RENSSELAER POLYTECHNIC INSTITUTE

School of Engineering

Department of Electrical, Computer, & Systems Engineering

ECSE

Class of 2019

Advising Book

Table of Contents

Electrical Engineering

Electrical Engineering is a dynamic and broad field that applies physics and mathematics to the creative design, research, development, testing and maintenance of diverse products prevalent in society today. From cell phones to smart cars, Light Emitting Diodes to autonomous robots, nano to macro, electrical engineering continues to grow as an integral part of our multidisciplinary, technological society.

The fun side of Electrical Engineering is: Feeling as if you are an integral part of making an idea reality. All the while you think to yourself, "I can't believe they are paying me to play with so many high tech toys that also help people!"

Key & Related Courses: Electric Circuits, Fields & Waves I, Embedded Control, Signals and Systems, Microelectronics Technology, Introduction to Electronics, and Electrical Energy Systems

Areas of Concentration: Communications, Information and Signal Processing; Control, Robotics, and Automation; Microelectronics and Photonics Technology; Circuit and Computer Hardware Design, Plasma Engineering and Electromagnetics; Electric Power

Employment and Career Opportunities: Electrical Engineering graduates with a bachelor's degree provide the backbone for a wide variety of technological fields. From designing sensors for the automotive industry to implementing circuits for defense companies to creating imaging products in the medical field, electrical engineers enable scientific ideas in many areas of technology. According to Jobweb, a career development and website for new college grads, electrical engineering is at the top of the engineering job demand curve at all degree levels with a very clear lead over other engineering disciplines for M.S. and PhD degrees. The U.S. Dept. of Labor also projects a 6% increase in employment through 2020. In addition, annual average job opportunities are highest for electrical and electronics engineers at 23,000.

Typically, during the first year or two after a bachelor's degree, the young engineer would get to know the company's products, expectations, and procedures before selecting a technical niche. That niche may include, design, development, implementation, testing, and characterization of various technologies. On the job, hands on experience, supplements theory learned in the classroom. For this reason, internships or co-ops before graduation increase chances of early success in this career path. In academic year 2011-12, RPI students are participating in co-ops with firms such as, IBM, GE Energy, Cisco, Honda, Siemens, Intel, and Hasbro. For more information about co-ops or internships visit the Center for Career and Professional Development (DCC-Suite 209) and their website at http://www.rpi.edu/dept/cdc/.

"A Bachelor of Science degree in engineering with a specialty in electrical engineering may also serve as a starting point for careers in many other fields, ranging from business to law, medicine, and politics, since the problem-solving skills acquired in an electrical engineering program provide an extraordinarily valuable asset. The same skills will equip you to assume leadership roles in your community and in professional circles outside the workplace." (*2001 IEEE, Inc.*) Management and electrical engineering is becoming a popular combination with a need for technical expertise in leadership. Decision making from a technical point of view is often sought and encouraged in electrical engineers whose aspirations are to lead. The finance industry has also become a primary employer of electrical engineers.
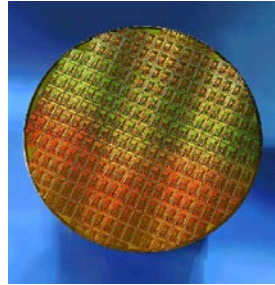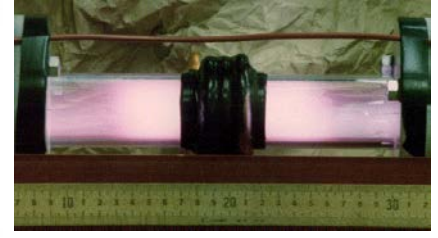
Undergraduate Research and Graduate School: Most electrical engineers eventually continue on to grad school where they further develop their expertise with the goal of leading technology into new and exciting areas of application. Continuing education is needed for a career in research and development. Usually M.S. students pursue their degrees with financial assistance from their employers. EE students in doctoral programs can plan on full financial support which includes tuition and stipends so such programs are essentially free. Participation in an undergraduate research project (URP) is an excellent way to learn about research and graduate studies.

Computer and Systems Engineering

Computer and Systems Engineering is a dynamic field that creatively applies computers and mathematics to the design, development, testing and implementation of a wide range of products. From secure wireless networks to medical imaging systems, from autonomous mobile robots to face recognition security systems, from aircraft control systems to mapping the world, from distributed underwater pollution sensors to the next generation Internet, from handheld games to MP3 players, these systems are built by RPI computer engineers.

The fun side of Computer and Systems Engineering is: Using all kinds of cool computers and equipment, and really understanding how they work, while also seeing the huge positive impact they have on society and our quality of life.

Key & Related Courses: Embedded Control, Electric Circuits, Signals and Systems, Computer Components and Operations, Computer Architecture, Networks, and Operating Systems, Engineering Probability, and Intro to Electronics.

Areas of Concentration: Automatic Control and Robotics, Communications and Information Processing, Computer Graphics & Applications, Computer Hardware, Computer Networks, Computer Systems, Manufacturing, Computer Vision, VLSI Design.

Employment and Career Opportunities: Computer and Systems Engineering graduates with a bachelor's degree provide the backbone for a wide variety of technological fields and enjoy broad freedoms in choosing the types of projects on which they want to work. In many cases, a computer engineer may decide to focus on building a tool or a product that meets a need they feel passionate about. For example, a computer engineer who suffered a loss in his or her family due to illness might invest their energy on developing software that manages medical equipment or help to bring back the enjoyment of music to someone with profound hearing loss. According to Jobweb, a career development and website for new college grads, computing and computer engineering are at the top of the engineering job demand curve at all degree levels, especially for M.S. and PhD degrees. Overall, career opportunities in computer engineering remain strong and are expected to grow by 9% by 2020.

Typically, during the first year or two after a bachelor's degree, the young engineer would get to know the company's products, expectations, and procedures before selecting a technical niche. That niche may include, design, development, implementation, testing, and characterization of various software and hardware technologies. On the job, hands on experience supplements theory learned in the classroom. For this reason, internships or co-ops before graduation increase chances of early success in this career path. Currently, RPI students are participating in co-ops with companies such as IBM, GE Energy, Cisco, Intel, MIT/Lincoln Labs, and Google. For more information about co-ops or internships visit the Center for Career and Professional Development and their website at http://www.rpi.edu/dept/cdc/.

