ECE.zip

A condensed guide to undergraduate life in Electrical and Computer Engineering at Rice University

2020 - 2021
LETTER FROM THE CHAIR

Welcome to the Electrical and Computer Engineering Department at Rice University!

Rice ECE is globally known for extensive reach across disciplines, including designing next-generation wireless networks; nanophotonics; terahertz laser spectroscopy; digital systems processing; neuroengineering; machine learning and data science; healthcare devices and analytics; and a plethora of other interests. Regardless of your areas of interest and goals, you will find others that share your passion.

Our students have the opportunity to participate in this world class research. Don't wait until junior or senior year to get involved, you can be a part of a team as early as the second semester of your first year! We encourage students to participate in our Vertically Integrated Projects (VIP) program where students of all levels work together on a long-term, large-scale project.

In addition, all of our undergraduates can utilize the Oshman Engineering Design Kitchen (OEDK), a state-of-the-art design laboratory for Rice science and engineering undergraduate students where you can get your hands dirty and actually build the project of your dreams. At Rice ECE, we challenge you to redefine your own limits. Should you choose ECE for your education, you will be taught to think creatively and will be part of our network of knowledge.

We invite you to learn more about the Department of Electrical and Computer Engineering by finding us on social media and checking our website frequently to stay in touch with the exciting and groundbreaking achievements that happen daily in our ECE community.

And once again, welcome to Rice!

Ashutosh Sabharwal

Chair, Electrical and Computer Engineering
Professor, Electrical and Computer Engineering

HOW TO USE THIS HANDBOOK

Welcome, class of 2024! This book encompasses the Rice ECE undergraduate experience. Use it as a reference as you move forward in your academic career.

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WHO ARE ELECS

Electrical and Computer Engineers (ELECs) create, innovate and design technologies in machine learning, computing, communications, electronics and automation. ELECs use hardware and software to create better, faster, safer technologies for things like cars, computers, smartphones, and health devices.

WHAT DO ELECS DO

ELECs are a diverse, smart, creative group of problem-solvers who make devices and programs that change the world. Smartphones, GPS, cars, and even things like healthcare and national security would not exist as they do today without them. ELECs go on to work in every industry imaginable, including:

- Automation
- Healthcare
- Renewable Energy
- Gaming
- Wireless
- Wearables
- Nanotechnology
- Security
- Telecommunications

WHAT IS ECE AT RICE

At Rice University we focus on the following six areas of research and study:

COMPUTER ENGINEERING (CE)

Computer Engineering is about designing, realizing and evaluating computing, communication and storage systems: making them fast, secure, reliable, and efficient. Our research covers the full stack of systems, from integrated circuits, VLSI, architecture to operating systems. We are particularly interested in emerging platforms and application domains.

DATA SCIENCE/SYSTEMS (DS/SYS)

Data Science is a growing field that integrates the tools and techniques involved in data acquisition, analytics and storage, to enable extraction of meaningful information from massive data sources. In Systems, signal processing is the analysis and transformation of signals (measurements taken over time and/or space) in order to understand, simplify or recast their structure.

NEUROENGINEERING (NEURO)

The brain is essentially a circuit. Neuroengineering is a discipline that exploits engineering techniques to understand, repair, and manipulate human neural systems and networks. Rice is uniquely positioned to lead this field thanks to the broad, interdisciplinary research performed in conjunction with the world's largest medical center (Texas Medical Center), steps away from the Rice University campus.

PHOTONICS, ELECTRONICS, AND NANODEVICES (PEN)

This field strives to improve understanding of the interaction of light and matter, along with the application of that knowledge to develop innovative devices and technologies. PEN has applications in energy and healthcare, among others.

WIRELESS SYSTEMS

In Wireless Systems, signal processing is the analysis and transformation of signals (measurements taken over time and/or space) in order to understand, simplify or recast their structure. Image and video analysis and compression, computational neuroscience, and wireless networking systems are in this field.

