Department of Electrical and Computer Engineering
UNIVERSITY OF WISCONSIN–MADISON

GRADUATE STUDENT HANDBOOK

2025-2026

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Table of Contents

1. WELCOME TO THE DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING (ECE) AT THE UNIVERSITY OF WISCONSIN-MADISON

1.1. Message from the Department Chair

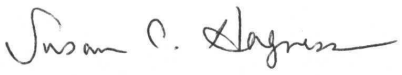
Welcome to our ECE community! You are joining a department where faculty, staff, and fellow students are committed to supporting your success in all aspects of graduate life.

As a student in our department, you become part of a vibrant, collaborative community dedicated to advancing knowledge, fostering innovation, and building a strong foundation for your future. Whether you are working toward a master's or doctoral degree, you will discover numerous opportunities to develop your skills, engage with new ideas, and enrich your overall graduate experience.

This handbook is intended to supplement the general guidelines provided by the Graduate School about graduate programs and services at the University of Wisconsin–Madison. You will find department-specific details about academic requirements that need to be satisfied, as well as a variety of related information that you may find helpful as you pursue your MS and/or PhD graduate degree in ECE. This handbook should also answer most of your day-to-day questions concerning routine operations within the ECE Department.

We hope your time as an ECE Badger is filled with meaningful academic growth, bold ideas, and rewarding experiences. On, Wisconsin!

Sincerely,



Susan C. Hagness

Department Chair and
Philip Dunham Reed Professor

1.2. Intention/role of Handbook

This handbook is intended for graduate students who are pursuing master's and doctoral degrees in Electrical and Computer Engineering (ECE). It may also serve as a tool and resource for ECE Department faculty and staff. The UW-Madison Graduate School is the ultimate authority for granting graduate degrees at the University. The ECE Department administers these graduate programs under the authority of the Graduate School. The Graduate School's Academic Policies and Procedures provide essential information regarding general University requirements. The ECE Program faculty can set additional degree requirements beyond the minimum required by the Graduate School. The policies described in this handbook have been approved by the program faculty and encompass ECE policies and the most commonly applicable Graduate School policies. Degrees and course requirements may change over time. Students must either meet the degree and course requirements in effect when they entered the program or those in effect when graduating from the program. In addition, administrative procedures and processes can change over time. Students are required to follow the procedures and requirements listed in the current handbook, but may petition the ECE Graduate Committee to have specific department requirements applied to their record should the current requirements differ from those listed in previous versions of this handbook. The information in this handbook should be supplemented by individual consultation with students' advisors so that individual needs/interests and all degree requirements are met. Additional information is available via the **ECE Department's external web page** and internal **Intranet site**. Students can find more information on the **Graduate School GUIDE** or **Graduate School web page**.

2. ECE DEPARTMENT INFORMATION

2.1. Introduction

The Department of Electrical and Computer Engineering at the UW-Madison has a long tradition of excellence in educating, mentoring, and inspiring future leaders; conducting research that is of vital importance to society; and serving Wisconsin, our nation, and the world through professional pursuits. The sections below describe the vision, mission, core values, and strategic priorities of the department.

Vision

To improve the world through bold research, educational excellence, effective technology transfer, and impactful service.

Mission

We foster a diverse and inclusive community that advances the frontiers of engineering, disseminates discoveries and inventions, and prepares students to make the world a better place for all.

Core Values

Our core values serve as the fundamental driving forces for how we strive to carry out our mission. They represent our highest commitments guiding our research, teaching and service.

- Integrity and commitment to quality and professionalism
- An environment supportive of all members of a diverse community of students, faculty, and staff
- Excellence in education and research
- Student learning success and leadership development
- Culture of collaboration and teamwork
- Broad impact beyond the boundaries of the classroom and the laboratory

2.2. Statistics

Fall 2025 Enrollment* (new, continuing, and readmitted students)

- MS = 126
- PhD = 192

** Enrollment counts as of initial revision. Exact numbers may vary slightly.*

2024-2025 (summer 2024, fall 2024, spring 2025) Degrees Awarded

- MS = 93
- PhD = 33

2.3. Department Administration and Contact Information

The Department of Electrical and Computer Engineering is filled with talented professionals who work closely together to make your experience at UW-Madison run as smoothly as possible. Roles and responsibilities sometimes change so please refer to the **ECE Directory** for the latest information about specific roles and contact information.

2.4. Department Information, Services, and Resources

Information about other specific department services and resources is provided below in alphabetized categories.

Address Changes

It is extremely important to keep your contact information up to date. Address changes should be made in your MyUW account. International students must check with the International Student Services for any additional address (or change of address) reporting requirements that the U.S. Department of Homeland Security may require.

Building Access and Keys

Building keys for offices are issued to graduate students who have been assigned desk or lab space. All keys must be returned or renewed each semester. Students requesting keys should see staff in 2415 Engineering Hall (EH) after their advisor has requested access on the student's behalf. EH is open from 7:00 a.m. to 10:00 p.m. Monday through Friday, and 7:00 a.m. to noon on Saturday. EH is closed on Sundays and football Saturdays.

Maintenance Requests

Report any maintenance problems in Engineering Hall to the Administrative Assistant. Please be sure to include information about the problem and the room number. In case of an emergency, dial **911**.

Desk Space

Students should contact their faculty advisor for information on desk space.

ECE Copy Center

ECE operates copy machines in 2415 Engineering Hall. This facility and service is managed by the ECE Administrative Assistant. The ECE Copy Center is used exclusively for department administration, instruction, and research. These copy machines are not for personal use! Only students who have research assistantships or teaching assistantships are given copier access upon request. Other students must use local photocopy shops or copiers in the libraries.

ECE Student Directory

Students in ECE can be included in the online department website directory. Students can submit their information to be added to those websites here: **MS Students** - **PhD Students**

Email

All ECE communication will be sent to students' WiscMail accounts. Students are responsible for maintaining their email account and responding to messages in a timely manner.

Parking and Transportation Services

For parking information, visit the Transportation Services website. Transportation Services' website has information about commuting, using the bus, biking, SAFEwalk, accessible options, as well as an interactive campus map.

Public Transportation

Some campus bus routes are free (80, 81, 82, and 84). Additionally, all UW-Madison graduate students qualify for a free Madison Metro Bus Pass.

3. STUDENT SERVICES AND ADVISING

3.1. Graduate Student Services

The Graduate Student Services Center within the College of Engineering at the University of Wisconsin-Madison provides support to both graduate students and graduate faculty. Student Services staff support graduate students in the College of Engineering regarding policies and procedures related to admissions through graduation.

3.1.1. Staff

Graduate Student Services Center Main Office
110 Wendt Commons

Daniel Imaizumi-Krieger
Graduate Student Services Coordinator
(MS Research and PhD)
110 Wendt Commons, 110-16N | dan.imaizumikrieger@wisc.edu

Christina Ma
Graduate Student Services Coordinator
(MS Professional and MS MLSP Programs)
110 Wendt Commons, 110-16M | christina.ma@wisc.edu

Libby Miller
Graduate Advisor in Engineering Professional Development
(Online Power MS and Power Conversion & Control Capstone Certificate)
115 N. Orchard St., Rust-Schreiner Hall - RM 207| studentservices@interpro.wisc.edu

ECE Graduate Admissions (On-Campus Programs)
ecegradadmission@engr.wisc.edu

3.2. ECE Academic Advisor

A student's ECE academic advisor serves a dual role: first, to assist the student in acquiring the highest level possible of knowledge and competence in their field; and second, to chair the committee that will determine whether the student has performed acceptably at each of their degree milestones. Academic advisors play a role

in tracking the student's progress toward degree completion, assisting with course selection and academic planning, and helping students identify possible research mentors, committee members, and opportunities. Often the ECE academic advisor and research advisor are the same person, but this is not required. In contrast, Graduate Coordinators help students navigate policies and procedures, connect with resources on campus, and serve as a first point of contact for questions.

The advisor/student relationship is one of mutual agreement, which may be terminated by either party at any time (see Section 3.5 Changing Your Advisor). Students should discuss roles and expectations with their advisor or prospective advisors. Both the student and the advisor have a responsibility to make their expectations clear to each other. Communication is critical to a successful advisor/student relationship. Please see Section 6 for a detailed description of the nature of the Mentor/Mentee relationship.

All ECE graduate students must have an ECE academic advisor at all times! If a student does not have an advisor, the Graduate School may suspend them from further graduate study at UW–Madison. Students may have temporary advisors while in transition.

All ECE students must have an academic advisor who is a current ECE faculty member or current ECE affiliate. If a student's sole advisor resigns their ECE appointment, leaves UW-Madison, retires, or becomes emeritus, that faculty member can serve as the student's sole academic advisor for up to one year after leaving the ECE Department or University. After one year, the faculty member can continue to serve as a research advisor, but the student must also obtain a current ECE faculty member as their academic advisor.

Students are also allowed to have more than one advisor. Advisor roles can be equal or set up as primary and secondary. A student may have more than one current ECE advisor, but at least one is required. As long as a student has one current ECE faculty member as an academic advisor, any additional advisor(s) can be from outside of the ECE Department, faculty from a department without a graduate program, academic staff, emeritus faculty, visiting faculty, faculty from another institution, scientists, research associates, or other individuals deemed qualified by the ECE Graduate Committee.

The academic advisor is expected to meet with the student periodically, advise the student on ECE policies and requirements including milestone timing, and remain familiar with the student's research. The academic advisor is responsible for annual reporting on the student's progress, such as GOAALS, and serves as chair of the preliminary and final oral examination committees. In recognition of this relationship, the student is expected to enroll in at least one credit of ECE 790/890/990 with the academic advisor each semester.