Management and computer engineering is becoming a popular combination with a need for technical expertise in leadership. Decision making from a technical point of view is often sought and encouraged in computer engineers whose aspirations are to lead. The finance industry has also become a primary employer of CSE grads. Computer and Systems Engineers who go on to graduate school are looking to go beyond seeking solutions to immediate needs but look to project and steer future technologies through discovery and innovation.
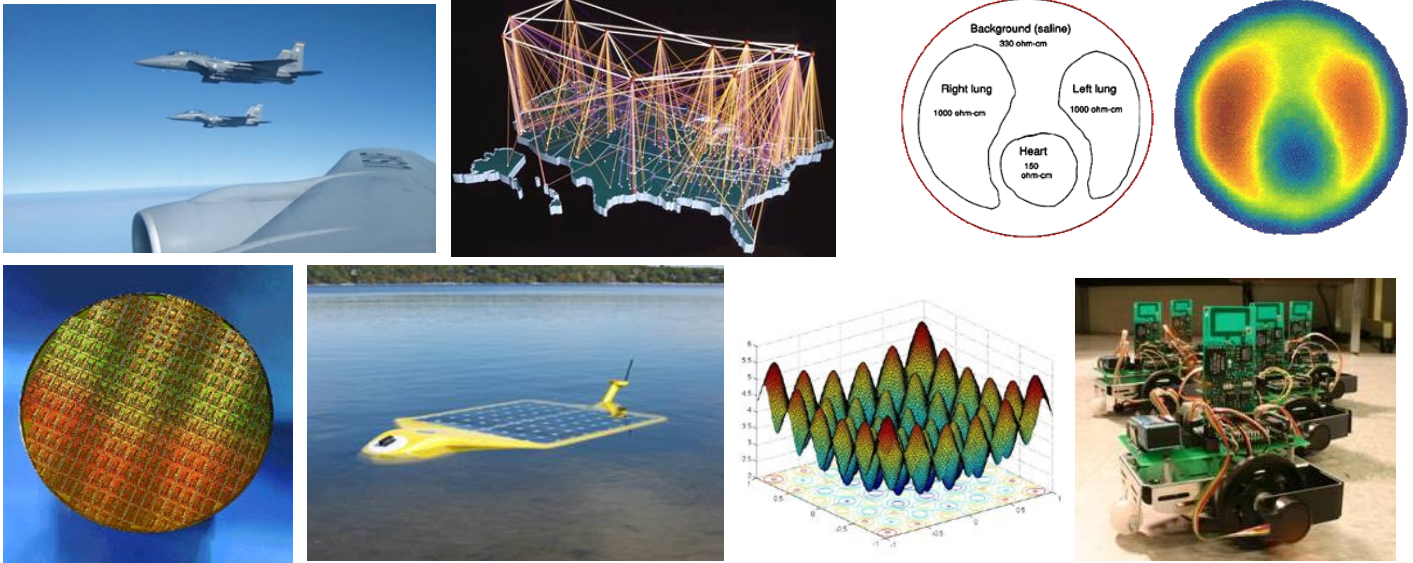
Undergraduate Research and Graduate School: In addition to the BS degree, the CSE program also offers MS and PhD degrees. The MS degree can be a terminal degree or used as preparation for a PhD program. Continuing education is needed for a career in research and development. Usually M.S. students pursue their degrees with financial assistance from their employers. EE students in doctoral programs can plan on full financial support which includes tuition and stipends so such programs are essentially free. Participation in an undergraduate research project (URP) is an excellent way to learn about research and graduate studies.

Career Links

The US Department of Labor (http://www.bls.gov/ooh/architecture-and-engineering/home.htm) provides information on the various fields of engineering and statistics concerning salary and job outlooks on its Occupational Outlook Handbook page. On their site you will be able to explore engineering careers by following the links to these topics:

What They Do

Work Environment

Educational Requirements

Job Outlook

Earnings & Wages

Similar Occupations

Sources of Additional Information

Contact List for ECSE

Department Head:	Michael Wozny (woznym@rpi.edu)	JEC 6052
Administrative Coordinator:	Gina Moore (gina@ecse.rpi.edu)	JEC 6049
Administrative Assistant:	Priscilla Magilligan (pris@ecse.rpi.edu)	JEC 6012
Advising Coordinator:	David Nichols (nichols@ecse.rpi.edu	JEC 6046
Transfer Student Advisor	David Nichols (nichols@ecse.rpi.edu	JEC 6046
Graduate Admissions:	Ronnie Rowe (rower@rpi.edu)	JEC 6012
Class of 2019 Advisors	Alhussein Abouzeid (Abouzeid@ecse.rpi.edu)	JEC 6038
	Rena Huang (huangz3@rpi.edu)	CII 6207
	John McDonald (mcdonald@unix.cie.rpi.edu)	CII 6123
	Michael Shur (shurm@rpi.edu)	CII 9017
	Ali Tajer (tajer@ecse.rpi.edu)	JEC 6003
	Ken Vastola (Vastola@ecse.rpi.edu)	JEC 6003

Advising Responsibilities

Student's responsibilities
- To know their advisor's office hours, email address, and advising schedule.
- To make, and keep, appointments and prepare for registration advising by reviewing the templates, Class-Hour Schedule on SIS, and Curriculum Advising & Program Planning worksheet (CAPP). Take with you a copy of your CAPP to the meeting.
- To formulate questions regarding curriculum, course selections, career options, etc. Take with you a list of questions.
- To be aware of their academic and personal needs and to seek assistance when needed. It's OK to ask your advisor for directions.
- To understand that the role of their advisor is to provide information and to advise you, but not to make decisions for you. Our goal is for every student to become an active participant in their education, not only while at Rensselaer but for their life time.

Advisor
- To be accessible to students throughout the year at posted office hours. If an advisor will be away from campus for an extended period of time, he or she should post the names and office locations of alternate advisors outside their offices, so that students will have other advising resources.
- To set aside designated times for registration advising and individual discussions.
- To be knowledgeable about current curriculum requirements, academic policies and procedures, referrals and resources on campus, and career opportunities in the major field.
- To guide students through academic programs that will complement their personal, educational, and professional interests.

The HUB

The SoE Student Services HUB is a great place for freshmen and sophomore engineering students to find answers to their most pressing academic and career related questions. The HUB is located in the Ansell Lounge on the third floor in the Jonsson Engineering Center (JEC). The HUB is comprised of experience faculty and staff members who specialize in many of the different engineering majors. The HUB is open weekdays during the academic year during the following hours:

Monday-Thursday 10:00-4:00, Friday 10:00-1:00

HUB personnel have been trained to answer questions regarding all engineering majors, including required courses, prerequisites, different concentrations, optimal time for co-ops and internships, traveling abroad, etc. We especially encourage undeclared engineering students to utilize The Hub as a resource while they decide what major to pursue. Each personnel member will have access to students' CAPP reports and will be able to supply the student with the best advice, or refer them to a more knowledgeable source. HUB personnel will not be able to sign Student-Advisor Meeting (Sam) requirements for students. Their job is to supplement, not replace, the student's appointed academic advisor.

ECSE Advising Tasks,
by Year
The Purposes for Meeting with Your Advisor

<u>Time</u>	<u>Visions</u>	<u>Your Roadmap</u>	<u>People to Meet</u>
Entering RPI		Adjust ECSE template/plan for AP credit	Members of the Student Orientation team
First Year	Choosing or changing a major	Exploring your plan and template	Getting to know your Advisor
Second Year	Learning and deciding about URP's, Internships, Co-op's, and Study Abroad	Adjust plan for overloads, dropped or failed courses, Co-op, and Study Abroad.	Getting to know <u>at least</u> one faculty in major
Third Year	Planning 4th year, deciding about work and grad school	Adjust plan for co-op, overloads, dropped or failed courses.	Getting to know other faculty in major
Fourth Year	Creating a vision for career or grad school or both	Preparing applications for job and/or grad school	Asking faculty for recommendations

Threads

Threads are sequences of courses that are linked like beads by prerequisite or co-requisite relationships. Threads frequently have branches. It is very important to understand the role that Threads play in the planning of your course selection. So, here are two challenges for you! And you wouldn't be at RPI unless you liked challenges!

For a given course find the pre- and co-requisites for that course AND the courses for which the given course is a prerequisite. Then make a diagram of the Thread. Hand drawn diagrams are fine; something more electronic is certainly encouraged.

