Welcome!
New Student Orientation
Summer 2021

Engineering Building, 601 N. Campus Dr., Glassboro, NJ 08028
(856) 256-5330  polikar@rowan.edu  www.rowan.edu/ece
Welcome

Your new home for learning, adventure, building lifelong relationships and collaborations, and become a Rowan Engineer

- ECE Department: 3rd Floor, Engineering Hall (EH)
- ECE Admin Suite: EH 346
  - Ms. Loretta Brewer, Admin Assistant
    Phone: 856 256-5362
- ECE Undergraduate Chair:
  - Dr. Gina Tang, EH 331, tang@rowan.edu
- ECE Technologist:
  - Mr. Mario Leone, EH 317, leonem@rowan.edu
- ECE Department Head:
  - Dr. Robi Polikar EH 346B, polikar@rowan.edu
ECE FACULTY (1)

DR. ROBI POLIKAR, DEPT. HEAD
Computational intelligence, machine learning and signal processing

DR. ROBI POLIKAR
Computational intelligence, machine learning and signal processing

DR. GINA TANG
Computer networking operational research

DR. GINA TANG
Computer networking operational research

DR. RAVI RAMACHANDRAN
Speech processing, digital signal processing, speaker identification

DR. RAVI RAMACHANDRAN
Speech processing, digital signal processing, speaker identification

DR. NIDHAL BOUAYNAYA, ASSOC. DEAN FOR RESEARCH
Complex and dynamical systems, bioinformatics, optimization

DR. NIDHAL BOUAYNAYA, ASSOC. DEAN FOR RESEARCH
Complex and dynamical systems, bioinformatics, optimization

DR. JOHN SCHMALZEL, FOUNDING CHAIR
Smart sensors, systems, smart-grid, electronics

DR. JOHN SCHMALZEL, FOUNDING CHAIR
Smart sensors, systems, smart-grid, electronics

DR. BOB KRCHNAVEK
Nanotechnology, instrumentation, RF systems & electronics

DR. BOB KRCHNAVEK
Nanotechnology, instrumentation, RF systems & electronics

DR. SHREEKANTH MANDAYAM
Communications, Advanced Imaging, virtual reality

DR. SHREEKANTH MANDAYAM
Communications, Advanced Imaging, virtual reality

DR. BEN WU
Communications, cyber-physical systems, ultra-fast signal processing

DR. BEN WU
Communications, cyber-physical systems, ultra-fast signal processing

DR. GHULAM RASOOL
Control systems, digital systems, machine learning

DR. GHULAM RASOOL
Control systems, digital systems, machine learning

DR. SANGHO SHIN
Microelectronics, nanoelectronics, memristive systems, hardware integration

DR. SANGHO SHIN
Microelectronics, nanoelectronics, memristive systems, hardware integration

DR. JIE LI
Power Systems, Microgrid, Power Distribution

DR. JIE LI
Power Systems, Microgrid, Power Distribution
ECE FACULTY & STAFF (2)

Mr. Russell Trafford
Digital and embedded systems, microprocessors, control systems

Dr. Hussein Hanifi
Microelectronics, VLSI systems, Power electronics

Mr. Ingar Blosfeld
Lockheed Martin Radar Systems

Mr. Michael Muhlbaier
Digital and embedded systems, microprocessors

Dr. Bernie Pietrucha
Electric circuits, electronics

Mr. Rich Pedersen
Lockheed Martin Fellow Systems Engineering

Mr. Bob Rassa, IEEE Fellow, Raytheon Systems engineering

Mr. Karl Dyer
Technical Support

Mr. Mario Leone

Ms. Loretta Brewer, Administrative Support
Mr. Mark Roman
NavSea
Cybersecurity, Model Based Systems Engineering

Ms. Maggie Bosak
Machine Q
Embedded Systems, Internet of Things, Microcontrollers

Mr. George Lecakes
Virtual Reality, Advanced Visualization

Dr. Todd Schuck
Lockheed Martin
Systems Engineering

Mr. Adam Fifth
Teaching Fellow
Electromagnetics, VLSI Design, Aerospace Systems

Mr. Muhammed Umer
Teaching Fellow
Circuits, Digital Signal Processing, Machine Learning

Mr. Yang Qi
Teaching Fellow
Communications

Mr. Taichu Shi
Teaching Assistant
Circuits, Electronics, Communications

Mr. Yassine Barhoumi
Teaching Assistant
Circuits, Electronics
COLLEGE OF ENGINEERING LEADERSHIP