Incoming students in the Machine Learning and Signal Processing, Professional, or Power Engineering Online MS programs will be assigned a faculty advisor in their area after admittance and before course enrollment. Students in a research-based degree program will be admitted with a prospective research and academic advisor, but must confirm their permanent research advisor by the end of the first year of graduate study.

3.3. Research Advisor

Research advisors are specifically responsible for monitoring and advising students on their research. Research credits are taken in the research advisor's course section number.

A student's research advisor is often the same person as their academic advisor, but this is not required. Research advisors can be faculty members that are not affiliated with ECE or can be emeritus faculty members.

If a student's research advisor is different from their academic advisor, their academic advisor must agree with the choice of research advisor. Research credits are taken in the appropriate course in the research advisor's department. Additionally, if a student's research advisor is different from their academic advisor, the student must also take at least one credit of ECE 790, 890, or 990 with their academic advisor. A research advisor who is a non-ECE member may be listed as a co-advisor on preliminary and final examination committees and warrants.

The research advisor is expected to follow the principles of the ECE Mentor/Mentee Expectations described in Section 6.

The research advisor should be a faculty member whose expertise and project/research interests match closely with those that the student intends to acquire. Students are encouraged to gather information from courses, faculty and student seminars, the program website, and publications to help identify faculty with matching interests.

It is the responsibility of the student to seek out a research advisor if pursuing a research-based degree program.

3.4. Choosing an Advisor

When choosing a research advisor, students should seek out faculty members with expertise and research in the student's area of interest. Likewise, to receive the most appropriate academic planning advice, students should connect with a faculty member who is experienced and knowledgeable about industry and research related to the student's area of interest. Please see Section 3.2 ECE Academic Advisor, Section 3.3 Research Advisor, and Section 3.5 Changing Your Advisor.

3.4.1. Sample Questions to Ask Prospective Advisors

Below is a list of questions that students can ask prospective advisors when choosing an appropriate advisor. Students should spend time thinking about what is most important to them in their graduate training, and come up with their own questions to ask as well. Many of these questions are complex and may take time for advisors to respond to. However, any advisor should be willing to discuss these important issues with students. Students may also want to discuss these issues with any students that are currently in the prospective advisor's group/lab.

- What thesis projects would be available to me if I were to join your group?
- Would these projects expose me to a variety of different approaches?
- In general, how available will you be to answer questions I might have?
- What is your philosophy regarding the amount of guidance the advisor should provide to a student during preparation of the thesis proposal, literature, presentations, thesis, etc.?
- What are your expectations for the amount of time I should spend each day/week in your group/lab?
- What regularly scheduled activities (e.g., group meetings, joint group meetings, and research clubs) does your group participate in that provide an opportunity to get outside input on my (research) project and to hear about the work of other students and postdocs?
- Do you encourage your students to attend seminars and journal clubs, including those that may be outside of their narrow field of interest/research?
- Do students in your group/lab have the opportunity to attend professional meetings where they can interact with colleagues/researchers from other institutions?
- Do you include your graduate students in professional activities that will familiarize them with their field of interest/research, such as reviewing manuscripts and meeting with visiting speakers?
- How long do you think it should take me to get my degree?
- What are your former graduate students (if any) doing now?
- What is your general philosophy of graduate training and what goals do you have for your graduate students?

4. ADMISSIONS AND INFORMATION FOR PROSPECTIVE STUDENTS

4.1. Graduate Studies in ECE at UW-Madison

ECE Department graduate programs are designed to cater to changing industry needs and research developments. ECE students can fast-track their professional knowledge and skills, participate in cutting-edge research, and collaborate with exceptional students and faculty who are leaders in their field.

The ECE Department offers four different **MS degrees and the PhD degree.**

4.2. Admission Requirements and Procedures

ECE MS Degree.

ECE PhD Degree.

If you have any admissions questions, please contact the ECE Graduate Admissions team at **ecegradadmission@engr.wisc.edu**.

4.3. Re-entry Students

Per Graduate School policy, if graduate students do not continuously enroll during a fall or spring semester, they are required to apply for readmission to the Graduate School through the **online application**. The readmission process accomplishes two goals: (1) assures the Graduate School that graduate students are in good standing with their academic program; and (2) reactivates their enrollment eligibility.

Graduate degrees are awarded, in part, for completion of current coursework. Students who break enrollment from their graduate program may risk losing all credits earned prior to their absence. Master's and doctoral students who have been absent for ten or more consecutive years, lose all credits that they have earned before their absence. **Per the Graduate School**, credits earned ten or more years prior to admission to a master's degree or doctoral degree are not allowed to satisfy requirements.

A returning student who is completing another same level degree within five years must comply with **double degree requirements**, including the 25% overlap rule.

Students wishing to apply for re-entry are encouraged to first reach out to ECE Graduate Admissions (**ecegradadmission@engr.wisc.edu**). Re-entry students must apply via the Graduate School online application. Beyond the Graduate School's application requirements, ECE additionally requires applicants to upload a CV/Resume, Statement of Purpose, and unofficial transcripts of all previous higher education institutions, with exception of UW-Madison. If an applicant has been absent for four semesters (fall and spring) or more up to the desired start term, then three Letters of Recommendation are also required. If an applicant is unable to upload the additional documents in the online application, they should email the documents directly to ECE Graduate Admissions. Recommenders must email letters directly to ECE Graduate Admissions.

Re-entry applicants are able to apply for a fall start term. Re-entry applications for fall term are due by June 1. However, re-entry applicants are encouraged to apply earlier than the deadline. Re-entry applicants applying for spring or summer must contact ECE Graduate Admissions before applying.

Re-entry applicants should contact **ECE Graduate Admissions** with any questions.

4.4. Special Students from UW-Madison

Students enrolled as University Special students are considered non-degree candidates and pay tuition and fees at the designated special student rate. Students may not be simultaneously enrolled as a graduate student and as a University Special student.

After admission to a graduate program, the student's program may decide to accept University Special student credits as fulfillment of the graduate degree, or minor credit requirements. Students can refer to the Prior Coursework section for the specific ECE graduate program details. Special Students of UW-Madison wishing to apply to a graduate program in ECE must apply online as a new student through the **Graduate School application system**. Special students should contact **ECE Graduate Admissions** with any questions.

4.5. Doctoral Minor Option A for Non-ECE Students

The Option A minor for non-ECE students is certified by the ECE Graduate Committee. In order to obtain minor approval from the ECE Department, non-ECE students must complete the **Option A Minor Approval Form**, get it signed by their faculty advisor, and turn the form into the ECE Graduate Coordinator (PhD) - See Section 3.1.1. for contact information. PhD students from other UW-Madison graduate programs who wish to earn a doctoral minor in ECE are required to complete the following:

- A minimum of nine credits of ECE courses numbered 400-level or above.
    - At least three of these nine credits must be earned in courses numbered 700-level or above.
- At most, one course cross-listed with the student's major department may be counted toward the minor requirement, provided the course was taught by a faculty member whose primary affiliation is ECE.
- Research, independent study, or introductory seminar credits (e.g., ECE 610, 611, 699, 790, 890, 990, 999) may not be used to satisfy this requirement.
- Students earning this minor can use up to 3 credits of prior graduate coursework toward the 9-credit requirement with course equivalency approval.

Students must earn a B or better in all courses used for the minor. A student who has earned an MS Research degree in Electrical and Computer Engineering will be considered to have fulfilled the minor requirements of ECE.

5. GETTING STARTED INFORMATION FOR NEW STUDENTS

Newly admitted students, who have received official acceptance letters from the Graduate School, should follow the checklists below in preparation for arriving and transitioning to campus.

5.1. Before Arriving on Campus

- Activate your **NetID**.
- Read the current ECE Graduate Student Handbook.
- Communicate with your faculty advisor to discuss your degree requirements, course selection, and funding opportunities (if applicable/desired).
- Review and complete the instruction in the "Invitation to Enroll" email message from the Office of the Registrar containing important information about your enrollment appointment time for the upcoming semester.

  Note: Your enrollment appointment time should also be listed in your Student Center (accessed through your **MyUW**).
- Enroll in courses after consulting with your faculty advisor. See Section 14 Course Enrollment.
- Activate your **WiscMail Email Account**. You must be enrolled to do this step. Get used to your WiscMail account and get in the habit of checking it daily. **All UW-Madison communication will be via your WiscMail account.** We suggest setting up systems so you don't miss your Grad Coordinator's emails.
- Make sure to respond to any messages from the Graduate School.
- If your official transcripts submitted during the application process did not include your final semester grades and/or degree verification, you will need to submit final official transcripts, and potentially show your degree certificate, to the Graduate School by the third week of classes. Transcripts and degree verification documents can be mailed to the Graduate School (UW-Madison Graduate Admissions, 232 Bascom Hall, 500 Lincoln Drive, Madison, WI 53706), emailed securely (**transcripts@grad.wisc.edu** - if your previous institution allows for such process), or brought in person.