HEALTH

At Rice many of our faculty have research that focuses on healthcare and wellness technologies including bio-behavioral sensing and bio-imaging.
WHAT ARE MY DEGREE OPTIONS IN ECE

ECE has two degree programs for undergraduates, the Bachelor of Science in Electrical Engineering (BSEE) and the Bachelor of Arts with a major in Electrical Engineering (BA).

TELL ME ABOUT THE BSEE

The BSEE is organized around a core of required courses and a selection of elective courses from four specialization areas: Computer Engineering; Data Science/Systems; Neuroengineering, and Photonics, Electronics and Nano-devices.

The BSEE is the usual degree taken by students planning a career in engineering practice and can reduce the time required to become a licensed professional engineer. Accreditation and professional licensure are important for some careers, and many states require licensure for those providing engineering services directly to the public, for example, as a consultant. The BSEE is accredited by the Engineering Accreditation Commission (EAC) of ABET. *

A BSEE program must have a total of at least 134 semester hours. A course can satisfy only one program requirement. Students who place out of required courses without transcript credit must substitute other approved courses in the same area.

TELL ME ABOUT THE BA

The BA degree provides a basic technical foundation in electrical and computer engineering through a subset of the core and specialization courses offered by the department. The program leading to the BA degree is not accredited by the EAC of ABET and is often pursued by students as a component of a double major or dual degree program.

A BA program must have a total of at least 120 semester hours. A course can satisfy only one program requirement. Students who place out of required courses without transcript credit must substitute other approved courses in the same area.

WHAT ARE SPECIALIZATION AREAS

Each ECE degree program requires a minimum number of semester hours in: core areas; math and science; computation; and design. Each also requires a minimum number of specialization courses.

For the BSEE program, a minimum of 6 specialization area courses is required, including 3 or more in one area, and courses from at least 2 areas.

For the BA program, a minimum of 4 specialization area courses is required, including 2 or more in one area, and courses from at least two areas.

For both programs, each course must be at least 3 semester hours. The department may add or delete courses, and graduate courses and equivalent courses from other departments may be used to satisfy area requirements with permission. Check with your Divisional Advisor (DA) or Major Advisor for more information.

*ABET, Inc., 415 North Charles Street, Baltimore, MD 21201
eac@abet.org
### WHAT DO I NEED TO GET A DEGREE

You must meet the required hours for your program, and include the courses in this column as well as your specialization area courses and electives that are required. For specific requirements on each degree program, sample schedules and forms, please visit [ga.rice.edu](http://ga.rice.edu) or [ece.rice.edu](http://ece.rice.edu).