Dr. Stephanie Farrell
Interim Dean of Engineering

Dr. Giuseppe R. Palmese
Incoming Dean of Engineering

Dr. Steven Chin
Vice Dean of Engineering
2021 ECE Facts & Figures

- Average SAT for 2019 applicants: 1315
- Number applications for Fall 2021: ~330
- Expected size of Fall 2021 Freshman + transfer class: 81 + 12 transfers
- Total number of students in ECE: ~400
- Engineering retention rate: 90%
- ECE placement rate: 95-100%
  - Average starting salary for ECE MS students: ~$80-90K
- Faculty & staff:
  - 14 full-time tenure / tenure track faculty, 10 part time faculty;
  - 1 administrative support staff and 1 technical support staff
  - 1 new full-time tenure-track faculty members will be joining us every year for the next several years.
• Getting your ECE degree is easy. All you have to do is to complete these courses in the correct order.

That’s it.

• Get the Advising & Progress sheet and complete it as you go through the program.

* ECE curriculum is always evolving. There may be minor changes to this curriculum – if and when that happens, you will be informed immediately.
CURRICULUM DETAILS

- Courses listed in bold face need to be completed with a minimum grade higher than D+ (C or C-, depending on the course) to satisfy the prerequisites of one or more subsequent courses.

- Rowan Core requires six literacies: Communication, Quantitative, Scientific, Artistic, Global, Humanistic. The first three are satisfied by major courses. The remaining three must be taken from appropriate bank of courses, one of which must carry "Literature" attribute. Some business electives may satisfy HUML requirement.

- Science Elective: CHEM 06.100 College Chemistry I, BIOL 01.112 General Biology, Environmental Focus, BIOL 01.113 General Biology, Human Focus; BIOL 01.115 General Biology – Plants and People; BIOL 10.210 Human Anatomy and Physiology; PHYS 00300 Modern Physics; PHYS 00221 Introductory Thermo, Fluid, Wave and Optics.

- ECE electives are 400-level ECE courses that are not otherwise required as part of the ECE core curriculum. One non-ECE course may be taken towards ECE electives requirements if it is a relevant 400-level course. Most 400-level engineering courses qualify, but please check with ECE Dept. Head before registering if you want to take a non-ECE class towards ECE elective requirements.

- OOD / Multidisciplinary experience requirement can be satisfied by either
  a. Participating in one out-of-discipline clinic project
  b. Providing consulting services to a non-ECE clinic or other research project through Clinic Consultant;
  c. Taking a non-ECE class as an elective, or an elective offered by the ECE Department but one that is clearly outside of the traditional boundaries of ECE providing non-ECE content (such as bioinformatics, biomedical systems and devices)
  d. Completing a Minor in any field (which automatically satisfies item (c) above)
2021 - ECE Curriculum Flow Chart

Semester I
- ENGR 01.101 First Year Eng. Clinic I (1-1)
- MATH 01.130 Calculus I (4-0)
- PHYS 00.220 Intro. to Mechanics (3-1)
- CS 04.103 Comp. Sci. & Program. (4-0)
- ECE 09.101 ECE: Solving Tomorrow’s Prob. (1-1)

Semester II
- ENGR 01.102 First Year Eng Clinic II (1-1)
- PHYS 00.222 Intro. to Elec&Magn (3-1)
- COMP 01.111 College Comp I (3-0)
- ECE 09.241 Intro. to Digital Sys. (1-1)
- ECE 09.4XX ECE Elective (3-0)

Semester III
- ENGR 01.201 Soph. Eng. Clinic I (3-1)
- MATH 01.230 Calculus II (4-0)
- ECE 09.243 Computer Architecture (2-1)
- ECE 09.921 ECE Elective (3-0)
- BUS *** Business Elective (3-0)

Semester IV
- ENGR 01.202 Soph. Eng. Clinic II (3-1)
- MATH 01.235 Math Eng. Analysis (4-0)
- ECE 09.303 Electronica II (3-1)
- ECE 09.XYZ Course Name (2-1)
- STAT 02 286 Prob & Stat for ECEs (3-0)

Semester V
- ENGR 01.303 Jun. Eng. Clinic (0-2)
- ECE 09.304 Signal Processing I (2-1)
- ECE 09.341 Signals & Systems (1-1)
- ECE 09.4XX ECE Elective (2-1)
- ME 10 320 ME for ECEs (2-1)
- BUS *** Business Elective (3-0)

