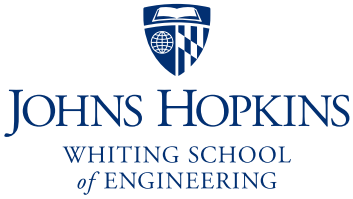

Student Handbook

Electrical and Computer Engineering

JHU Engineering for Professionals

September 2024

This handbook provides additional information for students of the Electrical and Computer Engineering (ECE) program in the John Hopkins University (JHU) Whiting School of Engineering (WSE) Engineering for Professionals (EP) as they develop their course plans and navigate their ECE degree or certificate. Most of the material for this handbook was derived from multiple EP online resources, the links of which will be referenced. Additional information is available in this handbook that is specific to the ECE program. For questions on topics not covered in this handbook or the EP online resources, please reach out to your academic advisor. If you do not know who your academic advisor is or one has not been assigned to you, please reach out to the ECE leadership.

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Degree Requirements and Time Limit

Master of Science

The MS ECE degree requires ten graduate courses that must be completed **within five years**. At least seven of the ten graduate courses must be from the EP Electrical and Computer Engineering program (525.xxx) or the Department of Electrical and Computer Engineering (520.xxx) in the full-time Homewood program. At least four of the ten required courses must be at the 700-level or above. At most, three of the ten courses required for the MS degree may be selected from outside the ECE program. All electives require advisor approval before students can register for the course(s). **Approved transfer courses count as 600-level technical electives**. The time limit begins from the time the first EP course is completed or from the time the earliest transfer course is completed.

Graduate Certificate

Applicants who are interested in taking graduate-level courses but not necessarily interested in pursuing a full master's degree are eligible for the Graduate Certificate in Electrical and Computer Engineering. Students are required to complete four courses **within five years**. At least three of the four courses must be from the Electrical and Computer Engineering (EN.525.xxx) program or the Department of Electrical and Computer Engineering (EN.520.xxx) in the full-time program. Students are allowed to take one elective. **Please note that an approved transfer course will count as the 600-level technical elective**. The time limit begins from the time the first EP course is completed or from the time the earliest transfer course is completed. Only grades of B– or above can count toward the graduate certificate. All technical electives are subject to advisor approval.

If the student should decide to pursue the full master's degree, all courses will apply to the master's degree provided they meet program requirements and fall within a five-year time limit. The student must declare their intention prior to completing the certificate.

Post-Master's Certificate

Applicants who have already completed a master's degree in a closely related technical discipline are eligible to apply for the Post-Master's Certificate (PMC) in Electrical and Computer Engineering. Students are required to complete five courses within five years. At least four of the five courses must be from the Electrical and Computer Engineering (EN.525.xxx) program or the Department of Electrical and Computer Engineering (EN.520.xxx) in the full-time program. Students are allowed to take one elective. **Please note that an approved transfer course will count as the 600-level technical elective**. The time limit begins from the time the first EP course is completed or from the time the earliest transfer course is completed. At least two of the courses must be at the 700-level or above. Only one grade of C– or above can count toward the post-master's certificate. All technical electives are subject to advisor approval.

JHED ID

Setting up your JHED ID right away is important. You will use your JHED ID to access e-mail, register for classes, check class schedule, access grade report, and view bills. Instructions on how to find your JHED ID, log in for the first time, and update your password can be found here. Questions regarding the JHED ID can be forwarded to the Registration Manager.

Focus Areas vs Concentration

Focus Areas

The ECE program curriculum is currently organized into seven different focus areas, which are listed below:

1. Communications and Networking
2. Computer Engineering
3. Electronics and the Solid State
4. Optics and Photonics
5. RF and Microwave Engineering
6. Signal Processing
7. Systems and Control

The focus areas are technology groupings that are relevant for students with interests in the selected areas. **Students are not required to choose a focus area to follow**. The focus areas only serve as an aid to students in planning their course schedules. The focus areas do not appear as official designations on a student's transcript or diploma. Note that a given course may appear in multiple focus areas and that courses outside of ECE may also be listed in a focus area. Please refer to the EP ECE webpage for the latest list of focus areas.