<table>
<thead>
<tr>
<th>Math/Science Courses:</th>
<th>Specialization Areas</th>
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<tbody>
<tr>
<td>CHEM 121* General Chemistry I with Lab (or CHEM 111)</td>
<td>Computer Engineering:</td>
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<tr>
<td>ELEC 261 Electronic Materials and Quantum Devices</td>
<td>COMP 321 ^ Introduction to Computer Systems</td>
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<tr>
<td>ELEC 303 Random Signals</td>
<td>COMP 382 ^ Reasoning About Algorithms</td>
</tr>
<tr>
<td>MATH 101 Single Variable Calculus I (or MATH 105)</td>
<td>COMP 430 ^ Introduction to Database Systems</td>
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<tr>
<td>MATH 102 Single Variable Calculus II (or MATH 106)</td>
<td>ELEC 323 Principles of Parallel Programming</td>
</tr>
<tr>
<td>MATH 212 Multivariable Calculus (or MATH 221)</td>
<td>ELEC 411 Microwave Engineering</td>
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<tr>
<td>MATH 355 Linear Algebra (or MATH 354 CAAM 334 or 335 Matrix Analysis)</td>
<td>ELEC 421 Operating Systems and Concurrent Programming</td>
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<tr>
<td>PHYS 101 Mechanics with Lab (or PHYS 111)</td>
<td>ELEC 422 VLSI Systems Design</td>
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<tr>
<td>PHYS 102 Electricity and Magnetism with Lab (or PHYS 112)</td>
<td>ELEC 423 Digital Integrated Circuits</td>
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<th>Computation Courses:</th>
<th>Data Science/Systems:</th>
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<tr>
<td>COMP 140 Computational Thinking</td>
<td>COMP 330 ^ Tools and Models for Data Science</td>
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<td>DSCI 302 Data Science Tools and Models</td>
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<td></td>
<td>DSCI 303 Machine Learning for Data Science</td>
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<td>ELEC 306 Applied Electromagnetics</td>
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<td>ELEC 430 Modern Communication Theory and Practice</td>
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<td>ELEC 431 Digital Signal Processing</td>
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<td>ELEC 432 Mobile Bio-Behavioral Sensing</td>
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<td>ELEC 434 Advanced High-Speed System Design</td>
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<td>ELEC 436 Fundamentals of Control Systems</td>
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<td>ELEC 437 Introduction to Communication Networks</td>
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<td>ELEC 438 Wireless Networking for Under-Resourced Urban Communities</td>
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<td>ELEC 439 Data and Systems</td>
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<td>ELEC 447 Introduction to Computer Vision</td>
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<td>ELEC 475 Learning from Sensor Data</td>
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<td>ELEC 498 Introduction to Robotics</td>
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<td>MECH 488 Design of Mechatronic Systems</td>
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<td>STAT 413 Introduction to Statistical Machine Learning</td>
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<tr>
<th>ECE Core Courses:</th>
<th>Neuroengineering:</th>
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<tr>
<td>ELEC 220 Fundamentals of Computer Engineering</td>
<td>ELEC 380 Introduction to Neuroengineering</td>
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<tr>
<td>ELEC 240 &amp; 241 Fundamentals of Electrical Engineering I</td>
<td>ELEC 382 Introduction to Computational Neuroscience</td>
</tr>
<tr>
<td>ELEC 242 &amp; 244 Fundamentals of Electrical Engineering II</td>
<td>ELEC 483 Machine Learning and Signal Processing for Neuroengineering</td>
</tr>
<tr>
<td>ELEC 301 * Introduction to Signals, Systems, and Learning</td>
<td>ELEC 484 Human Neuro Imaging</td>
</tr>
<tr>
<td>ELEC 305 Introduction to Physical Electronics</td>
<td>ELEC 485 Fundamentals of Medical Imaging I</td>
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<tr>
<td>ELEC 326 Digital Logic Design</td>
<td>ELEC 486 Fundamentals of Medical Imaging II</td>
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<td>ELEC 488 Theoretical Neuroscience: From Cells to Learning Systems</td>
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<td>ELEC 489 Neural Computation</td>
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<tr>
<th>Design Lab:</th>
<th>Photonics, Electronics, and Nano-devices:</th>
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<tr>
<td>Choose one of the following:</td>
<td>ELEC 262 Introduction to Waves and Photonics</td>
</tr>
<tr>
<td>ELEC 327 Implementation of Digital Systems</td>
<td>ELEC 306 Applied Electromagnetics (or PHYS 302)</td>
</tr>
<tr>
<td>ELEC 332 Electronic Systems: Principles and Practices</td>
<td>ELEC 361 Quantum Mechanics for Engineers (or PHYS 311)</td>
</tr>
<tr>
<td>Design:</td>
<td>ELEC 460 Physics of Sensor Materials and Nanosensor Technology</td>
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<tr>
<td>ELEC 494 * Senior Design (2 Semesters)</td>
<td>ELEC 461 Solid State Physics (or PHYS 412)</td>
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<td>ELEC 462 Optoelectronic Devices</td>
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<td></td>
<td>PHYS 416 Computational Physics</td>
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</tbody>
</table>

* Not required for the BA.  
^ Require completing Computer Science prerequisites beforehand.

Note: The sequence of COMP 140, COMP 182, and COMP 215 is recommended in addition for the Computer Engineering specialization as these courses are prerequisites for many of the Computer Science courses.
WHAT IS THE DEGREE PLANNING SHEET

The degree planning sheet is an essential part of your ECE undergraduate experience. A sample of this sheet can be found below. The form's purpose is to make sure you are on track to graduate and are getting the most out of your academic experience. Review your academic goals frequently and use this sheet to help you. You should bring an updated copy of this form to meetings with your major advisor. Please visit ece.rice.edu for forms and curriculum. When planning, consult Degree Works to track your progress towards completion of degree requirements.