Semester VI
- ENGR 01.303 Jun. Eng. Clinic (0-2)
- ECE 09.321 Systems & Control I (2-1)
- ECE 09.311 Electronics I (2-1)
- ECE 09.363 Modules in ECE (1-0)
- ENGR 01.403 Sen. Eng. Clinic (0-2)

Semester VII
- ENGR 01.303 Sen. Eng. Clinic (0-2)
- ECE 09.321 Systems & Control I (2-1)
- ECE 09.342 Embedded Systems (2-1)
- ECE 09.461 ECE Clinic Consultant (0-1)
- ECE 09.4XX ECE Elective (3-0)

Semester VIII
- ENGR 01.403 Sen. Eng. Clinic (0-2)
- ECE 09.351 Dig. Signal Processing (2-1)
- ECE 09.433 El. Comm. Systems (0-1)
- ECE 09.488 VLSI Design (2-1)
- ECE 09.4XX ECE Elective (3-0)
- BUS *** Business Elective (3-0)

Double frame indicates the class carries a minimum grade requirement to advance to certain other classes.

Min. Prereq. Grade Required C
Pre-requisite C
Course (hegis) number
Course Name (2-1)
Lect. - Lab credit hours
A project class to be taken twice. Same prerequisites apply to each.

This is the projected ECE curriculum for AY 2021-22. ECE Department works continuously to improve curriculum, hence future/ final curriculum may differ from this. In case of typographical errors, the Banner record is official.
• You will be pre-registered for your first semester courses
  ▫ This is the first and the last time you will be pre-registered for your courses.
  ▫ Starting for Spring semester (sometime in October), you will register on your own.
    • Make sure to visit your advisor each semester before registering to ensure that you are on track and you are taking the correct courses.
    • Also keep a copy of the Advising & Progress sheet with you at all times.

• Make sure that you are registered for these first semester courses
  ▫ You will later be able to make adjustments if you need to – for example, if you have AP credits or college credits for any of these courses. See Ms. Maria Perez Colon.

• To see your current registration, visit www.rowan.edu/selfservice
Transfer Credit / AP Credits

- If you have taken a college level class, that class may be used to satisfy ECE program requirements. Let your advisor know, if the course has not already transferred.

<table>
<thead>
<tr>
<th>Math &amp; Computer Science</th>
<th>Calculus AB</th>
<th>3</th>
<th>MATH 01075</th>
<th>GE Math Elective</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math &amp; Computer Science</td>
<td>Calculus BC</td>
<td>4 or 5</td>
<td>MATH 01130</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Math &amp; Computer Science</td>
<td>Calculus BC</td>
<td>Score of 3 with a sub score of 4 or 5</td>
<td>MATH 01130</td>
<td>Calculus I</td>
<td>4</td>
</tr>
<tr>
<td>Math &amp; Computer Science</td>
<td>Calculus BC</td>
<td>4 or 5</td>
<td>MATH 01130 &amp; MATH 01131</td>
<td>Calculus I &amp; Calculus II</td>
<td>8</td>
</tr>
<tr>
<td>Math &amp; Computer Science</td>
<td>Computer Science A</td>
<td>3</td>
<td>CS 01077</td>
<td>Computer Science GE Elective</td>
<td>3</td>
</tr>
<tr>
<td>Math &amp; Computer Science</td>
<td>Statistics</td>
<td>4 or 5</td>
<td>CS 04113</td>
<td>Introduction to Object-Oriented Programming</td>
<td>4</td>
</tr>
<tr>
<td>Math &amp; Computer Science</td>
<td>Statistics</td>
<td>3, 4, or 5</td>
<td>STAT 02260</td>
<td>Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>Sciences</td>
<td>Both Physics 1 &amp; 2 (Most take both tests and present for review together.)</td>
<td>4 or 5</td>
<td>PHYS 00210 &amp; PHYS 00211</td>
<td>Physics I (LAB) &amp; Physics II (LAB)</td>
<td>8</td>
</tr>
<tr>
<td>Sciences</td>
<td>Physics C: Electricity and Magnetism</td>
<td>4 or 5</td>
<td>PHYS 00222</td>
<td>Intro to Electricity/Magnetism (LAB)</td>
<td>4</td>
</tr>
<tr>
<td>Sciences</td>
<td>Physics C: Mechanics</td>
<td>4 or 5</td>
<td>PHYS 00220</td>
<td>Introductory Mechanics (LAB)</td>
<td>4</td>
</tr>
</tbody>
</table>
**GENERAL HELP!**

- If you start struggling on any issue: seek assistance immediately, do not wait until it becomes a problem. The earlier you seek help, the easier the solution!