First Challenge: Determine the Thread for ECSE-2010 (Electric Circuits). First find the prerequisites for Circuits and then the prerequisites for the prerequisites. Use the Course Catalog (http://www.rpi.edu/academics/catalog/). Then peruse the catalog to see which courses have Circuits as a prerequisite. And for those courses you find, determine for which courses they are prerequisites. Hint: pay attention to ECSE-2410 & ECSE-2050.

Second Challenge: Determine the Thread for ECSE-2610 (Computer Components & Operations or COCO).

Academic Information and Regulations

The Institute requires a degree candidate to earn the <u>last 30 credits</u> in courses completed on this campus or through a program formally recognized by the Institute. Transfer courses are limited to two courses or eight credits counting toward the student's last 30 credits and require the approval of the director of the Advising and Learning Assistance Center.

Baccalaureate candidates must have passed all of the prescribed academic work and have satisfied the fee requirements. Candidates must also be in good academic and disciplinary standing. Undergraduate students on probation at the time of completion of course work may be required to meet certain stipulations for removal from probation. However, such requirements may be waived for those students whose cumulative GPAs satisfy the baccalaureate degree requirements. In general, a term's work with grades of not less than C will be required in programs arranged by the Committee on Academic Standing. The director of the Advising and Learning Assistance Center will state requirements to the students in writing.

Degree candidates must be registered during the semester in which they intend to graduate and must file a degree application with the registrar by the dates specified in the academic calendar. Students who previously applied for graduation but did not complete all their requirements on time must submit a new application specifying the new date of graduation.

Double Degrees

A student may become a candidate for a second baccalaureate degree when he or she has completed: (1) the equivalent of at least two terms (30 credit hours) of additional work beyond the requirements of a single degree, and (2) the courses in the department in which the student is registered and such other courses as are required for the second degree. From the ECSE department's perspective, students considering a Double Degree may want to consider a Co-terminal or traditional Master's degree, instead. The ability to obtain a graduate level degree by taking 30 credits beyond the Bachelor's degree should be seriously considered rather than taking 30 additional credits and conferring solely a Bachelor's degree.

Dual Majors

ECSE students sometimes pursue a dual major, usually in a field closely allied with ECSE. CSE majors can add Computer Science as a CSE/CS dual major and EE majors can add Applied Physics to become EE/AppPhy dual majors. Other combinations of majors are possible but may require more than eight semesters to complete. Before deciding on a dual major, meet with your advisor, or David Nichols, to learn more about it. Dual majors rarely have room in their schedules for Free Electives.

Minors

ECSE majors frequently complete a minor in a field of interest, other than engineering, by using Free Electives and/or the HASS Electives. A minor is a set of courses coherently based on subject, methodology, or other factors. Many departments offer one or more such minors; several of the minors are interdisciplinary. A student wishing to complete a minor should consult with the adviser for that minor before completing the second course in it (departmental secretaries have this information). Minors vary in their requirements from 15 to 21 credit hours. Courses for the minor

may not be taken on a Pass/No Credit basis. <u>No course which is required for a major can be used for a minor requirement. No course which is required for one minor can be used for another minor requirement</u>.

H&SS and PD II – Policies for Engineering Students

Engineering students at Rensselaer are required to successfully complete
 – 20 credits of H&SS (Humanities and Social Sciences)
 – 2 credits of PD II (Professional Development II)
as well as
 – 1 credit of PD I (typically as part of ENGR-2050 Introduction to Engineering Design, or alternatively as ENGR-1010 Professional Development I if ENGR-2050 transferred in as less than a 4 credit course)
 – 1 credit of ENGR-4010 PD III
for a total of 24 credits to fulfill the H&SS Core requirement.

ENGINEERING STUDENTS SHALL DISTRIBUTE THE 20 CREDITS OF H&SS AS FOLLOWS.

 ≥ 8 credits of H (ARTS, COMM, IHSS, LANG, LITR, PHIL, STSH, WRIT)
 ≥ 8 credits of SS (COGS, ECON, IHSS, PSYC, STSS)
 ≥ 4 credits at the 4000+ level

 ≤ 3 courses at the 1000 level (but note depth sequence restriction, below)
 ≤ 4 credits from 1-credit courses (e.g., music ensembles)
 ≤ 6 credits as pass/no-credit (but note depth sequence and CI restrictions, below)
 ≤ 2 courses (8 credits maximum) as transfer courses (including AP courses)

 a depth sequence of two courses, each of ≥ 4 credits, from the same area code (ARTS, COMM, etc., but not including IHSS) where a minimum of one course (≥ 4 credits) is at an advanced level (2000+), and no courses are taken on a Pass/No Credit basis. STSS and STSH count as the same area code.

 In addition, students are required to take at least one HASS course that is "CI" (Communications Intensive – a list of these courses is available from a link on the SIS home page, and here: http://srfs.rpi.edu/update.do?artcenterkey=208&setappvar=page(1)). This course may not be taken on a Pass/No Credit basis. This CI course is not required to be part of the 24 credits of H&SS Core; that is, it may instead be an HASS CI course taken as a free elective

 Enrolled Rensselaer students wishing to take an H&SS course for credit at another accredited institution must obtain prior approval for the course from the HASS Manager of Student Services. Applicants must furnish a catalog description of the proposed course and a completed copy of Rensselaer's Transfer Credit Approval form to the HASS Manager of Student Services to apply for approval.

 Cross-listed STSS/STSH courses can be switched (between H and SS) after the course is taken by making a request to the Assistant Registrar.

THE 2-CREDITS OF PD II SHALL BE SATISFIED AS FOLLOWS.

Either of the 2-credit courses, PSYC-4170 or STSS-4840, will satisfy the PD II requirement. **At some future time these will transition to a single 2-credit IHSS-4xxx course that will satisfy the PD II requirement.** Only **one** of these 2-credit PD II courses can be taken for credit.

A 4-credit PD II alternate course at any level (1000-4000) can be substituted for the 2-credit course. A list of these PD II alternate courses is available from a link on the SIS home page, and here: http://registrar.rpi.edu/update.do?artcenterkey=325.

A course used to satisfy the PD II requirement may **not** be taken on a Pass/No Credit basis.

In general, the PD II alternate course will be split as follows:
- two credits allocated to satisfy PD II
- the remaining credits allocated to free elective (or "Not Applied" to the degree if free elective credits have been completed)

With restrictions, the credits of a PD II alternate that are not allocated to PD II may be used to fulfill the 20-credits of H&SS. These credits:
- can **not** count toward the 4000 requirement,
- can **not** count toward the depth requirement,
- can **not** increase the number of 1000 level credits past 12.

However,
- they can count toward the overall 20 credits of H&SS,
- they can count toward the H and SS 8-credit minimums,
- they can count toward the H&SS "CI" requirement.

If a student transfers in a course that is in name and course number equivalent to a PD II alternate it counts as that named HASS course, but it does **not** transfer in its status as a PD II alternate. The student would still be responsible for taking PD II or a PD II alternate at Rensselaer.

In the rare case that a student transfers in a course with Professional Development II content nearly identical to that in either PSYC-4170 or STSS-4840 (the 2-credit PD II courses), they may furnish a catalog description of the transfer course and a completed copy of Rensselaer's Transfer Credit Approval form to the Associate Dean of Engineering to apply for approval. Note that some courses in the Study Abroad program automatically satisfy the PD II requirement, as indicated in the transfer equivalency guide.