Sample of the BSEE Degree Planning Sheet

<table>
<thead>
<tr>
<th>MATH/SCIENCE</th>
<th>Completed? (check if completed)</th>
<th>From AP credit or Rice?</th>
<th>Computer Engineering</th>
<th>Course #</th>
<th>Course Name</th>
<th>Completed?</th>
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<tr>
<td>CHEM 121 or 111</td>
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<td>CE - Specialization Course</td>
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<td>ELEC 246</td>
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<td>CE - Specialization Course</td>
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<td>ELEC 380</td>
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<td>MATH 125 or 105</td>
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<td>CE - Specialization Course</td>
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<td>MATH 162 or 196</td>
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<td>CE - Specialization Course</td>
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<td>MATH 212</td>
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<td>CE - Specialization Course</td>
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<td>MATH 210 or 165</td>
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<td>MATH 304 or CAAM 344 or 355</td>
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<td>CE - Specialization Course</td>
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<td>PHYS 111</td>
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<td>PHYS 102</td>
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<td>CE - Specialization Course</td>
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<td>MATH/SCIENCE Elective*</td>
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<td>CE - Specialization Course</td>
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<td>ECE CORE</td>
<td>Completed? (check if completed)</td>
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<td>Computer Engineering</td>
<td>Course #</td>
<td>Course Name</td>
<td>Completed?</td>
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<td>ELEC 241</td>
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<td>ELEC 245</td>
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<td>ELEC 385</td>
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<td>COMP 340</td>
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<td>CE - Specialization Course</td>
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<td>DESIGN LAB (choose one)</td>
<td>Completed? (check if completed)</td>
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<td>CE - Specialization Course</td>
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<td>ELEC 327 or 362</td>
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<td>CE - Specialization Course</td>
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<td>ELEC 344</td>
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<td>ELEC 400 or 434</td>
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<td>CE - Specialization Course</td>
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<td>ELEC 494 (two semester course)</td>
<td>Completed? (check if completed)</td>
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<td>CE - Specialization Course</td>
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<td>FALL</td>
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<td>CE - Specialization Course</td>
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<td>SPRING</td>
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<td>CE - Specialization Course</td>
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</table>

Consult your Degree Works audit as you complete this degree plan.

*Typically approved courses include: BIOS 201, CAAM 336, CAAM 378, CHEM 122 with lab, MATH 211, and MATH 222.
HOW DO I DECLARE MY MAJOR

The School of Engineering encourages students to declare their majors in the spring semester of their first year before registering for your second year. To declare, you must make an appointment with a Major Advisor and bring:

1) A printed, filled-out copy of the ECE Degree Planning Sheet either for the BSEE or BA
2) A printed copy of your unofficial transcript,
3) A printed copy of your completed declaration form (located in Esther)

After your advisor has approved your paperwork, bring it to Norma Santamaría in Abercrombie B203. Once you have seen Norma, take your original declaration form and turn it in to the Registrar’s Office. [Due to Covid-19 please contact Norma Santamaría (ns37@rice.edu) before beginning the paperwork approval process.]

WHO CAN HELP ADVISE ME

You have to meet with your Divisional Advisor (DA) at least once during O-week, but we suggest you also make it a habit to talk to them periodically regarding your academic plans. All DAs have been trained to answer exactly the types of questions you have.

If your DA is not from the ECE department and you would like more help, you don’t need to wait until you’ve declared to meet with a Major Advisor. A list of Major Advisors is below. They know the latest on the curriculum and have guided many ELECs towards their Rice degree. The ECE Undergraduate Program Administrator, Norma Santamaría (ns37@rice.edu), can help with questions about course schedules, ELEC 490 and VIP (ELEC 491) registration, and procedures for declaring a major. For applying to the Rice Masters of Electrical Engineering (MEE) program contact Nyetta Meaux at nyettameaux@rice.edu.