- First year advisor: Ms. Maria Perez-Colon, perezcolon@rowan.edu.
  - But, first send an e-mail to engr-advising@rowan.edu with your request, email must include full name and Banner ID.

- ECE Curriculum issues (while you are freshman): Dr. Gina Tang, tang@rowan.edu

- Advising page on department webpage:
  - [https://academics.rowan.edu/engineering/programs/electricalcomputer/advising/index.html](https://academics.rowan.edu/engineering/programs/electricalcomputer/advising/index.html)
  - [Ensuring Academic Success in Engineering (E.A.S.E.): Advising Wiki Portal & FAQs](http://advisingrowanengineering.pbworks.com/w/page/79996934/FrontPage)

- University Academic Advising & Support: [https://sites.rowan.edu/student-success/advising/](https://sites.rowan.edu/student-success/advising/)

- Student Self Service (registration, transcript, etc.): [www.rowan.edu/selfservice](http://www.rowan.edu/selfservice)

- Department webpage: [www.rowan.edu/ece](http://www.rowan.edu/ece)

- You are always welcome to visit the UG program chair, Dr. Gina Tang (tang@rowan.edu) and/or Dept. Head with any questions: Dr. Robi Polikar, 346B, polikar@rowan.edu
REGISTRATION RELATED HELP

- Office of the Registrar: [www.rowan.edu/registrar](http://www.rowan.edu/registrar)

- See the following resources:
  - **How to register**
    - [Handy guide from the Office of the Registrar (PDF)](https://www.rowan.edu/registrar)
  - **Section Tally**: [https://banner.rowan.edu/reports/reports.pl?task=Section_Tally](https://banner.rowan.edu/reports/reports.pl?task=Section_Tally) where all courses are listed for each semester
    - **How to use Section Tally to search for courses**
  - **Registration dates and deadlines**
    - **Fall 21**: [https://sites.rowan.edu/registrar/_docs/f21registration-relateddates.pdf](https://sites.rowan.edu/registrar/_docs/f21registration-relateddates.pdf)
  - **Transferring credits**
    - **AP and Other Non-traditional Credits**
  - **Registrar Forms**: [https://sites.rowan.edu/registrar/forms1/index.html](https://sites.rowan.edu/registrar/forms1/index.html)
    - **Registration related forms**
For any and all health-related issues (body & mind), there are several campus resources available to you. Take advantage of them. There is no reason for you to hesitate, feel ashamed to contact the good folks who are at these offices to help you.

- Wellness Center: [https://sites.rowan.edu/wellness/](https://sites.rowan.edu/wellness/)
- Counseling & Psychological Services: [https://sites.rowan.edu/wellness/counseling](https://sites.rowan.edu/wellness/counseling)
- Disability Resources: [https://sites.rowan.edu/disabilityresources/](https://sites.rowan.edu/disabilityresources/)
OTHER CURRICULAR OPTIONS

- All of the following are optional, additional curricular programs.
  - Concentrations, Co-op & Certificate Programs
    - Concentration / Minor in Systems Engineering
    - Certificate of Undergraduate Studies in Combat Systems Engineering
    - Certificate of Undergraduate Studies in Machine Learning (coming soon)
    - Co-op at Lockheed Martin (Requires CSE certificate)
  - Popular Minor programs for ECE students
    - Computer Science
    - Math
    - Physics
    - Mechanical Engineering
BEING SUCCESSFUL AT ROWAN ECE

• Time management is critical – Be smart, methodical, and timely in your studies.

• Stay on top of your classes - It is easier than catching up if you fall behind.

• University classes are different than high school. You may need to change the way you are used to learn.
  ▫ Do not expect the professor to tell you everything you need to know. That is not how learning happens in real life.
  ▫ Your professor will guide you, will teach you how to think analytically and how to learn, but you will need to read, explore, investigate, try, fail, try again, ask questions and find answers to solve problems.

• Academic dishonesty is not tolerated. Consequences are serious and lasting. Don’t even think about it! See Rowan academic integrity policy
Participate in ECE (and other) student club activities:

- IEEE Student Branch
- Robotics and Automation Society
- Women in Engineering
- Society of Women Engineers
- ProfHacks 2022
- American Institute of Aeronautics and Astronautics (AIAA)
- ... many others
LAB RULES

IN CASE OF EMERGENCIES DIAL 856-256-4911

• All safety protocols must be followed at all times in the labs. Do not access ceiling level services. All class/lab doors shall remain closed and locked at all times. In case of (electrical) emergency, kill the power by hitting the EMERGENCY STOP button and call 6-4911.