The School of Humanities, Arts, and Social Sciences (HASS)Associate Dean of Academic Affairs is: **Mike Kalsher** (kalshm@rpi.edu, Sage 4302)
The Assistant Registrar is: **Kim Herkert** (herkek@rpi.edu, Academy Hall 2713)
The Associate Dean of Engineering is Kurt Anderson (anderk5@rpi.edu, JEC 3018)

Need an Extra Credit?

Q: What if I'm short 1-2 credits in H&SS?
A: Use a 4-credit PD II alternate, with 2 credits to PD II, 1-2 credits to H&SS as needed, and any remaining credits to free elective (or "Not Applied" if you have filled all of your free elective credits)

Q: What if I'm short 1-2 credits in Free Electives?
A: Use a 4-credit PD II alternate, with 2 credits to PD II and 2 credits to free elective

Q: Am I really free to choose my free electives?
A: Almost, but not quite – there are restrictions for "free" electives. To count as a free elective, one credit classes must be either
– from the School of Engineering, or
– graded classes (though you can take these on a Pass/No Credit basis),
and
– ROTC courses (USAF, USAR, USNA) must not total more than six credits
One credit classes that are graded Satisfactory / Unsatisfactory (S/U) that are not in the School of Engineering may **not** be used as free electives. For example, PHYS-1010 A Passion for Physics is a 1-credit S/U course that will not count as a free elective.

Options for 1 credit free electives
– independent study (1 credit ≈ 3 hours/week ⇒ ~ 45 hours of work)
– undergraduate research project (when taken for credit)
– School of Engineering courses, such as
  CHME-1010   Introduction to Chemical Engineering
  CIVL-1100   Introduction to Civil and Environmental Engineering
  CIVL-1960 / ENVE-1960 AutoCAD CIVL 3D
  ENGR-1300   Engineering Processes (if not required for your major)
  ENGR-4200   Fortran Programming
  ISYE-1100   Introduction to Industrial and Systems Engineering
  MANE-1100   Introduction to Nuclear Engineering
  MANE-2961   Mechatronics Hardware and Software
  MTLE-1200   Introduction to Materials Engineering
– School of Science courses
  ISCI-4510 Origins of Life Seminar (requires Junior standing or higher)
– HASS courses
  ARTS-2300 Rensselaer Orchestra
  ARTS-2310 Rensselaer Concert Choir
  ARTS-2320 Percussion Ensemble
  ARTS-2330 Jazz Ensemble
  ARTS-2960 Ensemble Congeros
– ROTC courses (USAF, USAR, USNA, up to six credits maximum)
– most one-credit topics courses (see http://srfs.rpi.edu/update.do?artcenterkey=305)

Electrical Engineering Curriculum Checklist   Class 2019

NAME: _____   E-mail: _____

CSCI-1100	Computer Science I	4			ENGR-1200 OR ENGR-1400	Eng. Graphics & CAD[1] OR Eng. Communications[1]	1	
MATH-1010	Calculus I	4				Science Elective[5]	4	
ENGR-1100	Intro. to Eng. Analysis	4			MATH-1020	Calculus II	4	
	Hum., Arts or Soc. Sci. El.	4			PHYS-1100	Physics I	4	
						Hum., Arts or Soc. Sci. El.	4	
MATH-2400	Intro. to Differential Eqns.	4			ENGR-2350	Embedded Control	4	
PHYS-1200	Physics II	4			ECSE-2010	Electric Circuits	4	
	Multidisciplinary Elective[1]	4			ECSE-2610	Cptr. Comp. & Operations	4	
	Hum., Arts or Soc. Sci. El.	4			MATH-2010	Multivar Calc & Matrix Alg	4	
ENGR-2050	Intro. to Eng. Design	4			ECSE-2900	ECSE Enrichment Seminar	1	
ECSE-2050	Intro. to Electronics	4			ECSE-2100	Fields & Waves I	4	
ECSE-2410	Signals & Systems	3			ECSE-2210	Microelectronics Tech.	3	
ECSE-2500	Engineering Probability	3			ECSE-2110	Electrical Energy Systems	3	
	Professional Devel. II[1,3]	2				Free Elective[2]	3-4	
ENGR-4010	Professional Devel. III[1]	1				Restricted Elective[1,4,6]	3	
	Design Elective[1]	3				Restricted Elective[1,4,6]	3	
	Lab Elective[1,4]	3-4				Free Elective[1,2]	3-4	
	Technical Elective[1,4,6]	3-4				Free Elective (if needed)[2]	3-4	
	Free Elective[1,2]	3-4				Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4						

1   May be taken either term.
2   The free electives must total to at least 12 credits.
3   This course will be fulfilled from a list published at the start of each semester.
4   It is recommended that students use electives to form a concentration. See the ECSE Web page for concentration listings..
5   Students who wish to take ENGR 1600 as their Multidisciplinary Elective must take CHEM 1100.
6   No more than one Independent Study course may be used when satisfying the combined Technical and Restricted Elective requirements.

128 credits minimum

RESTRICTED ELECTIVE
Any 3 or 4 credit hour course with the designation ECSE-4xxx or ECSE-6xxx.

TECHNICAL ELECTIVE
Any 3- or 4-credit-hour course in engineering, mathematics, or science at the 4000 level or higher.

MULTIDISCIPLINARY ELECTIVES
ENGR-1600 Materials Science for Eng.
ENGR-2090 Engineering Dynamics
ENGR-2250 Thermal & Fluids Eng. I
ENGR-2530 Strength of Materials

LAB ELECTIVES
ENGR-4710 Adv. Manufacturing Lab I
ECSE 4090 Mechatronics
ECSE-4130 Electric Power Eng. Lab
ECSE-4220 VLSI Design
ECSE-4760 Real-Time Cntrl & Comm.
ECSE-4770 Cptr H'ware Design
ECSE-4790 Microprocessor Systems

SCIENCE ELECTIVE
CHEM-1100 Chemistry I
BIOL-1010 Introduction to Biology
BIOL-2120 Cell and Molecular Bio.

DESIGN ELECTIVES
MANE-4220 Inventor's Studio (F, S)
ECSE-4900 ECSE Design (F, S)

Computer and Systems Engineering Curriculum Checklist Class 2019

NAME: _____   E-mail: _____

CSCI-1100	Computer Science I	4		CSCI-1200	Data Structures	4	
ENGR-1100	Intro. to Eng Analysis	4		MATH-1020	Calculus II	4	
ENGR-1200 OR ENGR-1400	Eng. Graphics & CAD[1] OR Eng. Communications[1]	1			Science Elective	4	
MATH-1010	Calculus I	4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					
CSCI-2200	Foundations of Comp. Sci.	4		CSCI-2300	Intro to Algorithms	4	
ECSE-2610	Cptr. Comp. & Operations	4		ECSE-2660	Cptr Arch, Nets, & Op Sys	4	
ENGR-2350	Embedded Control	4		MATH-2400	Intro. to Differential Eqns	4	
PHYS-1100	Physics I	4		PHYS-1200	Physics II	4	
ECSE-2010	Electric Circuits	4		ECSE-2050	Intro. to Electronics	4	
ECSE-2900	Enrichment Seminar	1		ECSE-2410	Signals & Systems	3	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2500	Engineering Probability	3	
MATH-2010	Multivar Calc & Matrix Alg.	4			Free Elective[2]	3-4	
	Hum., Arts or Soc. Sci. El.	4			Hum., Arts or Soc. Sci. El.	4	
ENGR-4010	Professional Devel. III[1]	1			Professional Devel. II[1,3,4]	2	
	Technical Elective[1,5,6]	3-4			Restricted Elective[1,5,6]	3-4	
	Restricted Elective[1,5,6]	3-4			Design Elective[1]	3	
	Computer Eng Elective[4]	3-4			Free Elective[1,2]	3-4	
	Free Elective[1,2]	3-4			Hum., Arts or Soc. Sci. El.	4	
					Free Elective (if needed) [2]	3-4	

1   May be taken either term.
2   The free electives must total at least 12 credits.
3   This course will be fulfilled from a list published at the start of each semester.
4   May be taken in the third year.
5   It is recommended that students use electives to form a concentration. See the ECSE Web page for concentration listings.
5   No more than one Independent Study course may be used when satisfying the combined Technical and Restricted Elective requirements.