- Get familiar with your **MyUW** including the tiles for Student Center and MyGradPortal.
- If you have a need related to a disability, contact the **McBurney Disability Resource Center**. For additional information see Section 17.4 Disability Information.
- Research and plan necessary vaccinations and health insurance coverage (See Section 17 Student Health and Wellness):
  - **University Health Services** recommends some immunizations, flu shots, and other preventive services. UHS describes the process of getting them before and after arriving on campus.
  - **Health insurance information and SHIP information** for domestic students.
  - Under federal law, all international students with F-1 and J-1 visas are required to have health insurance.
    - When an international student arrives on campus, they are issued a **SHIP** (Student Health Insurance Plan) to ensure they have health insurance coverage. SHIP members must use University Health Services (UHS) for all available primary, urgent, and preventive care. Most UHS services are fully covered for SHIP members with no out-of-pocket expense. The main UHS clinic is located at 333 East Campus Mall, 608-265-5600.
  - When an international or domestic student receives funding and accepts appointment(s) totaling a minimum of 33% FTE, we offer State Group Health Insurance. The student has 30 days after the start date of the appointment to enroll and select coverage online through their MyUW portal for health insurance and other benefits.
  - When an international student enrolls in State Group Health Insurance, they must complete and send a Waiver to SHIP before the deadline set by SHIP. The purpose of the waiver is to provide SHIP with proof of other insurance. Upon receipt of the waiver and proof of other insurance, SHIP will terminate the SHIP health insurance plan.
  - SHIP is an option for students without appointments; however, State Group Health Insurance is a less expensive option for students with appointments totaling a minimum of 33% FTE.
  - Contact our Payroll and Benefits Specialists with questions at **payroll@ece.wisc.edu**.
- **Health and safety information** for international students provided by ISS.
- Pay your tuition and fees (specific due dates may be after arriving on campus, but students should familiarize themselves with the details sooner rather than later).
  - Pay your segregated fees even if you have an appointment and are receiving tuition remission.
  - **Tuition Information**
  - **Frequently Asked Questions about Tuition**
  - **Tuition Rates** (choose "Graduate or most Capstone Certificates" from drop-down menu)
  - **Tuition Payment Methods**
  - **Student Loans for Tuition Purposes**

5.2. Upon Arrival to Campus

- **International students must check in with ISS within 1-2 days of arrival**

- Get your **UW-Madison Photo ID (WisCard)**. You must be enrolled to receive your WisCard. You must bring photo identification, such as a valid driver's license or passport. It can take up to a week after enrolling to have access to campus resources.
- Pick up your free **Madison Metro Bus Pass**. You must be enrolled and already have your WisCard to receive your bus pass.
- Verify/update your mailing address, email address, and other contact information in your Student Center (accessible through your MyUW).
- Submit final transcripts and degree verification to the Graduate School, if necessary. Check your MyUW Application Portal messages for more information.
- Attend all necessary orientations
  - Information and details about orientations will be emailed to students.
  - All students are recommended to attend the Graduate School's New Student Welcome Event.
  - All ECE students are required to attend the ECE Graduate Student Orientation.
  - International students are required to attend an International Student Orientation.
  - Students with Teaching Assistantships must attend COE's New Educator's Orientation (NEO).
- All international students who are non-native speakers of English must take the ESLAT before the start of the semester, unless they qualify for an exemption. See Section 13.5 ESLAT and ESL Requirements.
- When a student receives funding for an appointment, the Payroll and Benefits Specialists will send the student an offer letter to accept or decline and return to **payroll@ece.wisc.edu**.
  - Upon receipt of the accepted offer letter, the Payroll and Benefits Specialists will enter the appointment into the payroll system.
  - The student will receive a welcome email with instructions for I-9 completion, Criminal Background Check, W-4, Direct Deposit, Personal Information updates, Glacier for international students, and payroll calendars.
- Students are encouraged to check in with their ECE Graduate Coordinator.
- All students must check in with their academic advisor.
- Activate your **Computer-Aided Engineering (CAE) Account**. Typically, you must have had your WisCard for about a week in order to activate your CAE account.
  - **Getting Started** information is available.
  - Contact the **CAE Help Desk** with any questions or for additional help: 608-262-5349, Room 170 Computer Aided Engineering, 1410 Engineering Drive, Madison, WI.
- Complete the required **Online Sexual Violence Prevention Program**. The deadline for completion is usually two weeks into the term. You will not be able to enroll in future terms until this is completed.

5.3. Further Suggestions

We recommend students to explore the following resources.

- Read the **Graduate Student Life** guide at the UW-Madison website written by several graduate students and published by the Graduate School. It covers information about the city of Madison, student services, finances, employment, housing, transportation, shopping, local services, recreation, and healthy living.

Highlights include:

- a Welcome Video from Dean Karpus;

- a **list** of important campus services and resources;
- advice for **partners of graduate students**;

- Get involved in the **ECE Graduate Student Association**.
- Bookmark this link on your phone for all sorts of campus information, including a campus map, bus routes, directory, and athletics updates.
- Connect with ECE on Social Media: **ECE Facebook** - **ECE Twitter** - **ECE Instagram** - **LinkedIn**

5.4. (Online Power MS Program) Online Student Onboarding

We recommend that online students in the Power Engineering MS and Power Conversion & Control Capstone Certificate programs complete the following onboarding items:

- Attend the Welcome Webinar held every semester for new online students.
- Complete the free online student learning orientation (OSLO) course that is designed to prepare students for online learning at UW-Madison.
- Read, complete, and return the following documents to the Graduate Advisor in the Engineering Professional Development office at studentservices@interpro.wisc.edu

  1. Academic Integrity and Handbook form:
  https://uwmadison.app.box.com/s/lwv3ivtpg1ors62lq5ocp23nht4ixcgr

  2. UW-Madison Information Release Form:
  https://uwmadison.app.box.com/s/di36gaxrmmwsc55pliglhwg3y9dewea0

  (Note: during your time as a UW-Madison graduate student, we may ask to use your photo or interview responses for our print or online materials. Please complete this form by checking the appropriate box. Whether or not you give us permission to use your photo/interview responses will in no way affect your participation in our program.)

6. MENTOR-MENTEE EXPECTATIONS

6.1. Introduction

The Department of Electrical and Computer Engineering (ECE) is committed to fostering a diverse and inclusive community that is welcoming, safe, and secure for all students, staff, and faculty. Like the entire University of Wisconsin-Madison (UW) campus, the ECE Department is committed to providing equal opportunity and equal access, and to complying with all applicable federal and state laws and regulations and University of Wisconsin System and university non-discrimination policies and procedures.

To promote a positive relationship between students and their research advisors, the ECE Department has developed the Expectations document below as a set of broad guidelines for the mentor-mentee relationship. This document should be used:

- To describe community standards for the mentor-mentee relationship in the ECE Department
- As part of the orientation for new graduate students and faculty
- As a starting point for discussions between students and research advisors about the issues addressed herein
- As part of a regular and ongoing discussion between students and research advisors

Mentors and mentees should review and discuss this document when they begin working together. Individual research groups may have additional or more specific guidelines/requirements. Such group-specific guidelines

should be consistent with those articulated here and be reviewed by mentors and mentees similarly to this document.

6.2. Expectations of Research Advisors and Students in the ECE Department (Mentors/Mentees)

Category	Advisor/Mentor Responsibilities	Student/Mentee Responsibilities
Scientific Integrity	Advisors: · Discuss intellectual-property policy issues regarding disclosure, patent rights, and publishing research discoveries with students · Discuss authorship policies regarding papers with students. · Acknowledge students' scientific contributions to the work in the research group and provide assistance to publish students' work in a timely manner.	Students: · Comply with intellectual property, invention disclosure, and export control policies. · Consult with advisors to learn and obtain permission regarding what research results may be discussed or shared with any entities outside the group prior to publication. · Keep information about problems they or others in the group are working on confidential · Students discuss policies on authorship and attendance at professional meetings with research advisors. · Work with advisors and agree to adhere to agreed-upon timeframes for preparing drafts of manuscripts, presentations, and dissemination of relevant research results. · Understand that fabrication, falsification, and plagiarism in proposing, performing, or reviewing research will result in severe consequences under UW research misconduct policies.
Education	Advisors: · Are committed to prioritize their students' education. · Support students' success in their coursework · Do not ask students to perform tasks or personal favors that are unrelated to their training program, research, professional development, and/or appointment.	Students: · Are committed to the successful completion of their degree. · Acknowledge they have the primary responsibility for their own education · Exhibit a high level of professionalism, self-motivation, initiative, engagement, scientific curiosity, scientific integrity, and ethical standards in the classroom, research environment, and other related academic and professional activities. · Understand that meeting program academic requirements will involve effort beyond the minimum requirements associated with an appointment.

Degree Progress	Advisors: · Review their students' progress towards their degree and provide regular, timely feedback and goal-setting advice. · Respect students' privacy and abide by the Federal Educational Rights Privacy Act (FERPA) in reviewing progress and providing feedback · Enter annual evaluations in the College of Engineering's Graduate Online Assessment and Achievement Learning System (GOAALS) and review the evaluation, individually, with each student · Bring concerns about progress to students' attention in a timely manner.	Students: · Keep research advisors informed on the progress and results of course work, research, and professional and career development activities. Students: · Are responsive to the advice and constructive criticism from their advisor · Discuss timing of external activities requiring advisor input, such as fellowship applications or paper/conference submissions, well in advance of corresponding deadlines.
Research progress	Advisors: · Are committed to work with students to help plan and guide research projects, set reasonable and attainable goals, and establish timelines for completion of projects. · Advisors encourage input from PhD Preliminary Examination Committee and Final Defense Committee members. · Advise students on selecting committees that meet departmental and university policies · Acknowledge that the function of these committees is to help students develop and complete research requirements · Respect the ideas and suggestions of their colleagues on the committees.	Students: · Are committed to contributing to research · Work with research advisors to select a PhD Preliminary Examination Committee within the timeline set by the handbook. · Discuss progress regularly and are responsive to the advice and constructive criticism from committee members. · PhD students work with research advisors to complete and defend their PhD thesis in a timely manner according to ECE Department expectations. · Students are knowledgeable of the policies and requirements of their graduate program, graduate school, and institution as described in the ECE Graduate Student Handbook and UW Guide.