• Transportation devices (bikes, skateboards, etc.) are not permitted in the building. Backpacks are not to be worn in labs, hand carry only, and are to be placed under desks - aisles shall remain clear.

• Seek assistance before operating unfamiliar instruments. You may only use equipment for which you have completed proper training. No one shall be operating equipment or working in a lab without another person present.

• Closed toe shoes and long pants/skirts shall be worn in all labs. Food and drink are prohibited in all labs at all times.

• Always clean-up after yourself. Leave your workplace cleaner than you found it. Anything left in the labs will be discarded!

• You may only enter the technologist’s office if he is in the office. You may only enter the Resource Center or Clean room if there is a technologist or student staff member present.

• You may take, borrow, or remove any item from the Resource Center, Metrology Lab, or Clean Room ONLY with permission of the technologist or student staff member present.

• If we do not have a part you need for a class related project, we will order it for you, see support website for details.

• All students should have their own basic tools, see support website for details.

• Our technologists and staff members treat all students in a friendly and professional manner; however, they are not your friends. They are professionals working in a professional setting - and they are to be treated with utmost respect, just like you would treat a faculty member or the Dean. They are to be addressed and respected in a manner that is commensurate with the professional nature of the work they are doing. They should be addressed as Mr. Leone, Ms. Brewer, etc., and not by their first name. Student staff members are also working in a professional capacity, treat them with respect.

• If any faculty or technologist asks you to leave a laboratory for violation of any safety or laboratory policy, you must oblige immediately or you will be removed by public safety. Any form of verbal or physical harassment will be handled directly and immediately by public safety.

• Be professional – our laboratories house some of the most advanced instruments available today. It is your lab and mostly your responsibility to keep them clean, safe, and functional.

• For ECE Tech Support Office info, visit: https://confluence.rowan.edu/display/ece
PROFESSIONAL COURTESY & ETIQUETTE

• ABCs of Professional Etiquette: Appearance, Behavior and Communication
• Addressing professors and staff members
• Use of mobile devices in classroom
• Asking questions in classroom
• Use of e-mail as a professional communication tool
• Use of Slack as a professional communication tool
• Coming to class prepared
• Respecting preferred names and gender pronouns
• Understand what constitutes academic dishonesty, and avoid it at all costs.
WE, THE ECE COMMUNITY

• We, the ECE Family, form a close-knit community.
  ▫ We help each other, lift each other.
  ▫ Many of the friendships you form here will stay with you for the rest of your lives!
    • Some of you will become business partners of each other
    • Some of you will be colleagues working at the same company
    • ...and yes, some of you may even marry each other!
  ▫ If you are competitive, there are plenty opportunities available – join student clubs and attend competitions, but in the class, always offer to help your fellow ECE students (within academic integrity)

• Everyone in this department is here based on their merits. There is not a single student admitted based on anything other than her/his background and potential to be successful in the ECE program.
  ▫ Treat everyone with respect, dignity
  ▫ Be courteous not just to ECE faculty and staff, but everyone in our program, college, university and community
  ▫ In ECE Department we celebrate our diversity. We welcome anyone and everyone who contributes to scholarly activities and learning endeavors of this department, and betterment of our community ...
    • ... regardless of their ethnic background, race, nationality, religious beliefs or lack thereof it, sexual preferences, gender or gender identity
    • ... and we expect – and demand – every member of our community to do so as well!
Welcome to Electrical and Computer Engineering at Rowan.

Electrical and Computer Engineering (ECE) at Rowan is a modern, innovative, hands-on project-based program, where we train and graduate proficient engineers who will be successful in solving not only today’s problems, but also tomorrow’s evolving and emerging engineering challenges. Through an innovative curriculum structure that includes such unique elements as Engineering Clinics and Clinic Consulting in addition to core courses as well as a wide spectrum of technical electives on emerging topics, the department instills six core qualities that define and distinguish Rowan ECE graduates to be...
QUESTIONS?

Robi Polikar, Ph.D., Dept. Head
✉️ polikar@rowan.edu ☎️(856) 256-5372

Gina Tang, Ph.D., Undergraduate Coordinator
✉️ tang@rowan.edu ☎️(856) 256-5339

Maria Perez-Colon, First-year Advisor
✉️ perezcolon@rowan.edu

Patricia Dashefsky, Second-year Advisor
✉️ dashefskyp@rowan.edu

Loretta Brewer, Dept. Admin. Assistant
✉️ brewerm@rowan.edu ☎️(856) 256-5330