130 credits minimum

RESTRICTED ELECTIVE
Any 3 or 4 credit hour course with the designation ECSE-4xxx or ECSE-6xxx.

TECHNICAL ELECTIVE
Any 3- or 4-credit-hour course in engineering, mathematics, or science at the 4000 level or higher.

COMPUTER ENGINEERING ELECTIVES
ECSE-4670 Comp. Comm. Networks
ECSE-4750 Computer Graphics
ECSE-4770 Computer Hardware Design
ECSE-4790 Microprocessor Systems
CSCI-4380 Database Systems
CSCI-4440 Software Dsg & Doc

SCIENCE ELECTIVE
BIOL-1010 Introduction to Biology
BIOL-2120 Cell and Molecular Bio.
CHEM-1100 Chemistry I

DESIGN ELECTIVES
ECSE-4900 ECSE Design (F, S)
MANE-4220 Inventor's Studio (F, S)

EE and Applied Physics* Dual Major Curriculum Checklist   Class 2019

NAME: _____   E-mail: _____

ENGR-1100	Intro. to Eng. Analysis	4		ENGR-1200 OR ENGR-1400	Eng. Graphics & CAD[1] OR Eng. Communications[1]	1	
CSCI-1100	Computer Science I	4		MATH-1020	Calculus II	4	
MATH-1010	Calculus I	4		CHEM-1100	Chemistry I	4	
	Hum., Arts or Soc. Sci. El.	4		PHYS-1100	Physics I	4	
					Hum., Arts or Soc. Sci. El.	4	
ENGR-2050	Intro. to Eng. Design	4		ENGR-2350	Embedded Control	4	
MATH-2400	Intro. to Differential Eqns.	4		ECSE-2010	Electric Circuits	4	
PHYS-1200	Physics II	4		ECSE-2610	Cptr. Comp. & Operations	4	
BIOL-1010	Intro. to Biology[1]	4		MATH-2010	Multivar. Calc. & Matrix Alg.	4	
ECSE-2900	ECSE Enrichment Seminar	1		ECSE-2210	Microelectronics Tech.	3	
ECSE-2050	Intro. to Electronics	4		PHYS-2220	Quantum Physics II	4	
ECSE-2410	Signals & Systems	3		PHYS-4210	Electromagnetic Theory	4	
PHYS-2210	Quantum Physics I	4		ECSE-2110	Electrical Energy Systems	3	
MATH-4600	Advanced Calculus	4			Hum., Arts or Soc. Sci. El.	4	
ECSE-2500	Engineering Probability	3					
ENGR-4010	Professional Devel. III[1]	1			Professional Devel. II[1,2]	2	
ECSE-4220	VLSI Design	3		ECSE-4900	Multidisciplinary Capstone Design[1]	3	
PHYS-2330	Theoretical Mechanics	4		PHYS-4420	Thermody. & Stat. Mechanics	4	
PHYS-2350	Experimental Physics	4			EE Restricted Elective	3	
	Microelectronics Elective[1]	3-4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					

[1] May be taken either term.
[2] May be taken in the third year

137 credits minimum

* EE must be your first named major. Otherwise an additional 2 credit hours of H&SS are required.

MICROELECTRONICS ELECTIVE
ECSE-4080 Semiconductor Pwr Electronics
ECSE-4250 Int. Ckt. Process & Design
ECSE-4720 Solid-State Physics

EE RESTRICTED ELECTIVE
Any 3 or 4 credit hour course with the designation ECSE-4xxx or ECSE-6xxx.

EE and CSE Dual Major Curriculum Checklist   Class 2019

NAME: _____   E-mail: _____

ENGR-1100	Intro. to Eng. Analysis	4		ENGR-1200 OR ENGR-1400	Eng. Graphics & CAD[1] OR Eng. Communications[1]	1	
MATH-1010	Calculus I	4		MATH-1020	Calculus II	4	
CSCI-1100	Computer Science I	4			Science Elective[4]	4	
	Hum., Arts or Soc. Sci. El.	4		CSCI-1200	Data Structures	4	
					Hum., Arts or Soc. Sci. El.	4	
ENGR-2350	Embedded Control	4		ECSE-2660	Cptr Arch, Nets, & Op Sys	4	
ECSE-2610	Cptr. Comp. & Operations	4		MATH-2400	Intro. to Differential Eqns.	4	
CSCI-2200	Foundations of Comp. Sci.	4		PHYS-1200	Physics II	4	
PHYS-1100	Physics I	4		CSCI-2300	Intro to Algorithms	4	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2900	ECSE Enrichment Seminar	1	
ECSE-2010	Electric Circuits	4		ECSE-2050	Intro. to Electronics	4	
	Multidisc. Elective[1]	4		ECSE-2100	Fields & Waves I	4	
MATH-2010	Multivar Calc & Matrix Alg	4		ECSE-2410	Signals & Systems	3	
	Hum., Arts or Soc. Sci. El.	4		ECSE-2500	Engineering Probability	3	
				ECSE-2110	Electrical Energy Systems	3	
ENGR-4010	Professional Devel. III[1]	1			Professional Devel. II[1,2]	2	
ECSE-2210	Microelectronics Tech.	3			Design Elective[1]	3	
	Computer Eng Elective[1]	3-4			Restricted Elective[1,3]	3-4	
	Lab Elective[1,3]	3-4			Restricted Elective[1,3]	3-4	
	Technical Elective[1,3]	3-4			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					

1. May be taken either term.
2. May be taken in the third year
3. It is recommended that students use electives to form a concentration. See the ECSE web page for concentration listings.
4. Students who wish to take ENGR-1600 Materials Science for Engineers as their Multidisciplinary Elective must take CHEM-1100.

135 credits minimum

RESTRICTED ELECTIVE
Any 3 or 4 credit hour course with the designation ECSE-4xxx, ECSE-6xxx, CSCI-4xxx, or CSCI-6xxx.

TECHNICAL ELECTIVE
Any 3 or 4 credit hour course in engineering, mathematics, or science at the 4000 level or higher.

MULTIDISCIPLINARY ELECTIVES
ENGR-1600 Materials Science for Eng.
ENGR-2090 Engineering Dynamics
ENGR-2250 Thermal & Fluids Eng. I
ENGR-2530 Strength of Materials

COMPUTER ENGINEERING ELECTIVES
ECSE-4670 Comp. Comm. Networks
ECSE-4750 Computer Graphics
ECSE-4790 Microprocessor Systems
CSCI-4380 Database Systems
CSCI-4440 Software Dsg & Doc

LAB ELECTIVES
ENGR-4710 Adv. Manufacturing Lab I
ECSE 4090 Mechatronics
ECSE-4160 Electric Power Eng. Lab
ECSE-4220 VLSI Design
ECSE-4760 Real-Time Cntrl & Comm.
ECSE-4770 Cptr H'ware Design
ECSE-4790 Microprocessor Systems

DESIGN ELECTIVES
MANE-4220 Inventor's Studio (F, S)
ECSE-4900 ECSE Design (F, S)

SCIENCE ELECTIVE
CHEM-1100 Chemistry I
BIOL-1010 Introduction to Biology
BIOL-2120 Cell and Molecular Bio.