Concentrations

The MS ECE degree may be attained with a special Concentration in two areas: *Communications and Networking* or *Photonics*. These two Concentrations are approved by the Maryland Higher Education Commission (MHEC). Completion of either Concentration will be noted on the student's transcript and diploma.

Types of ECE Courses

Synchronous online:

Synchronous online courses are offered online at a specific day and time during the week. There are two types of virtual live courses:

Virtual live in a classroom (3VL): The instructor uses a classroom at APL or JHU campus to cover the course lectures. Instructors present lectures at a specific day and time each week. Local students have the option to attend the lectures in person in the same classroom. Students also have the option to attend virtually via Zoom. The instructor determines requirements for real-time attendance. All lectures are recorded and made available to students.

Virtual live from home or booth (8VL): The instructor covers the course lectures from either their home, office or a lecture booth available on APL or JHU campuses. Instructors present lectures at a specific day and time each week. Local students are not able to attend the lectures in person. The instructor determines requirements for real-time attendance. All lectures are recorded and made available to students.

Asynchronous online:

Lectures for asynchronous online courses are recorded ahead of time and made available to students throughout the week for each module. It is the students' responsibility to watch the recorded lecture videos. The only synchronous part of these courses are the office hours, which are offered at a specific day and time each week that the instructor chooses. Office hours need to be recorded and posted to the students. Asynchronous online courses have the .8x section tag.

Transfer Courses

Requests to transfer courses from another institution toward the master's degree and certificate will be considered on an individual basis. **Any course considered for transfer must apply to the time limitation of the degree or certificate**. Transfer courses must be graduate-level, credit-bearing from an accredited institution, and directly applicable to the student's program of study at Johns Hopkins Engineering for Professionals. **These courses must be from programs related to ECE**.

After being accepted into a Johns Hopkins Engineering for Professionals program of study, students may not take classes at another institution for transfer back to their Johns Hopkins Engineering for Professionals program. **All approved transfer courses are considered electives at the 600-level. This includes ECE courses taken at other institutions**.

Students interested in having courses considered for transfer credit should reference the Academic Regulations for information how to request course transfers from other institutes:
https://ep.jhu.edu/student-services/academic-services/academic-regulations/

Accepted Technical Electives

At most, three of the ten courses required for the MS ECE degree may be selected from outside the ECE program. At most, one of the five courses required for the ECE Post-Master's Certificate may be selected from outside the ECE program. At most, one of the four courses required for the ECE Graduate Certificate, may be selected from outside the ECE program. **All electives require advisor approval before students can register for the course(s)**.

Electives should have a significant technical component to them and strengthen the degree program in some way. Students must make a good case for applicability to the ECE program. Please note that the distinction the ECE program draws between 600-level and 700-level ECE courses may not be the same distinction in other programs. Generally, 700-level ECE courses have more technical rigor and require more independence from students than 600-level ECE courses.

Courses from the following list can be used as a technical elective. 600-level courses from this list count as 600-level and 700-level courses from this list count as 700-level:

- Applied Biomedical Engineering (585.XXX)
- Applied and Computational Mathematics (625.XXX)
- Applied Physics (615.XXX)
- Artificial Intelligence (EN.705.XXX)
- Chemical and Biomolecular Engineering (545.XXX)
- Civil Engineering (565.XXX)
- Computer Science (605.XXX)

- Cybersecurity (695.XXX)
- Data Science (685.XXX)
- Materials Science and Engineering (515.XXX)
- Mechanical Engineering (535.XXX)
- Robotics and Autonomous Systems (665.XXX)

At most, one course from the following list can be used as a technical elective. 600-level courses and 700-level courses from this list count as 600-level:

- Climate, Energy, and Environmental Sustainability (575.XXX)
- Engineering Management & Technical Management (595.XXX)
- Environmental Engineering (575.XXX)
- Environmental Engineering and Science (575.XXX)
- Environmental Planning and Management (575.XXX)
- Financial Mathematics (555.XXX)
- Industrial and Operations Engineering (575.XXX)
- Information Systems Engineering (635.XXX)
- Space Systems Engineering (675.XXX)
- Systems Engineering (645.XXX)