Research Environment	Advisors: · Promote an environment that is intellectually stimulating, respectful, emotionally supportive, equitable, healthy, collegial, and free of harassment throughout students' time in the research advisors' groups. · Foster students' professional confidence and encourage intellectual development, critical thinking, curiosity, and creativity · Set expectations for sharing of responsibilities amongst group members, such as cleaning and ordering supplies · Provide access to appropriate safety training for students · Provide guidelines for collaborative use of supplies, facilities, and equipment · Review data management, storage, and record-keeping policies and procedures with students. · Advisors demonstrate respect for all students as individuals without regard to gender, race, national origin, religion, disability or sexual orientation, and cultivate a culture of tolerance among the entire research group. · Advisors respect disability accommodations approved by the McBurney Disability Resource Center.	Students: · Are good citizens, take part in shared responsibilities and use resources responsibly. · Maintain a safe and clean workspace · Are respectful of and work collegially with all research group personnel and fellow students · Contribute actively to all team efforts and collaborations while respecting the individual contributions of others · Contribute to an environment that is safe, equitable, and free of harassment · Bring problems that arise to advisors' attention in a timely manner. · Students maintain detailed, organized, and accurate research records. · Students acknowledge that ownership of original notebooks, digital files, data, and tangible research materials may be subject to sponsored research agreements and/or UW policies. Students: · Understand these materials typically remain with the research group after finishing their thesis/dissertation so that other individuals can reproduce and carry-on related research · Maintain archival versions of code and data for use by other individuals · Follow advisor and UW policy on making and accessing copies of research notebooks, digital files, and other tangible research materials for their own use. · Students are knowledgeable of and comply with all UW research policies, including safety practices, animal use, and human-research policies. · Participate in the UW Responsible Conduct of Research Training Program and follow the guidelines presented therein while conducting research · Seek input on and comply with institutional policies regarding research design and data analysis.

Professional Development	Advisors: · Encourage students to attend and present their research at scientific/professional meetings and make an effort to secure and facilitate funding for such activities. Advisors also provide opportunities for students to discuss science and their research findings with colleagues and fellow scientists within the institution and broader scientific community. · Advisors promote training of students in professional skills needed for a successful career. Advisors: · Promote training in oral and written communication, grant writing, the peer review process, management and leadership, collaborative research, responsible conduct of research, teaching, and mentoring · Encourage students to seek opportunities to develop skills in other areas relevant to their professional development, even if not specifically required by the program · Encourage students to seek career and professional development advice from multiple mentors. · Are accessible to give advice and feedback on career goals · Work with students on an individual development plan to help define career goals and identify training milestones · Provide letters of reference for students' subsequent phases of professional development in a timely manner or discuss with the students why such a letter would not be in the students' best interest · Continue interest and involvement as students move forward into careers.	Students: · Are committed to developing their careers. · Acknowledge that they have the primary responsibility for the development of their careers · Explore career opportunities and paths that match and develop their individual skills, values, and interests to achieve desired career goals · Understand that there are tools such as the individual development plan that help define career goals and develop training plans · Participate in training on research ethics · Seek career planning guidance throughout their graduate education from their research advisor(s), career counseling services, thesis/dissertation committee, and other mentors and resources. · Students attend and actively participate in research group meetings, seminars, and journal clubs that are part of their educational program. Students often seek out other enrichment opportunities, such as teaching, participation in professional organizations and meetings, membership on committees, and departmental events to further enhance research, leadership, and professional skills.

Work-Life Balance	Advisors: · Discuss any planned absences with students well in advance and apprise students of any unexpected absences due to illness or other issues. They work with students to develop plans for minimizing disruptions due to travel, sabbaticals, or other absences. · Advisors respect and work to encourage healthy work-life balance. They: · Support regular periods of downtime, including weekends, holidays, and outside of daytime business hours, for students to pursue non-academic activities. During such downtime periods students are not expected to respond to email, cellular, or other forms of communication · Normally hold group meetings during daytime business hours on weekdays, typically between 8 am and 6 pm · Give students advance notice of paper submission or other deadlines that will occasionally necessitate communication or interaction on weekends or evenings. · Advisors maintain group standards consistent with university policies on work hours, medical leave, and vacation.	Students: · Adhere to university policies on work hours, medical leave, and vacation. · Students discuss any planned absences with advisors well in advance and apprise advisors of any unexpected absences due to illness or other issues. They work with fellow research group members and advisors to develop a plan for minimizing disruptions due to any absences.

7. MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING, MACHINE LEARNING AND SIGNAL PROCESSING OPTION

7.1. Introduction to the Machine Learning and Signal Processing Option

The Machine Learning and Signal Processing MS degree program leads to a Master's degree in Electrical and Computer Engineering specializing in Machine Learning and Signal Processing (MLSP). It is an accelerated/condensed, course-based program designed to prepare students to be successful in the workforce. It is designed to be a terminal degree and not meant for students intending to continue to a PhD or further research.

After completing this program, students will receive a diploma stating "Master of Science-Electrical and Computer Engineering." Students' transcripts will state "Master of Science-Electrical and Computer Engineering, Major: Electrical and Computer Engineering, Option: Machine Learning and Signal Processing."

GUIDE information on the **Machine Learning and Signal Processing MS degree plan**.

7.2. Expectations and Policies

Graduate students in the MLSP program are expected to understand and follow a specific set of policies:

- This is a 30 credit, accelerated (12-16 months) course-based, terminal MS degree option.
- Students are expected to complete the degree requirements and graduate within 3 academic semesters.

- Students will be required to enroll in at least eight credits per semester of relevant MLSP courses chosen from *i)* a list of courses inside the department, *ii)* or relevant courses outside the department with faculty advisor approval as specified in the first two bullet points of Section 7.5 Curriculum. In the final semester, students only need to enroll in enough credits to graduate, and meet the minimum enrollment requirements as per Graduate School policy. Please note that international students have their own enrollment policies as well.
- Enrollment in the summer term is required.
- Students enrolled in the MLSP program may not change their degree goal to a different MS program or a PhD without formally applying to and being accepted into the new program. See Section 20 Program Transfers.
- Students enrolling in the MLSP program cannot simultaneously enroll in another graduate program at UW-Madison.
- Students in this program are not eligible for tuition remission that is typically part of the compensation package for graduate assistantship. Students are discouraged from pursuing positions as Project Assistants, Teaching Assistants, or Research Assistants during their time in this program, as the rigor and accelerated nature of this program may not accommodate those work time commitments.
- Students can be placed on probation for failure to meet these expectations or failure to adhere to these policies.
- Note: see Section 19 ACADEMIC EXCEPTIONS, EXTENSIONS, AND APPEALS.

7.3. Degree Credit Requirement

The accelerated MS degree in Machine Learning and Signal Processing requires a minimum of 30 credits subject to the following constraints:

- A minimum of 21 credits of ECE courses level 400-level or above.
- A maximum of nine credits at the 300-level or above in other departments, provided these courses are approved in writing (including email) by a faculty advisor. The nine-credit limit may be exceeded by a portion of the credits associated with one course; however, the excess credits cannot be counted towards any other requirement. For example, two 3-credit and one 4-credit courses may be taken (a total of 10 credits), but the extra credit cannot be used to satisfy any other requirement.
- One credit of ECE 610 required.
- A maximum of three credits of independent study (ECE 699 and ECE 999, and the comparable courses in other departments) with written faculty advisor approval. ECE 699 (content generally corresponds to 500 or 600 level coursework) or 999 (content generally corresponds to 700 and higher-level coursework) should provide students with opportunities to learn course materials that are not available as regularly scheduled courses or new topic areas to facilitate research activities.
- A maximum of three credits of ESL courses 300-level or above.
- A maximum of three credits of ECE 702 CPT/internship.
- A maximum of three credits of ECE 901 (special topics courses) with written faculty advisor approval.
- Students are expected to follow the curriculum listed in Section 7.5 Curriculum.
- Some credits taken as an UW-Madison undergraduate may be eligible as described in Section 15 Prior Coursework.
- Some credits taken as an undergraduate or graduate student at a previous institution may be eligible as described in Section 15 Prior Coursework.

The following categories of courses may **not** be used to satisfy the 30-credit requirement.

- Audited courses.
- Courses taken Pass-Fail.
- ECE 611.
- Research credits (ECE 790 or similar courses).

7.4. Credit Loads

The MLSP program has an accelerated curriculum and students are expected to complete the required 30 credits within 16 months. During fall and spring semesters, the maximum credit load for a graduate student is 15 credits. Exceeding this limit is not advisable and cannot be made without department approval. A sample credit load per term is provided below:

Semester	Credits	Notes
First Fall Semester	10-13	Including 1 credit of ECE 610
Spring Semester	9-12	
Summer	0-3	ECE 702 CPT/Internship, ECE 699, or EPD
Second Fall semester	0-9	

7.5. Curriculum

Students in the MLSP program are expected to adhere to the following curriculum:

- A minimum of 18 credits from the list of ECE MLSP courses below:
  - ECE 431 (3 credits): Digital Signal Processing
  - ECE 436 (3 credits): Communication Systems I
  - ECE 437 (3 credits): Communication Systems II
  - ECE 524 (3 credits): Introduction to Optimization
  - ECE 532 (3 credits): Matrix Methods in Machine Learning
  - ECE 533 (3 credits): Image Processing
  - ECE 539 (3 credits): Introduction to Artificial Neural Networks
  - ECE 561 (3 credits): Probability and Information Theory in Machine Learning
  - ECE 570 (3 credits): Ethics of Data for Engineers
  - ECE 601 (3 credits): Special Topics in ECE (as approved by faculty advisor)
  - ECE 717 (3 credits): Linear Systems
  - ECE 719 (3 credits): Optimal Systems
  - ECE 729 (3 credits): Information Theory
  - ECE 730 (3 credits): Probability and Random Processes
  - ECE 734 (3 credits): VLSI Array Structures for Digital Signal Processing
  - ECE 735 (3 credits): Signal Synthesis and Recovery Techniques
  - ECE 736 (3 credits): Wireless Communications
  - ECE 738 (3 credits): Advanced Digital Image Processing
  - ECE 760 (3 credits): Machine Learning
  - ECE 761 (3 credits): Mathematical Foundations of Machine Learning
  - ECE 766 (3 credits): Computer Vision
  - ECE 778 (3 credits): Machine Learning in Ultrasound Imaging
  - ECE 817 (3 credits): Nonlinear Systems
  - ECE 826 (3 credits): Theoretical Foundations of Large-Scale Machine Learning
  - ECE 830 (3 credits): Estimation and Decision Theory
  - ECE 861 (3 credits): Theoretical Foundations of Machine Learning
  - ECE 888 (1-3 credits): Topics in Mathematical Data Science
  - ECE 901 (3 credits): Special Topics in ECE (as approved by faculty advisor)