CSE and Computer Science* Dual Major Curriculum Checklist   Class 2019

NAME: _____   E-mail: _____

ENGR-1100	Intro. to Eng. Analysis	4			CSCI-1200	Data Structures	4	
ENGR-1200 OR ENGR-1400	Eng. Graphics & CAD[1] OR Eng. Communications[1]	1			MATH-1020	Calculus II	4	
MATH-1010	Calculus I	4			BIOL-1010	Intro to Biology[1]	4	
CSCI-1100	Computer Science I	4				Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4						
ENGR-2350	Embedded Control	4			ECSE-2660	Cptr Arch, Nets, & Op Sys	4	
ECSE-2610	Cptr. Comp. & Operations	4			PHYS-1200	Physics II	4	
CSCI-2200	Foundations of Comp. Sci.	4			MATH-2400	Intro. to Differential Eqns	4	
PHYS-1100	Physics I	4			CSCI-2300	Introduction to Algorithms	4	
ECSE-2900	ECSE Enrichment Seminar	1			ECSE-2410	Signals & Systems	3	
ENGR-2050	Intro. to Eng. Design	4			CSCI-4430	Programming Languages	4	
ECSE-2010	Electric Circuits	4			CSCI-4210	Operating Systems	4	
CSCI-2600	Principles of Software	4			ECSE-2050	Introduction to Electronics	4	
	Hum., Arts or Soc. Sci. El.	4			ECSE-2500	Engineering Probability	3	
ENGR-4010	Professional Devel. III[1]	1				Professional Devel. II[1,2]	2	
	Free Elective[3]	4				Design Elective[1]	3	
MATH-2010	Multivar Calc & Matrix Alg.	4				Computer Science Option[1]	3-4	
	Computer Science Option[1]	3-4				Computer Science Option[1]	3-4	
	Hum., Arts or Soc. Sci. El.	4				Hum., Arts or Soc. Sci. El.	4	

[1.] May be taken either term.
[2.] May be taken in the third year
[3.] If necessary to make the program total at least 128 credit hours

* CSE must be your first named major. Otherwise an additional 2 credit hours of H&SS are required.

130 credits minimum

DESIGN ELECTIVES
MANE-4220 Inventor's Studio (F, S)
ECSE-4900 ECSE Design (F, S)

COMPUTER SCIENCE OPTION
Courses of three or four credits at the 4000 or 6000 level. For this purpose, course in the series CSCI-4xxx, CSCI-6xxx, ECSE-46xx and ECSE-47xx may be used, excluding ECSE-4630, ECSE-4640, ECSE-4720 and reading and independent study courses. The Pass/No Credit option cannot be used for these courses.

COMPUTER SCIENCE CAPSTONE
A Culminating experience selected from one of the two categories below (note that P/NC option cannot be used for any of below.)

1. Software-focused capstone consisting of either (a) the CSCI 4440 Software Design and Documentation course or (b) a 4-credit RCOS Capstone project for students who have already satisfactorily participated in RCOS in a prior semester. The RCOS Capstone project entails criteria agreed upon by the Undergraduate Curriculum Committee (UCC) and RCOS directors, including leading an RCOS project, serving as an RCOS mentor, publishing an open source project, etc.

2. Coursework concentration capstone consisting of three 4000- or 6000-level CSCI course in one of the following topic areas: (a) Theory and Mathematics; (b) Systems and Software Engineering; (c) Artificial Intelligence and Data; and (d) Vision, Graphics, Robotics, and Games. All 4000- and 6000-level CSCI catalog courses that are not part of the required undergraduate core are assigned to one or more topic areas.

ELECTRICAL & COMPUTER SYSTEMS ENGINEERING UNDERGRADUATE BOOKLET 07/15

EE and Mechanical Engineering Dual Major Curriculum Checklist   Class 2019

NAME: _____   E-mail: _____

ENGR-1200	Eng. Graphics & CAD[1]	1		ENGR-1300	Engineering Processes[1]	1	
ENGR-1100	Intro. to Eng. Analysis	4		CSCI-1100	Computer Science I	4	
MATH-1010	Calculus I	4		MATH-1020	Calculus II	4	
CHEM-1100	Chemistry I	4		PHYS-1100	Physics I	4	
	Hum., Arts or Soc. Sci. El.	4			Hum., Arts or Soc. Sci. El.	4	
ENGR-2050	Intro. to Eng. Design	4		ECSE-2010	Electric Circuits	4	
ENGR-2350	Embedded Control	4		ECSE-2610	Cptr. Comp. & Operations	4	
ENGR-2530	Strength of Materials	4		ENGR-2090	Engineering Dynamics	4	
MATH-2400	Intro. to Differential Eqns.	4		ENGR-2250	Thermal and Fluids Eng I	4	
PHYS-1200	Physics II	4		MATH-2010	Multivar Calc & Matrix Alg	4	
ECSE-2900	ECSE Enrichment Seminar	1		ECSE-2100	Fields & Waves I	4	
ECSE-2050	Intro. to Electronics	4		ECSE-2210	Microelectronics Tech.	3	
ECSE-2410	Signals & Systems	3		MANE	Mechanical Eng. Core Mod.	6	
ECSE-2500	Engineering Probability	3		ECSE-2110	Electrical Energy Systems	4	
MANE	Mechanical Eng. Core Mod	6			Professional Devel. II[1]	2	
ENGR-4010	Professional Devel. III[1]	1			Design Elective[1]	3	
ENGR-1600	Materials Science for Eng	4			ECSE Restricted Elective[1]	3	
	ECSE Lab Elective[1]	3-4			MANE Technical Elective II	3	
	MANE Technical Elective I	3			Hum., Arts or Soc. Sci. El.	4	
	ECSE Restricted Elective[1]	3			Hum., Arts or Soc. Sci. El.	4	
	Hum., Arts or Soc. Sci. El.	4					

[1]   May be taken either term.
[2]   The free electives must total to at least 12 credits.
[3]   Students are encouraged to select a life science course, such as BIOL-1010.

141 credits minimum

ECSE RESTRICTED ELECTIVE
Any 3 or 4 credit hour course with the designation ECSE-4xxx or ECSE-6xxx.