Notes:

- 520.XXX are ECE Homewood courses and count as ECE courses rather than electives
- 615.641, 615.642, 615.780, and 625.743 count as ECE courses rather than electives
- All transfer courses from other institutes count as 600-level technical electives.
- Courses from the following programs do not count towards the degree:
    - Healthcare Systems Engineering (655.XXX)
    - Occupational and Environmental Hygiene (PH.XXX.XXX)

Prerequisite Override Process

In some circumstances, a student will have had a course equivalent to the prerequisite or will have extensive experience in the prerequisite course area. In such circumstances, students can request a prerequisite waiver. The process to request a prerequisite waiver is the following:

1. Student contacts the instructor, via email, for the course they wish to register and get approval to take that course. The instructor will determine if the student has the prerequisite knowledge base to take their course. **The approval should be provided to the student via email**.
2. The student submits a request via SIS support (https://support.sis.jhu.edu/case/) for a prerequisite waiver or prerequisite override. **The student should include the email approval from the instructor.**

Independent and Thesis options

Student in good academic standing can take independent study (or special project) courses listed as 525.801 and 525.802. Students should be in the second half of their graduate studies and should be in good academic standing. To ensure consideration for any term, project proposals should reach the program chair by the end of the registration period.

Students in good academic standing can undertake a thesis project, listed as 525.803 and 525.804, after completing all other requirements for their degree. Students work with an advisor to conduct independent research and development in ECE leading to a written thesis and oral presentation to a thesis committee. The thesis option is appropriate for highly motivated students with strong academic records.

800-level courses can be used to meet the 700-level course requirements. **Note**: **students cannot take independent study courses (801/802) as well as thesis courses (803/804).** Exceptions to that will require program leadership approval.

Research and Travel Funds

The ECE program offers motivated students the opportunity to do in-depth research and development through independent studies and the thesis options. Limited funds, on the order of $1K or less, are available to support the student's independent study and research for purchasing mechanical and electrical hardware components. Students are encouraged to publish their research at a conference. The ECE program provides up to $2,000 in travel and registration fees for students who choose to submit a paper at a conference. The following link provides additional information on student travel funds:

https://ep.jhu.edu/student-services/student-travel-fund/

Grade Appeals

Information about grade appeals can be found on the following link under "Grade Appeals":

https://ep.jhu.edu/student-services/academic-services/academic-regulations/

Incomplete

A grade of incomplete (I) is assigned when a student fails to complete a course on time for valid reasons, usually under circumstances beyond their control. Information about Incompletes can be found on the following link under "Incompletes":

https://ep.jhu.edu/student-services/academic-services/academic-policies/#incompletes

Waitlisted Courses

Students are encouraged to register for courses as soon as registration opens because courses can fill up quickly and become waitlisted. Therefore, students should keep a close eye on the Academic Calendar and consult their advisor regarding their planned course of studies before the semester begins. If a section fills up, the decision to open additional sections for a course is made by program leadership based on faculty availability and the course waitlist size. Therefore, enrollments and waitlists are regularly reviewed throughout the registration period, where students are encouraged to register for the courses they plan to take, even if a section is full. That way, students get on the waitlist and program leadership can decide if another section can be opened.

Academic Services

The WSE EP program includes a comprehensive list of Academic Services located on the following link:

https://ep.jhu.edu/student-services/academic-services/

Engineering Student Support & Advocacy (ESSA)

Engineering Student Support & Advocacy (ESSA) helps students navigate non-academic issues including mental or physical health, interpersonal issues, conflict with advisors, financial concerns, time management, leaves of absence, being victimized, and family emergencies. ESSA welcomes faculty, staff, and students to refer any student they may be concerned about to https://bit.ly/JHUCareReport and their assigned Case Manager will reach out to them directly.

Change Log

Revision	**Author**	**Changes**
September 2024	R. Hourani	Initial Release