Make sure you consult the School of Engineering Advising Booklet and the IEEE Handbook for more tips and information on advising - at least once per semester and especially before registering for ELEC 301, the design lab and senior design. Once you have declared, you should meet with your assigned Major Advisor once per semester. You must bring a printed and filled out copy of the ECE Degree Planning Sheet.

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BioScience Research Collaborative 971
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Chong Xie
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Norma Santamaría
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THE ADVISING PROCESS

During the registration period of the preceding semester, schedule an appointment with your ECE advisor. If expressing interest in declaring or not yet assigned an advisor, reach out to one of the faculty on the preceding page. There are courses in the ECE curriculum that require instructor/advisor permission to register. This helps encourage students to meet with their advisor at least once per semester. For advisor meetings, bring an updated degree plan form to help guide your course discussion. During the Covid-19 restrictions the registration permission will be handled online rather than with paper forms.

I HAVEN’T DECLARED, BUT I’M INTERESTED

Students interested in ECE but who have not yet declared are encouraged to contact a faculty member in their area of interest or the Undergraduate Committee (UGC) Chair for information.

WHO ARE MY PEER ACADEMIC ADVISORS

The ECE Peer Academic Advisors are upper-level students able to help their peers with academic issues related to Electrical and Computer Engineering. They are a resource that can provide advice on class scheduling, internships, resume preparation, etc. We encourage first and second-year students to consult the peer advisors at their residential college on matters concerning their academic careers. Keep in mind that some Peer Academic Advisors may not be on campus until after O-Week. More info can be found here: oaa.rice.edu/peer-academic-advisors

CAN I TRANSFER CREDITS

Transfer credit for a particular course must be approved by the faculty member teaching that course in that department. Consult the course database on courses.rice.edu to determine the current instructor. For general questions on transfer credit consult with the UGC.

More information can be found here: oaa.rice.edu/transfer-credit-advisors

ASK. PLAN. SUCCEED!
HOW CAN I GET THE MOST OUT OF MY TIME

ECE is a vibrant community with many ways to get involved!
Non-ECE-related clubs can be found in Rice Clubs Central
studentcenter.rice.edu/student-activities.

IEEE
The Rice chapter of IEEE is a student organization dedicated to informing ECE students of what is going on in the department, preparing the undergrad ECE majors for life “beyond the hedges,” encouraging first and second-year students to major in Electrical Engineering, and creating a greater sense of community among the ELECs. Visit ieee.rice.edu for more information.

SHELECS
ShELECs: Undergraduate Women in Electrical Engineering is a student organization on campus which supports undergraduate women in electrical engineering. It empowers ECE women through community, networking, and mentorship. To join or contact us, please contact Clara Selbrede (cms27@rice.edu) or email shelecs@rice.edu.

WOMEN ExCEL
Women Excel is a network of women in the ECE Department at Rice that aims to provide community, mentoring, and cultural enrichment for ECE graduate students. We furnish a medium for networking and discussion of women-specific issues. Contact Sibo Gao (sibo.gao@rice.edu) or visit https://www.facebook.com/ricewikiwomen/ for more information.

ETA KAPPA NU (HKN)
Eta Kappa Nu (HKN) is the electrical and computer engineering honor society for students, alumni, and other engineering professionals. Recognizing excellence in electrical and computer engineering since 1904, it is now a part of the larger IEEE organization. The Theta Rho chapter of HKN at Rice University inducts new members each spring.

TAU BETA PI (TBP)
Tau Beta Pi is the oldest engineering honor society in the United States that recognizes students who have shown a history of academic achievement as well as a commitment to personal and professional integrity. TBP provides leadership development and soft skills training for engineering students and alumni members and promotes lifelong alumnus member involvement. For more information visit https://tbp.rice.edu.

SOCIETY OF WOMEN ENGINEERS (SWE)
SWE is a non-profit educational and service organization that is committed to organizing professional and social events to help Rice women engineers succeed and advance their careers. The SWE mission is to “stimulate women to achieve full potential careers as engineers and leaders, expand the image of the engineering profession as a positive force in improving the quality of life, and demonstrating the value of diversity”. Visit swe.rice.edu for more information.