MANE TECHNICAL ELECTIVE I
MANE-4xxx or MANE-6xxx

MANE TECHNICAL ELECTIVE II
MANE-4xxx, MANE-6xxx, or a course from the following list. If one of the courses below is used, you can omit one ECSE Restricted Elective, reducing the total credit hours for the dual degree.
ECSE-4090 Mechatronics
ECSE-4120 Electromechanics
ECSE-4080 Robotics I
ECSE-4090 Robitics II

MANE CORE MODULES
Thermal and Fluids Module:
  MANE-4010 Therm & Fluids Eng II
  MANE-4020 Therm & Fluids Eng. Lab.
Mechanical Design Module:
  MANE-4030 Elem. of Mech. Dsgn.
  MANE-4040 Mech. Dsgn. Lab

ECSE LAB ELECTIVES
ENGR-4710 Adv. Manufacturing Lab I
ECSE-4090 Mechatronics
ECSE-4160 Electric Power Eng. Lab
ECSE-4220 VLSI Design
ECSE-4760 Real-Time Cntrl & Comm.
ECSE-4770 Cptr H'ware Design
ECSE-4790 Microprocessor Systems

DESIGN ELECTIVES
MANE-4220 Inventor's Studio (F, S)
ECSE-4900 ECSE Design (F, S)
MANE-4260 Design of Mech. Sys (F,S)

Registration

When: Registration for the Spring semester generally occurs in early November. Registration for the Fall semester occurs the preceding Spring, usually in early April Exact dates are included in the Academic Calendar. (http://rpinfo.rpi.edu/)

How: Use the Student Information System (SIS) to register for your courses.

Where: There are no assigned rooms for registration. You can register for your classes using any computer with Internet access.

Time tickets

As a student at Rensselaer, you are issued a "time ticket," which assigns to you a specific window of time during which you may register for the following semester. Your time ticket will be sent to your RPI email address 3 - 4 weeks before registration. In addition to making the registration assignment, this e-mail message notifies you of any existing '**holds**' which may prevent you from registering if you do not resolve them.

School of Engineering	
Freshman	0 - 30
Sophomore	31 - 60
Junior	61 - 95
Senior	96 - 128

Your registration time is assigned based on the number of credit hours you have **earned** as a student. The table to the right shows the range of earned credit hours associated with each class. Please note that classes which are still in progress or courses which have been graded as "incomplete" do *not* count towards earned credits.

CAPP reports

Your Curriculum Advising and Program Planning (CAPP) report is a planning and advising tool, available only to undergraduate students, that allows you to track the progress you're making toward your Bachelor's Degree. You can access your CAPP report by logging in from the main menu of the Student Information System (SIS). The CAPP report is ***not*** an official document of the Institute; it is a tool.

Registration FAQs

Q: What do I do if a class I want to register for is full?
A: Meet with the instructor of the course and request to be admitted to the course. If the class is a core/required course every effort will be made to accommodate the request. If this is an elective course you may be asked to take it in a subsequent semester. Note that for Core Engineering courses (ENGR prefix) there will be an electronic waitlist available at the time of registration which is capped at ten students per section.

Q: How do I add/drop a course?

A: You may use the Student Information System (SIS) to add or drop courses. Generally speaking, from the beginning of the semester, you will have **two weeks to add** courses and **eight weeks to drop** them. Please refer to the Academic Calendar for specific add and drop deadline dates. Meet with your advisor about the changes you want to make.

If you wish to petition to add or drop classes after the published deadline, you may do so using a Late Add/Drop Form. Please note that after getting the instructors signature (if required), the form must also be approved by the Advising and Learning Assistance Center.

Undergraduate Research Program (URP)

Rensselaer has a very strong Undergraduate Research Program. This is a program that allows students to work in a professor's laboratory for credit, cash, or experience. On average, we have 30% of the class taking advantage of these opportunities during their Rensselaer career.

The program offers many advantages and the opportunity to:
- work on a project whose impact could be worldwide and can lead to patents and/or grants
- apply knowledge gained in the classroom to actual problems and research situations
- network with faculty beyond the classroom, opening the door to other opportunities
- gain critical leadership, team-building and critical thinking skills
- publish as an undergraduate
- receive course credit in a more dynamic way or supplement your income

How to find a project
Most URP projects are found through direct contact with the faculty member supervising the research. Most undergraduates find projects from faculty members from whom they have taken classes. A good place to start your search is to determine a faculty member with whom you may want to work on a project. Check the Research Areas page below to determine their field of research. If it sounds interesting, approach them about a possible URP project.

What if I have my own idea for a project?
You may work with a faculty member on an existing research project or on a project based on your own ideas. If you want to pursue your own project, find a faculty advisor who may be interested in your topic since you will be required to have a project advisor.

For credit, funding or the experience?
You can earn from one to four credit hours per semester for your participation in the URP. The number of credit hours you earn is negotiable between you and your faculty sponsor. If you choose this option you and your sponsor need to:
- Determine how many credit hours you will earn
- Decide exactly what is expected of you, such as your time commitment, the type of work to be submitted, etc.
- Agree on how your grade will be determined

In the past, students who have participated in the URP for pay have earned up to $3,000 per semester. The majority of participants earn $400 per semester.
URP funding comes from two sources:
- Your sponsoring faculty member or department, and/or
- The Office of Undergraduate Education

The faculty sponsor or department is responsible for the financial support of your research. In addition, the Office of Undergraduate Education pays URP participants a maximum of $400 per semester in the form of matching funds.

Most projects expect eight to twelve hours of work per week.

The URP application should be submitted to, Ronnie Rowe (JEC 6012); who:
- Checks the URP Application for completeness
- Fills out your payroll paperwork
- Forwards your application and payroll paperwork to the Office of Undergraduate Education for approval
- Will set up a schedule for reporting your hours. You must submit your hours to the Department Coordinator within the same payroll period that you worked. Please keep in mind that if you work and submit hours that exceed your funding allotment, you will not be paid for those hours. Pay checks are issued every other Friday

Applying for the Experience
No deadline specified. You would have the opportunity to apply to gain the experience of working on a research project.

With whom can I work?

You can certainly work with any professor who agrees to have you as a part of the research team. However, you may have a more exciting experience if you are working in an area of interest to you. The following page has the research areas of our department listed as well as faculty names for each area. Note that some faculty are listed in more than one area.

You should talk to each of your course professors about their research and about you becoming a part of their team. Do not be shy. Ask about a position. If you do not ask, the answer will certainly be 'No'.

Research Areas

Communications, Information, and Signals and Systems

John Woods	Gary Saulnier	Meng Wang	Ali Tajer
Rich Radke	Birsen Yazici	Mike Wozny	

Computer Engineering and Networking

Biplab Sikdar	Yannick LeCoz	Al-Hussein Abouzeid
Ken Vastola	Koushik Kar	Ishwara Bhat
Jack McDonald	Mona Hella	

Control, Robotics and Automation, and Synthetic Biology

Art Sanderson	John Wen	Agung Julius
Joe Chow	Wencen Wu	

Electrophysical Devices and Systems

Ishwara Bhat	Shayla Sawyer	Partha Dutta	Fred Schubert
Mona Hella	Paul Schoch	Ken Connor	James Lu
Michael Shur	Paul Chow	Jian Sun	Yannick LeCoz
Rena Huang	Tong Zhang	Jack McDonald	

Energy Sources and Systems

Paul Chow	Paul Schoch	Partha Dutta
Jian Sun	Leila Parsa	Rena Huang
Mona Hella	Joe Chow	Ken Connor

Image Sciences

Birsen Yazici	Randolph Franklin	Art Sanderson
Rich Radke	Qiang Ji	

International Study

International Study, or Semester Abroad as it is sometimes called, is coordinated by the Office of International Programs (OIP), located in 4103 Walker Lab. For general information about International Study visit the OIP web site:

    http://undergrad.rpi.edu/update.do?catcenterkey=81.

ECSE students who choose to participate in International Study should do so during the Junior year (5th or 6th semester). This means that the decision to study abroad should be made during the 4th semester of study so that a plan for the entire junior year can be made with the guidance of the student's advisor. (For students with a substantial number of AP credits this may be the 3rd chronological semester.) Consultation Week in March is a good time to talk with your advisor about planning for International Study.