- Other ECE Coursework numbered 400 or above, with advisor approval

- A maximum of 9 credits can be taken outside of the ECE department. These should be relevant MLSP courses 300-level or above. Please obtain written (email) communication of approvals from your faculty advisor. Examples of courses that may be applicable include:
  - Relevant MLSP courses in Computer Science, Math, or Statistics courses
  - Relevant courses in EPD (Engineering Professional Development)
- Required in fall semester – ECE 610 (1 credit). See Section 7.6 ECE 610 Requirement for details.
- A minimum of one course (3 credits) satisfying the Machine Learning requirement from the following list: ECE 532, ECE 539, ECE 561, CS 760, ECE 761 or ECE 861
- A minimum of one course (3 credits) satisfying the Signal Processing requirement from the following list: ECE 431, ECE 533, ECE 734, ECE 735 or ECE 738
- Highly recommended hands-on project or internship:
  - ECE 702 (1-2 credits): Graduate Cooperative Education Program (CPT/internship credits). See Section 7.7 Internships for details.
  - ECE 699/999 (1-3 credits): Independent Study
- EPD courses- email studentservices@interpro.wisc.edu (and instructor if applicable) for permission to enroll. Some courses prioritize students in other programs
  - EPD courses that don't require instructor approval
    - EPD 605: Fundamentals of Technical Project Management (1 credit)
    - EPD 606: Leading and Managing Technical Teams (1 credit)
    - EPD 701: Writing for Professionals (1 credit)
    - EPD 702: Presentations for Professionals (1 credit)
    - EPD 704: Organizational Communication and Problem Solving (1 credit)
    - EPD 706: Change Management (1 credit)
    - EPD 708: Creating Innovations (1 credit)
    - EPD 712: Ethics for Professionals (1 credit)
    - EPD 781: Financial and Business Acumen (1 credit)
    - EPD 785: Effective Negotiation Strategies (1 credit)
  - EPD courses that require instructor approval:
    - EPD 610: Engineering Analysis for Decision Making (3 credits)
    - EPD 611: Engineering Economics and Management (3 credits)
    - EPD 612: Technical Project Management (3 credits)
    - EPD 613: International Engineering Strategies and Practices (3 credits)
    - EPD 617: Communicating Technical Information (3 credits)
    - EPD 619: Fostering and Leading Innovation (3 credits)
- Note the graduate coursework 50% requirement, as outlined in Section 7.9 Graduate Coursework (50%) Requirement, when choosing courses.

7.6. ECE 610 Requirement

All MLSP graduate students must enroll in ECE 610 (1 credit) during their first semester of graduate studies. Students with a course conflict with ECE 610 should discuss with their faculty advisor about how to resolve the problem.

The purpose of ECE 610 is to prepare students for success in graduate school and expose them to areas within ECE as well as related fields outside of ECE, such as biotechnology, physics, computer science, mathematics, or business. Electrical and Computer Engineering is interdisciplinary in nature, and it is important for students to be aware of advanced research and development in areas other than their own.

7.7. Internships

Through the **Engineering Career Services** Summer Internship program, students gain valuable "real world" engineering experiences working with a variety of industries and governmental agencies.

All students in these programs have the opportunity to work full-time, be competitively paid, complete engineering assignments, and work under the supervision of an engineer.

Students participating in a summer internship can enroll in ECE 702. ECE 702 can be used toward the MLSP curriculum and graduation requirements. See Sections 7.3 Degree Credit Requirement and Section 7.5 Curriculum for more information. Students that have completed two MLSP courses at UW-Madison prior to the start of the program may be eligible to enroll in ECE 702 the summer before the start of the program with advisor approval.

These 12-14 week, full-time assignments provide students exposure to engineering while enabling the employer to fill short-term project needs.

Obtaining work experience prior to completing your degree requirements typically increases employment opportunities and starting salaries after graduation.

Any questions regarding internships should be directed to Engineering Career Services. For International students, review the **Curricular Practical Training (CPT) Process**.

7.8. ECE Course Requirement

A least 21 of the 30 credits used to satisfy the degree requirement must be taken in the ECE Department. Please keep in mind that only ECE courses 400-level and above can count toward this master's degree..

7.9. Graduate Coursework (50%) Requirement

The Graduate School minimum graduate coursework (50%) requirement states that at least 50% of credits applied toward the program's graduate degree credit requirement (15 of 30 credits) must be courses designed for graduate work as designated in **Guide**.

7.10. Graduation Procedures and Checklist

The ECE Graduate Coordinators will send out an e-mail at the beginning of each term requesting the names of students who plan to graduate as well as with instructions and deadlines for submitting final degree forms and degree warrant requests. Students should also indicate their plans for graduation during their final semester in their MyUW Student Center if planning to attend commencement and have their name listed on the program.

During the final semester prior to graduation (graduation term), the following must be completed:

- Must be enrolled in at least two credits during graduation term (Note: must also satisfy any other enrollment requirements, for example as required by international student status).
- **Apply to Graduate** in the Student Center.
- Notify your ECE Graduate Coordinator and **payroll@ece.wisc.edu** of plans to graduate via email (include name, campus ID, degree, and faculty advisor's name).
- Thoroughly read the Graduate School's page **Completing Your Master's Degree** and complete all the respective tasks.
- Confirm all final grades entered, with exception to the current semester (no incomplete, unreported, or Progress grades).
- Complete the **Master's Degree Survey**, which you will also receive by email from the Graduate School.

- Work with your faculty advisor to identify an instructor of a graduate-attribute course that will fill out the Graduate Learning Outcome Report. This report must be submitted online prior to turning in the MS Degree Requirement Approval Form.
- Turn in the **MS Degree Requirements Approval Form** with faculty advisor's signature to your ECE Graduate Coordinator by the deadline stated in the email.
- Turn in the **MS Degree Warrant Request Form** to your ECE Graduate Coordinator by the deadline stated in the email.
- Degree warrants are signed electronically. Your ECE Graduate Coordinator will send an email notification to your faculty advisor. You should follow up with your faculty advisor to sign off on your degree warrant.
- Make sure the "diploma" / "mailing" address is up to date in the Student Center to receive a diploma.
- Review **Diploma and Degree Posting** information.
- After the degree conferral date is posted on a student's transcript, students may request a **Degree Completion Letter** to prove their degree prior to receiving their diploma.
- Review **UW-Madison** and the **College of Engineering** commencement information.
- To learn more about services that will continue to be available to you and those that will be deactivated, visit: **https://kb.wisc.edu/page.php?id=78565**.

8. MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING: POWER ENGINEERING ONLINE OPTION

8.1. Introduction to the Power Engineering Online Option

The Master of Science Electrical and Computer Engineering: Power Engineering program is an online degree designed for electrical and computer engineers to complete part-time while working full-time. This specialized degree prepares students for leading-edge positions in industry in the areas of electric power systems, power electronics, motor drives, and electric machines.

This degree provides students both theoretical and practical knowledge in power electronics, electric machines, and controls, including alternative energy, using a combination of classroom and laboratory-based courses, and, in some cases, research activities. This is directly applicable to a career in industry and is suitable for new or recent graduates, as well as experienced professionals who seek the necessary (re)training to change or advance their careers.

After completing this program, students will receive a diploma stating "Master of Science-Electrical and Computer Engineering." Students' transcripts will state "Master of Science-Electrical and Computer Engineering, Major: Electrical and Computer Engineering, Option: Power Engineering."

Guide information on the **Power Engineering Online Option**.

8.2. Expectations and Policies

Graduate students in the Power Engineering program are expected to understand and follow a specific set of policies:

- It is recommended that students complete the **Capstone Certificate in Power Conversion and Control** prior to admittance into the Master of Science: Electrical and Computer Engineering program, but it is not required.
- This is a 30-credit, part-time, online MS degree option.

- There are two-degree completion options (more details in Section 8.3 Degree Credit Requirement): course and research. All students start with the course option, which is based on 30 credits of classroom instruction. Students that find a faculty member who agrees to supervise a research project may pursue the research option. It is the student's responsibility to secure an appropriate advisor to supervise a research project. The student then enrolls in 3-9 research or independent study credits in lieu of the same number of classroom credits to complete the degree. The number of research advisors is limited and students should not assume they will be able to pursue the research option.
- Students enrolled in the Power Engineering program may not change their degree goal to another MS program or a PhD without formally applying to and being accepted into the program.
- Students enrolling in the Power Engineering program cannot simultaneously enroll in another graduate program at UW-Madison.
- Students in this program will not receive the tuition remission that is typically part of the compensation package for a graduate assistantship. Students may apply on their own for external fellowships and/or scholarships. Many students pursue tuition benefits through their employers.