NATIONAL SOCIETY OF BLACK ENGINEERS (NSBE)
Rice University’s NSBE chapter is dedicated to realization of a better tomorrow through the development of programs and community outreach events intended to increase the recruitment, retention, and successful graduation of minorities in engineering. Visit nsbe.rice.edu for more information.

SOCIETY OF HISPANIC PROFESSIONAL ENGINEERS (SHPE)
Rice University’s SHPE chapter changes lives by empowering the Latinx/Hispanic community to realize its fullest potential and to impact the world through STEM awareness, access, support and development. SHPE Rice is committed to making its members as prepared as possible for life after graduation through professional development, community outreach, and leadership development. Visit shpe.rice.edu or contact shpe.rice@gmail.com for more information.
SHOULD I DO AN INTERNSHIP

Picture it: you’re a student at one of the best universities in the country. Your GPA is excellent and your professors have written strong recommendation letters, but how do you get real-world experience? This is where internships come in.

While most Rice ECE graduates have no problem finding a job after commencement, an internship can help you gain valuable on-the-job experience and real-world skills.

HOW DO I FIND AN INTERNSHIP

Many students identify internship opportunities on their own; however, there are resources on campus to help.

RICELink  ccd.rice.edu/students/jobs-internships
RICELink is CCD’s job and internship database. Unlike other job search websites, employers who post in RICELink are specifically looking for Rice students and alumni. Use RICELink to apply for jobs and internships, apply to on-campus interviewing positions, schedule appointments with CCD counselors, and RSVP for events. You can also opt-in to make your profile searchable by employers.

SallyPortal  alumni.rice.edu/sallyportal
SallyPortal is an online professional development hub dedicated exclusively to the Rice community. SallyPortal allows you to seek guidance from the Rice network, find a mentor, locate professional development opportunities, and engage with alumni and departments - all in the name of providing Rice students and recent graduates with the greatest possible edge.

HireOWL  https://www.hireowl.com
Looking for a great way to make money and gain work experience on a schedule that works with your classes? Check out HireOwl. They can provide you with a wide variety of paid part-time job opportunities, short-term projects, and internships. Signing up is easy!

Remember you can always visit Rice ECE social media pages to learn about job opportunities from faculty and alumni.

ECE students have interned at:

Google  HBK Capital Management  FlightAware
National Instruments  Subaru Telescope  Uber
Texas Instruments  Intuitive Machines  Apple
Microsoft  CenterPoint Energy  Nokia Bell Labs
Boeing  Alert Logic  Samsung
Chevron  Freescale Semiconductor  Naval Research Lab
HP Enterprise  C&J Energy  IBM
NASA  Shell  Facebook
Airware  Viasat  MIT Lincoln Labs
Proteus Digital Health  LyondellBasell  CISCO
Sensorfield, LLC  Amazon  ...and more!
SHOULD I STUDY ABROAD

As an engineer, you will be called to solve problems and find solutions on a global scale; studying abroad is the ideal opportunity for you to gain the skills necessary to function in this global context. It shapes who you will become during your Rice career and beyond.

“Study abroad has helped me understand how to be a global thinker and to understand the impact of my decisions (engineering or otherwise). My time in Singapore made me realize in which aspects of education we, as a country, excel, and in which aspects we have something to learn from other cultures and institutions. An abroad experience helps you to appreciate what you have at home in addition to what there is out there. I believe I’m better equipped to understand the problems we (the next generation of engineers) face at the global scale. I’m proud to say I now know how the strengths of Rice ECE fit into a larger puzzle of academia and research around the world.”
- Latané

Meet with your Major Advisor(s) early, or by fall of second year to discuss the possibility of studying abroad, and how it will integrate with the department’s curriculum and course sequence.

“An important part of the education you receive at Rice should come from outside a classroom. It should include immersing yourself in a foreign culture and communicating with completely different people.