Students may also participate in a year-long fellowship program known as the Congress Bundestag Youth Exchange (CBYX) which offers the opportunity for intensive German language instruction, a semester of coursework at a German University, and a five-month internship placement in Germany. Participation in this program may delay graduation by a semester but the internship and language instruction will more than compensate for the delay.

For more information visit:
http://undergrad.rpi.edu/update.do?catcenterkey=81

Graduate School

The ECSE Department currently offers the MS, MEng, and PhD degrees in Electrical Engineering and in Computer and Systems Engineering. Students who wish to continue their studies beyond the BS degree should have a very good academic record and begin planning the application process in the 5th semester.

For more information about our graduate school see the graduate school sections of the Institute catalog, as well as the ECSE Department web site. Also ask your advisor about grad school opportunities.

Students frequently think they cannot possibly afford graduate school. But the road to a PhD is essentially toll free. Most students are granted tuition waivers, in addition to receiving an assistantship stipend for living expenses. Students can graduate with a PhD without having added to their debt load.

If you are a very good student, consider applying to graduate school. It is easier to go directly from undergraduate studies to grad school than to wait for several years before enrolling.

Co-Terminal BS-MS Degrees: An Honors Program

ECSE students who have achieved exceptionally high grades in the first three years are invited to apply to the Co-Terminal Honors Program. This program allows students to complete the BS and MS (or MEng) degrees by continuing their status as an undergraduate with the extension of their undergraduate financial aid for an additional two semesters. At the end of the fifth year both the BS and the MS (or MEng) degrees are awarded.

For more information, pay a visit to JEC 6012 and pick up a Co-terminal information packet.

Remarkable Bookmarkable Links

Advising and Learning Assistance Center: http://alac.rpi.edu/setup.do
      When you need academic help or you're willing to help others

Career Development Center: http://www.rpi.edu/dept/cdc/
      Looking for an internship, co-op, or career? This is the place.

Course Catalog: http://www.rpi.edu/academics/catalog/
      It's all here! Course descriptions, rules, and faculty names & interests.

ECSE Department: http://www.ecse.rpi.edu/
      Department News & Information. Keep up to date with ECSE.

Grand Challenges – National Academy of Engineering:
      http://www.engineeringchallenges.org/cms/8996.aspx
      Exciting list of multidisciplinary challenges – just waiting for you.

Institute News & Links: http://rpinfo.rpi.edu/
      Great home page with handy links. RPI calendar and news.

International Programs: http://undergrad.rpi.edu/update.do?catcenterkey=81
      Study abroad in Singapore or Denmark or Wales or …?

IEEE – The RPI Student Branch: http://www.ecse.rpi.edu/homepages/ieee/
      Connect with students, researchers, and industry professionals in EE

Eta Kappa Nu (HKN) – http://www.ecse.rpi.edu/hkn/
      The international honor society for electrical engineers.

Ready…Set… Calculus! : http://calculus.math.rpi.edu/rsc/
      Challenging set of problems that test your pre-calculus skills, for students at all levels.

Registration Forms: http://srfs.rpi.edu/update.do?catcenterkey=29
      Forms for all occasions: Changing majors, transferring credits, etc

Student Handbook: http://www.rpi.edu/dept/doso/2006-2008RPI-StudentHandbook.pdf
      Rules and Policies

Student Information System: http://sis.rpi.edu/
      Jumping off page for registration & records, including CAPP!

Frequently Asked ECSE Questions

Q: Do I have to repeat a required course in my major if I get a D in it?
A: No. Currently, a grade of D or D+ in any undergraduate course is considered passing.

Q: Can I take one of my Restricted or Technical Electives on a P/NC basis?
A: No. The P/NC option is only for Free Electives and one non-depth, non-Communication Intensive HASS course.

Q: Can I undo a P grade?
A: Maybe. But you need to notify the Registrar's Office in writing by Friday of the 13th week of the semester in which you elected to use P/NC. However, once the P grade is on your transcript it is generally considered to be a permanent grade.

Q: I am a dual major and have two advisors. Do I need to meet with both of them before I can register for classes?
A: Yes. You will need to be cleared or 'SAM-ed' by each of your academic advisors before you can register.

Q: But my roommate is a dual major, too, and she only has one advisor. Why do I need two?
A: When the two majors, such as EE and CSE, are in the same department a single advisor can reasonably be expected to know both curricula. But with disparate majors, ECON and EE for example, it is best to have an advisor from each field of study.

Q: What if I am on co-op or at the Danish Technical University when registration starts? How can I possibly meet with my advisor?
A: Electronic meetings are permitted under these circumstances. Send your advisor an email to alert him/her about your situation well before registration begins.

Q: I don't know who my advisor is. How can I find out?
A: Go to SIS and view your CAPP. Your advisor's name will be on the top right hand side. Then determine your advisor's office and email by using the RPI directory. Send him/her an email and ask for a meeting.

Q: My CAPP is messed up. I've heard that I won't be able to graduate. What do I do?
A: First, be assured that your graduation status is determined by at least two human beings. The CAPP report is a tool to help plan and monitor academic progress. It does not decide who can graduate. Second, print a copy of your CAPP and, using a pencil/pen, tidy up the CAPP and show the edited version of your CAPP to your advisor. If your advisor agrees with your redacting, he/she can email the Registrar's Office and have the changes made.

Q: I just began my senior year. How can I tell if I will graduate on time?
A: Print a copy of your CAPP and meet with your advisor. He/she will help you assess your progress and plan for your last semester. If you want a second opinion, meet with David Nichols. (JEC 6046)

Q: Do I really have to take CompSci I (CSCI-1100)? I read the syllabus and I think I know it all already.
A: Some students do skip CompSci I and take the following course, Data Structures (CSCI-1200). However, you will have to replace the credits for CompSci I. For CSE majors and CSE/CS dual majors the replacement course must be another CSCI course. For EE majors, the replacement can be any technical course (Science or Engineering).

Q: Can I use VLSI Design both as my Lab Elective and as a Restricted Elective?
A: No. One course can satisfy only one requirement.

Q: I want to take a course at a college near my home during the summer. How do I get it to transfer?
A: First, go to the RPI Transfer Course Guide
http://sis.rpi.edu/rss/yhwwkwags.P_Web_Artic_Guide . Then follow the given directions.

Q: I took Calculus I at another university but it is only 3 credits and RPI's Calc I is 4 credits. Do I have to make up one credit of calculus?
A: No. But you will have to complete the proper number of total credits. This may mean choosing a 4-credit course to satisfy a 3-credit requirement later on. For transferred 3-credit HASS courses you will need to complete the credit requirements of the HASS Core.

Q: How many courses can I transfer into Rensselaer?
A: If you entered Rensselaer as a first year student, you may transfer up to 32 credits. AP credits are considered as transfer credits. Therefore, if you have 5 AP courses (20 credits) you may transfer an additional 12 credits to Rensselaer through summer study. You are further restricted to a maximum 8 transferred and AP credits of HASS.

Q: But I want to study abroad and I have 6 AP courses already. Does that mean I can only take 8 credits abroad?
A: No. Courses taken at affiliated institutions are considered as courses taken at Rensselaer. For a list of affiliated institutions go to the Office of International Programs (http://undergrad.rpi.edu/update.do?catcenterkey=81) or click on REACH on the SIS main menu.