123 credits to graduate
- 2.0 Overall GPA to graduate
- 2.667 Core Course GPA
- Restrictions/exclusions as noted in the Undergraduate Handbook

**CORE GPA TALLY SHEET:**

2) Divide Total Grade Points by Total Course Credits for Core Grade Point Average (GPA).

CORE COURSE	HR	GRD	TOTAL GRD POINTS	TOTAL COURSE CR	CORE GPA	CALCULATION DATE AND INITIALS
CIS252	4					
CIS275	3					
CIS341	3					
CIS342	1					
CIS351	4					
CIS352	3					
CIS453	3					
CIS454	3					
CIS473	3					
CIS477	3					
CIS486	3					
				∓	=	
				∓	=	
				∓	=	
				∓	=	
				∓	=	
				∓	=	
				∓	=	
				∓	=	
				∓	=	
				∓	=	

**GRADING CHART: Credit hours X points per grade = Grade Points Earned**

GRD	PTS
A	4.000
A-	3.667
B+	3.333
B	3.000
B-	2.667
C+	2.333
C	2.000
C-	1.667
D	1.000
F	0.000

In most cases an excellent approximation can be obtained by taking A= 11/3, B+=10/3, etc. The correct GPA; however, is that determined by using the table.