Studying abroad in Hong Kong has made me aware of a completely different reality I didn’t even know about, and taught me things about myself I wouldn’t have learned by just studying in the library. And studying abroad as an ELEC isn’t as hard as most people think! Most universities have ELEC departments with plenty of courses available for transfer credit.”
- Manuel

Interested? Attend the Rice Study Abroad Fair, in-person or online this fall. Questions? Email abroad@rice.edu.

I found my internship through the DAAD RISE program, which is organized by the German Academic Exchange Service. I was hosted as an intern by the Control Systems Group at the Technical University of Berlin (TUB). During my internship, I developed a novel cycle-based communication algorithm for reducing the communication load of wireless sensor networks. Outside of work, I’ve had lots of fun exploring Berlin, learned about German culture and made some great friends.
- Tianyi
SHOULD I DO RESEARCH AS AN UNDERGRAD

Participation in research is a fundamental part of the Rice experience, and prepares students to make a distinctive impact on the world. If you are thinking of applying to graduate school, research experience as an undergraduate can set you apart from the competition and can also give you an edge when you begin your coursework - you will know about the research process and what to expect.

The prestigious Distinction in Research and Creative Work Award, is bestowed on select undergraduates at Commencement. The award is granted for projects that produce a concrete outcome -- e.g. an essay, invention, design, musical composition--and demonstrate commitment and/or achievement above and beyond the norm. https://bit.ly/2Y3pX3W

HOW CAN I FIND RESEARCH OPPORTUNITIES

Vertically Integrated Projects (VIP)
The Vertically Integrated Projects (VIP) Program at Rice unites undergraduate education and faculty research in a team-based context. Undergraduates earn academic credits, while faculty and graduate students benefit from the design/discovery efforts of their teams. VIP at Rice extends the academic design experience, through ELEC 491, beyond a single semester. It provides the time and context to learn and practice professional skills, to make substantial contributions, and experience different roles on large multidisciplinary design/discovery teams.

The long-term nature of VIP creates an environment of mentorship, with faculty and graduate students mentoring teams, experienced students mentoring new members, and students moving into leadership roles as others graduate. Rice VIP teams are comprised of students from first-year to graduate students, with a variety of majors and backgrounds. For more information, forms and application, visit ece.rice.edu.

Research Fairs
Make a point to attend the research fairs in both the fall and spring semesters. The intention of the fairs are to connect undergraduate students with research opportunities at Rice University. It is an excellent way for students to learn how to pursue research opportunities that fit their goals and interests, and to discuss research with faculty and graduate students across disciplines.

Reach out to ECE Faculty
Many ECE faculty provide research opportunities to Rice undergraduates. Visit ece.rice.edu/people to learn about the faculty in the department, and feel free to reach out to them regarding a research position. Faculty have regular research group meetings that you may ask to attend.

A team of Rice Electrical and Computer Engineering students were given the Best Environment and Sustainability Engineering Award at the 2019 Design Showcase.

The Flood Team is developing a real-time, web-enabled system to monitor flood levels throughout a municipality like Houston, which has suffered three damaging floods in recent years, topped by the devastation of Hurricane Harvey. A set of sensors spread throughout a city can provide authorities with the information they need to respond to a flood in progress. Initially, the sensor nodes are set to report local conditions every five minutes.

“Our goal is not so much to measure rainfall . . . We are much more interested in water levels on the streets and the movement of that water.”
-Alexandra Du
ABOUT RICE IEEE

The Rice Chapter of IEEE is a student organization dedicated to connecting ECE students to exciting opportunities and resources at Rice and beyond. Rice IEEE encourages first and second-year students to major in Electrical Engineering and works to foster a strong community of students, faculty, and professionals. We expose students in ECE to important technical and career development topics in the field of electrical engineering by hosting weekly lunches with presentations given by industry professionals, alumni, professors, and graduate students. For more information visit the Rice IEEE website at ieee.rice.edu or seek out the Rice IEEE Handbook at ieee.rice.edu/resources/.

The Ethernest is a student-run makerspace for students from all disciplines. Sponsored by the Electrical and Computer Engineering Department and run by the members of the Rice Chapter of IEEE. They hold workshops for students from all majors to try their hand at tinkering. See more at ethernest.rice.edu.

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