8.3. Degree Credit Requirement

The Power Engineering program requires a minimum of 30 credits subject to the following constraints:

- If the Capstone Certificate in Power Conversion and Control is completed all courses for this certificate are transferable to the MS program. Courses for this certificate program are described in Section 8.5 Curriculum and count towards the 6 credits of 400-level course requirement as well as the 21 credits within ECE at the 400-level and above requirement.
- Completion of 6 credits of 400-level courses, 3 credits of a 500-level course and 6 credits of 700+ level courses from the MS Power Curriculum Path as described in Section 8.5 Curriculum. For those students interested in a laboratory experience ECE 504 or ECE 512 are offered during alternating summers during the three-week summer semesters online and are recommended to enhance your overall experience.
- ECE courses must be 400-level or above.
- A maximum of nine credits at the 300-level or above in other departments, provided these courses are approved in writing (including email) by a faculty advisor.
- For students completing the research option:
- a maximum of nine credits of independent study or research (ECE 790 or ECE 999) with written faculty advisor approval and
- a minimum of 15 credits of 700+ level courses are required.
- Students are expected to follow the curriculum listed in Section 8.5 Curriculum.
- Some credits taken as an UW-Madison undergraduate may be eligible as described in Section 15 Prior Coursework.
- Some credits taken as a graduate student at a different (non-UW) institution may be eligible as described in Section 15 Prior Coursework.

The following categories of courses may **not** be used to satisfy the 30-credit requirement.

- Audited courses.
- Courses taken Pass-Fail.

8.4. Credit Loads

The Power Engineering program is part-time, and students typically take one three-credit class per semester.

8.5. Curriculum

Students in the Power Engineering program are expected to adhere to the following curriculum.

Of the 30 credits, a minimum of 21 must be in the ECE department at a level of 400 or above. Also, a minimum of 15 credits must be from the Power Engineering MS Curriculum path as described below. At least three of those credits must be from 500-level courses and six of those from 700+ level courses. Note that the Graduate School minimum graduate coursework (50%) requirement states that at least 50% of credits applied toward the program's graduate degree credit requirement (15 of 30 credits) must be courses designed for graduate work as designated in Guide. Additional restrictions depend on the chosen Master's Option:

Thesis or Project Option:

Of the 30 credits, a minimum of 3 credits must be in ECE 790 (Master's Research or Thesis). No more than 9 credits from any combination of ECE 699, 790, or 999 may be applied toward the degree. A minimum of 15 credits of 700+ level courses are required. These 700-level and higher ECE courses count towards the required minimum of 21 ECE department credits at 400-level or above as stated in the preceding paragraph.

Course Option:

Of the 30 credits, a maximum of 3 credits in ECE 699 and a maximum of 3 credits in ECE 999 are allowed towards the 30 credits. ECE 790 or similar research courses may **not** be used to satisfy the 30-credit requirement.

Course Requirements:

Courses available in the Power Engineering MS curriculum (at least 3 credits from 500-level courses and at least 6 credits from 700+ level courses must be taken):

- ECE 411 (3 credits): Introduction to Electric Drive Systems
- ECE 412 (3 credits): Power Electronic Circuits
- ECE 427 (3 credits): Electric Power Systems
- ECE 504 (3 credits): Electric Machine and Drive Systems Lab
- ECE 511 (3 credits): Theory and Control of Synchronous Machines
- ECE 512 (3 credits): Power Electronics Lab
- ECE/COMP SCI/ME 532 (3 credits): Matrix Methods in Machine Learning
- ECE 713 (3 credits): Electromagnetic Design of AC Machines
- ECE 714 (3 credits): Utility Application of Power Electronics
- ECE/ME 732 (3 credits): Dynamics of Controlled Systems
- ECE/ME 733 (3 credits): Advanced Computer Control of Machines and Processes
- ECE/ME 739 (3 credits): Advanced Automation and Robotics
- ECE/ME 759 (3 credits): High-Performance Computing for Applications in Engineering
- ME 446 (3 credits): Automatic Controls
- ME 447 (3 credits): Computer Control of Machines and Processes
- ECE 699 (variable credits): Independent Study
- ECE 711 (3 credits): Dynamics and Control of AC Drives
- ECE 712 (3 credits): Solid State Power Conversion
- ECE 790 (variable credits): Master's Research and Thesis
- ECE 901 (variable credits): Special Topics in ECE (as approved by faculty advisor)
- ECE 999 (variable credits): Advanced Independent Study

Graduate-level courses from Engineering Professional Development and graduate-level courses from other departments must be approved by your faculty advisor. Please keep written communications as proof of approvals from your faculty advisor.

8.6. ECE Course Requirement

At least 21 of the 30 credits used to satisfy the degree requirement must be taken in the ECE Department. ECE courses 400-level and above can count toward this master's degree.

8.7. Graduate Coursework (50%) Requirement

The Graduate School minimum graduate coursework (50%) requirement states that at least 50% of credits applied toward the program's graduate degree credit requirement (15 of 30 credits) must be courses designed for graduate work as designated in the course description in **Guide**.

8.8. Graduation Procedures and Checklist

The Student Services Specialist will send out an e-mail at the beginning of each term requesting the names of students who plan to graduate along with instructions and deadlines for submitting final degree forms. Students must also indicate their plans for graduation during their final semester in their MyUW Student Center.

During the final semester prior to graduation (graduation term), the following must be completed:

- Must be enrolled in at least two credits during graduation term
- Complete **Apply to Graduate** in the Student Center.
- Notify the Student Services Specialist of plans to graduate via email
- Thoroughly read the Graduate School's page **Completing Your Master's Degree** and complete all of the stated tasks.
- Confirm all final grades entered, with exception of the current semester grades. Any incomplete, unreported, or progress grade must be resolved.
- Complete the **Master's Degree Survey,** which you will also receive by email from the Graduate School.
- Work with your faculty advisor to identify an instructor of a graduate-attribute course that will fill out the Graduate Learning Outcome Report. This report must be submitted online prior to turning in the **MS Degree Requirement Approval Form**.
- Turn in the MSEE Course Approval Form to the Student Services Specialist at the start of their final semester.
- Make sure "diploma" / "mailing" address is up-to-date in Student Center in order to receive diploma
- Review **Diploma and Degree Posting** information.
- As soon as the degree conferral date has passed, students may request a **Degree Completion Letter** prior to receiving their diploma in order to prove that their degree has been completed.
- Review **UW-Madison** and the **College of Engineering** commencement information.

9. MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING, PROFESSIONAL OPTION

9.1. Introduction to the Professional Option

The Professional option of the Master of Science degree in Electrical and Computer Engineering is a course-only, accelerated curriculum to be completed within a time frame of 16 months or less. It is designed to develop advanced technical capabilities in students that seek to pursue a professional career in industry upon graduation. This program affords students the flexibility to customize a technical emphasis and participate in professional development activities, such as industry-sponsored summer internships.

After completing this program, students will receive a diploma stating “Master of Science-Electrical and Computer Engineering.” The transcript will state,” Master of Science-Electrical and Computer Engineering, Major: Electrical and Computer Engineering, Option: Professional.”

GUIDE information on the **Professional MS degree plan**.

9.2. Expectations and Policies

Graduate students in the Professional program are expected to understand and follow a specific set of policies:

- This is a 30 credit, accelerated (12-16 months) course-based, terminal MS degree option.
- Students will be required to enroll in at least eight credits per semester from a specific list of courses offered by the department. In the final semester, students only need to enroll in enough credits to graduate, and meet the minimum enrollment requirements as per Graduate School policy. Please note that international students have their own enrollment policies as well.
- Students enrolled in the Professional program may not change their degree goal to a different MS program or a PhD without formally applying to and being accepted into the new program. See Section 20 Program Transfers.
- Students enrolling in the Professional program cannot simultaneously enroll in another graduate program at UW-Madison.
- Students in this program are not eligible for tuition remission that is typically part of the compensation package for graduate assistantship. Students are discouraged from pursuing positions as Project Assistants, Teaching Assistants, or Research Assistants during their time in this program, as the rigor and accelerated nature of this program may not accommodate those work time commitments.
- Students can be placed on probation for failure to meet these expectations or failure to adhere to these policies.

9.3. Degree Credit Requirement

The accelerated Professional option Master of Science in Electrical and Computer Engineering degree requires a minimum of 30 credits subject to the following constraints:

- ECE courses must be 400-level or above.
- A maximum of nine credits at the 300-level or above in other departments, provided these courses are approved in writing (including email) by a faculty advisor. The nine-credit limit may be exceeded by a portion of the credits associated with one course, however, the excess credits cannot be counted towards any other requirement. For example, two three-credit and one four-credit courses may be taken (a total of 10 credits), but the extra credit cannot be used to satisfy any other requirement.
- One credit of ECE 610 required.
- A maximum of three credits of independent study (ECE 699 and ECE 999, and the comparable courses in other departments).
- A maximum of three credits of ESL courses 300-level or above.
- A maximum of two credits of ECE 702 CPT/internship.
- A maximum of three credits of ECE 601 and ECE 901 (special topics courses) with written faculty advisor approval.
- Some credits taken as an UW-Madison undergraduate may be eligible as described in 15 Prior Coursework.
- Some credits taken as an undergraduate or graduate student at a previous institution may be eligible as described in Section 15 Prior Coursework.

The following categories of courses may **not** be used to satisfy the 30-credit requirement.

- Audited courses.
- Courses taken Pass-Fail.
- ECE 611.

- Research credits (ECE 790 or similar courses).

9.4. Credit Loads

The Professional program has an accelerated curriculum and students are expected to complete the required 30 credits within 16 months. During fall and spring semesters, the maximum credit load for a graduate student is 15 credits. Exceeding this limit is not advisable and cannot be made without department approval. A sample credit load per term is provided below:

Semester	Credits	Notes
First Fall Semester	10-13	Including 1 credit of ECE 610
Spring semester	9-12	
Summer	0-2	ECE 702 CPT/Internship
Second Fall semester	2-11	

9.5. Curriculum

Students in the Professional option are expected to adhere to the following curriculum:

- Required in first fall semester – ECE 610 (1 credit). See Section 9.6 ECE 610 Requirement.
- Twelve credits in the curricular area selected by the student at the time of application. Course lists associated with example curricular areas are given below. Please notify your faculty advisor and graduate coordinator if you wish to change curricular areas.
- Fifteen credits must satisfy the graduate coursework (50%) requirement as designated in **Guide**. Nine of these fifteen credits must be ECE courses. See Section 15 Prior Coursework for specifics.
- Students are strongly encouraged to participate in one of the following professional development opportunities:
  - ECE 702 (1-2 credits): Graduate Cooperative Education Program (CPT/internship credits). See Section 9.7 Internships for details.
  - InterEGR 601 (3 credits, offered in summer): Introduction to Interdisciplinary Design and Innovation
  - ECE 699 (content generally corresponds to 500 or 600 level coursework)/999 (content generally corresponds to 700 and higher-level coursework) (1-3 credits): Advanced Independent study (or a comparable course in a different department) being co-supervised by an advisor working in industry (choice of industry advisor is subject to program approval). This course should provide students with opportunities to learn course materials that are not available as regularly scheduled courses or new topic areas to facilitate research activities.
  - Engineering Professional Development Courses- email studentservices@interpro.wisc.edu (and instructor if applicable) for permission to enroll. Some courses prioritize students in other programs
    - EPD courses that don't require instructor approval
      - EPD 605: Fundamentals of Technical Project Management (1 credit)
      - EPD 606: Leading and Managing Technical Teams (1 credit)
      - EPD 701: Writing for Professionals (1 credit)
      - EPD 702: Presentations for Professionals (1 credit)

    - EPD 704: Organizational Communication and Problem Solving (1 credit)
    - EPD 706: Change Management (1 credit)
    - EPD 708: Creating Innovations (1 credit)
    - EPD 712: Ethics for Professionals (1 credit)
    - EPD 781: Financial and Business Acumen (1 credit)
    - EPD 785: Effective Negotiation Strategies (1 credit)
- EPD courses that require instructor approval
    - EPD 610: Engineering Analysis for Decision Making (3 credits)
    - EPD 611: Engineering Economics and Management (3 credits)
    - EPD 612: Technical Project Management (3 credits)
    - EPD 613: International Engineering Strategies and Practices (3 credits)
    - EPD 617: Communicating Technical Information (3 credits)
    - EPD 619: Fostering and Leading Innovation (3 credits)

Courses in Example Curricular Areas

Students may take courses from a combination of areas to create a custom degree that is well-aligned with their professional goals. Written advisor approval is required for custom course selections.

Computer Engineering (CMPE)

Track 1: CAD for Digital Electronic Systems

Description: This track offers practical insight into the field of computer-aided design (CAD) for modeling and fabricating semiconductor chips. It will prepare you to use design tools and develop algorithms and methodologies for simulating, synthesizing, and verifying digital electronic systems.

Core course set (select at least 12 credits):

- ECE 551 (3 credits): Digital System Design and Synthesis
- ECE 553 (3 credits): Testing and Testable Design of Digital Systems
- ECE 555 (3 credits): Digital Circuits and Components
- ECE 556 (3 credits): Design Automation of Digital Systems
- ECE/CS 755 (3 credits): VLSI Systems Design
- ECE/CS 756 (3 credits): Computer-Aided Design for VLSI
- ECE/CS/EMA/EP/ME 759 (3 credits): High Performance Computing for Applications in Engineering

Track 2: Networking and Security

Description: This track offers practical insight into the fields of networking and security and will prepare you to implement protocols and applications for mobile and wireless networking, as well as assess security threats and apply defenses and best practices for secure hardware and software.

Core course set (select at least 12 credits):

- ECE 537 (3 credits): Communication Networks
- CS 537 (4 credits): Introduction to Operating Systems
- CS 642 (3 credits): Introduction to Information Security
- ECE/CS 707 (3 credits): Mobile and Wireless Networking
- ECE 751 (3 credits): Embedded Computing Systems
- ECE 753 (3 credits): Fault-Tolerant Computing
- CS 763 (3 credits): Security and Privacy for Data Science

- ECE/CS 782 (3 credits): Advanced Computer Security and Privacy

Track 3: Computer Architecture and Embedded Systems

Description: This track offers practical insight into the field of computer architecture and will prepare you to write microprograms, develop parallel applications and design and simulate hardware components for multiprocessors, caches and memory systems. Courses in embedded systems will prepare you to develop low-level programs, tool chains and run-time systems and design and simulate low-power hardware for embedded processors.

Core course set (select at least 12 credits):

- CS 537 (4 credits): Introduction to Operating Systems
- ECE 551 (3 credits): Digital System Design and Synthesis
- ECE/CS 552 (3 credits): Introduction to Computer Architecture
- ECE 553 (3 credits): Testing and Testable Design of Digital Systems
- ECE 555 (3 credits): Digital Circuits and Components
- ECE/CS 750 (3 credits): Real-Time Computing Systems
- ECE 751 (3 credits): Embedded Computing Systems
- ECE/CS 752 (3 credits): Advanced Computer Architecture I
- ECE 753 (3 credits): Fault-Tolerant Computing
- ECE/CS 755 (3 credits): VLSI Systems Design
- ECE 757 (3 credits): Advanced Computer Architecture II
- CS 758 (3 credits): Advanced Topics in Computer Architecture
- ECE 759 (3 credits): High Performance Computing for Applications in Engineering

E&M Fields and Waves

Core course set (select at least 12 credits):

- ECE 447 (3 credits): Applied Communication Systems
- ECE 545 (3 credits): Advanced Microwave Measurements for Communications
- ECE 547 (3 credits): Advanced Communications Circuit Design
- ECE 740 (3 credits): Electromagnetic Theory
- ECE 742 (3 credits): Computational Methods in Electromagnetics
- ECE 744 (3 credits): Theory of Microwave Circuits and Devices
- ECE/Physics 748 (3 credits): Linear Waves
- ECE/NE/Physics 749 (3 credits): Coherent Generation and Particle Beams
- ECE 841 (3 credits): Antennas
- ECE/Physics 848 (3 credits): Nonlinear Waves

Energy and Power Systems

Track 1: Electric Machines and Drives

Description: This track offers practical insight into the field of electrical machines and drives. This knowledge prepares you for career opportunities in the design and control of electric machines for traction, drone, and other propulsion systems as well as electric generators for wind, high-speed turbines, and other renewable energy systems.

Core course set (select at least 12 credits):

- ECE 411 (3 credits): Introduction to Electric Drive Systems
- ECE 412 (3 credits): Power Electronics Circuits
- ECE 427 (3 credits): Electric Power Systems
- ECE 504 (2-3 credits): Electric Machines and Drive System Lab
- ECE 511 (3 credits): Theory and Control of Synchronous Machines
- ECE 711 (3 credits): Dynamics and Control of AC Drives
- ECE 713 (3 credits): Electromagnetic Design of AC Machines

Track 2: Power Electronics

Description: This track offers practical insight into the field of power electronics. This knowledge prepares you for career opportunities in the design and control of power electronics hardware for propulsion, renewable energy and charging systems.

Core course set (select at least 12 credits):

- ECE 411 (3 credits): Introduction to Electric Drive Systems
- ECE 412 (3 credits): Power Electronics Circuits
- ECE 427 (3 credits): Electric Power Systems
- ECE 512 (3 credits): Power Electronics Lab
- ECE 711 (3 credits): Dynamics and Control of AC Drives
- ECE 712 (3 credits): Solid State Power Conversion
- ECE 714 (3 credits): Utility Application of Power Electronics

Track 3: Power Systems

Description: This track offers practical insight into the field of electrical power systems. You will explore the construct of the electric utility as well as power flow control and stability through a variety of modeling and simulation exercises and projects, including emerging grid technologies from microgrids to large-scale power systems dominated by renewable energy sources and power electronics.

Core course set (select at least 12 credits):

- ECE 411 (3 credits): Introduction to Electric Drive Systems
- ECE 412 (3 credits): Power Electronics Circuits
- ECE 427 (3 credits): Electric Power Systems
- ECE 511 (3 credits): Theory and Control of Synchronous Machines
- ECE/CS/ISyE 524 (3 credits): Introduction to Optimization
- ECE 714 (3 credits): Utility Application of Power Electronics
- ECE 723 (3 credits): On-Line Control of Power Systems
- ECE 731 (3 credits): Advanced Power System Analysis

Solid State/Photonics

Track 1: Semiconductor Device and Fabrication Technology

Description: This track offers practical insight into the field of electronic device operation and fabrication. You will learn the basic principles of electronic devices, solid state physics, and learn industry relevant simulation

technologies such as TCAD and Layout. Furthermore, you will have the opportunity to experience (hands-on in a cleanroom) how semiconductor devices are fabricated.

Core course set (select at least 12 credits):

- ECE 445 (3 credits): Semiconductor Physics and Devices
- ECE/NE 528 (3 credits): Plasma Processing and Technology
- ECE 542 (3 credits): Introduction to Microelectromechanical Systems
- ECE 548 (3 credits): Integrated Circuit Design
- ECE 549 (3 credits): Integrated Circuit Fabrication Laboratory
- ECE 745 (3 credits): Solid State Electronics
- ECE 845 (3 credits): Transport in Semiconductor Devices

Track 2: Photonics Technology

Description: This track offers practical insight into the field of photonics. You will learn the basic principles of optoelectronic/photonics devices such as LEDs, LASERs etc. You will also get hands-on experience with industry relevant practical simulation methodologies for photonics applications.

Core Course Set (select at least 12 credits):

- ECE 434 (3 credits): Photonics
- ECE 466 (3 credits): Electronics of Solids
- ECE 536 (3 credits): Integrated Optics and Optoelectronic Devices
- ECE 742 (3 credits): Computational Methods in Electromagnetics
- ECE 747 (3 credits): Nanophotonics

9.6. ECE 610 Requirement

All Professional program students must enroll in ECE 610 (1 credit) during their first fall semester of graduate studies. Students with a course conflict with ECE 610 should discuss with their faculty advisor about how to resolve the problem.

The purpose of ECE 610 is to prepare students for success in graduate school and expose them to areas within ECE as well as related fields outside of ECE, such as biotechnology, physics, computer science, mathematics, or business. Electrical and Computer Engineering is interdisciplinary in nature, and it is important for students to be aware of advanced research and development in areas other than their own.

9.7. Internship

Through the **Engineering Career Services** internship program, students gain valuable “real world” engineering experiences working with a variety of industries and governmental agencies.

All students in these programs will get the opportunity to work full-time, be competitively paid, complete engineering assignments, and work under the supervision of an engineer.

Students participating in a summer internship can enroll in ECE 702. ECE 702 can be used toward the Professional curriculum and credit requirements. See Sections 9.3 Degree Credit Requirement and Section 9.5 Curriculum for more information.

The Summer Internship is for students seeking engineering employment during the summer months. These 12-14 week, full-time assignments provide students exposure to engineering while enabling the employer to fill short-term project needs.

For International students, see instructions on the **Curricular Practical Training (CPT) Process.**

9.8. ECE Course Requirement

A least 21 of the 30 credits used to satisfy the degree requirement must be taken in the ECE Department. Please keep in mind that only ECE courses 400-level and above can count toward this accelerated master's degree.

9.9. Graduate Coursework (50%) Requirement

The Graduate School minimum graduate coursework (50%) requirement states that at least 50% of credits applied toward the program's graduate degree credit requirement (15 of 30 credits) must be courses designed for graduate work as designated in **Guide**.

9.10. Graduation Procedures and Checklist

The ECE Graduate Coordinators will send out an e-mail at the beginning of each term requesting the names of students who plan to graduate as well as with instructions and deadlines for submitting final degree forms and warrant requests. Students must also indicate their plans for graduation during their final semester in their MyUW Student Center.

During the final semester prior to graduation (graduation term), the following must be completed:

- Must be enrolled in at least two credits during graduation term (Note: must also satisfy any other enrollment requirements, for example as required by international student status).
- **Apply to Graduate** in the Student Center.
- Notify your ECE Graduate Coordinator of plans to graduate via email (include name, campus ID, degree, and faculty advisor's name).
- Thoroughly read the Graduate School's page **Completing Your Master's Degree** and complete all the respective tasks.
- Confirm all final grades entered, with exception to the current semester (no incomplete, unreported, or Progress grades.
- Complete the **Master's Degree Survey** which you will also receive by email from the Graduate School.
- Work with your faculty advisor to identify an instructor of a graduate-attribute course that will fill out the Graduate Learning Outcome Report. This report must be submitted online prior to turning in the MS Degree Requirement Approval Form.
- Turn in the **MS Degree Requirements Approval Form** with faculty advisor's signature to your ECE Graduate Coordinator by the deadline stated in the email.
- Turn in the **MS Degree Warrant Request Form** to your ECE Graduate Coordinator by the deadline stated in the email.
- Degree warrants are signed electronically. Your ECE Graduate Coordinator will send an email notification to your faculty advisor. You should follow up with your faculty advisor to sign off on your degree warrant.
- Make sure "diploma"/ "mailing" address is up to date in Student Center in order to receive diploma
- Review **Diploma and Degree Posting** information.

- After the degree conferral date is posted on a student's transcript, students may request a **Degree Completion Letter** in order to prove their degree prior to receiving their diploma.
- Review **UW-Madison** and the **College of Engineering** commencement information.
- To learn more about services that will continue to be available to you and those that will be deactivated, visit: **https://kb.wisc.edu/page.php?id=78565**.

10. MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING, RESEARCH OPTION

10.1. Introduction to the Research Option

The Research option Master of Science in Electrical and Computer Engineering (MS-R) is a traditional research-oriented, two-year degree program, emphasizing the enhancement of professional knowledge and research techniques within Electrical and Computer Engineering. A student enrolled in the Research option must engage in a graduate level research project under supervision of a faculty member and is required to submit a Master's Thesis (Thesis option) or a Project Report (Project option) before graduation.

Upon completion of the required 30 credits of coursework and a research project, students will receive a diploma stating "Master of Science in Electrical and Computer Engineering." The transcripts will state "Master of Science-Electrical and Computer Engineering, Major: Electrical and Computer Engineering, Option: Research."

10.2. Degree Credit Requirement

The Research option Master of Science in Electrical and Computer Engineering degree program requires a minimum of 30 credits subject to the following constraints:

- At least 15 credits must be ECE courses
  - ECE 610 is **required** and counts
- At least 15 credits must be 700-level or above
  - At least three credits must be ECE 790 (or the comparable course in a different department).
- A maximum of nine credits of research (ECE 790) or independent study courses (ECE 699 and ECE 999) may be used. Students should enroll in their research advisor's section number.
  - Research or independent study courses taken in other departments are included in the nine-credit limit.

Exceptions

- PhD students can use ECE 890 in place of ECE 790 and are subject to the same requirements above
- A maximum of three credits of ESL courses 300-level or above can be counted towards MS-R degree
- Some credits taken as an undergraduate or graduate student at UW-Madison or at a previous institution may be eligible as described in 15 Prior Coursework.

The following categories do **NOT** count toward MS-Research degree requirements:

- Audited courses.
- Courses taken Pass-Fail.
- ECE 611.
- ECE 702 co-op/internship credits.
- ECE coursework below 400-level and Non-ECE coursework below 300-level

Students can take more than 30 credits with advisor approval.

10.3. Degree Options

Students enrolled in the Research option Master of Science in Electrical and Computer Engineering degree program must choose one of two options: the thesis option or the project option. Both options have identical

degree credit requirements as detailed in Section 10.2 Degree Credit Requirement. In both options, students must perform research work under the supervision of a faculty member. The prime distinction of these options is the scope of research work and the way the research report will be formatted and deposited.

10.3.1. Thesis Option

Each student who elects the Thesis Option is required to perform research under the supervision of a research advisor. The student and advisor may decide whether to hold a formal oral defense. If the thesis is formally defended, then a thesis committee of at least 3 members, 2 of whom must be graduate faculty or former graduate faculty up to one year after resignation or retirement. The committee must be chaired by the student's advisor. If the student has multiple advisors, all advisors must be on the committee. If there is no formal defense, the thesis only needs to be approved by the student's graduate faculty advisor.

At the conclusion of the research program, a thesis must be prepared. If required by the master's thesis committee or faculty advisor to be submitted to MINDS@UW, the thesis must: 1) conform to Graduate School and library formats; 2) be deposited into the MINDS@UW Department of Electrical and Computer Engineering Thesis Collection (see the **Graduate School's web page** on completing your master's degree).

The MINDS@UW system will provide a permanent URL, safe long-term archiving, and is indexed by Google, Google Scholar, and other specialty academic search engines. In order to deposit the master's thesis, students should fill out **ECE's MINDS@UW Submission form**, including obtaining their advisor's signature, and submit the form along with a pdf copy of their thesis to the ECE Graduate Student Services Coordinator by the degree deadline.

10.3.2. Project Option

Students choosing the project option will submit a typewritten project report describing their research project, for approval by their advisor.

As an option, project reports can be submitted to MINDS@UW in paper format by submitting **ECE's MINDS@UW Submission form**, pdf of project, and abstract to your ECE Graduate Coordinator.

10.4. Credit Loads

Graduate students usually enroll in eight to twelve credits in fall and spring terms, although students with specific appointments may enroll in fewer credits per term as determined by graduate school policy (UW-. Graduate students cannot enroll in more than 15 credits in the fall and spring terms without prior approval. Summer term enrollment is only required in some circumstances. Questions regarding your credit load should be brought to your ECE Graduate Coordinator and/or your faculty advisor.

10.5. ECE 610 Requirement

All graduate students must enroll in ECE 610 (1 credit) during their first semester of graduate studies. Students with a course conflict with ECE 610 should discuss with their faculty advisor as to how to resolve the problem.

The purpose of ECE 610 is to prepare students for success in graduate school and expose them to areas within ECE as well as related fields outside of ECE, such as biotechnology, physics, computer science, mathematics, or business. Electrical and Computer Engineering is very interdisciplinary in nature, and so it is important for students to be aware of advanced research and development in areas other than their own.

10.6. Research Courses and Independent Studies

The MS Research course ECE 790 involves structured research projects that may lead to new knowledge, technology, or invention, which will ultimately contribute to the final MS Thesis or MS Project Report. Independent study courses (ECE 699, ECE 999) provide students opportunities to learn course materials/content

that are not available as a regularly scheduled course or the opportunity to learn a new topic area in order to facilitate research activities. The distinction between different course levels is explained as follows:

Research Courses:

ECE 790: Master's Research or Thesis

- For MS Research option students.
- Students may take the comparable course in a different department.

ECE 890: Pre-Dissertator's Research

- Only for PhD students who have not yet taken their preliminary examination
- PhD students can use this toward MS degree requirements.

ECE 990: Dissertator's Research or Thesis

- Only for dissertators, PhD students that have already passed their preliminary examination
- Does not count toward MS degree requirements.

Independent Study Courses:

- ECE 699 course content generally corresponds to 500- or 600-level coursework.
- ECE 999 course content generally corresponds to 700-level or higher coursework.
- Students may take the comparable courses in a different department.
- Requires instructor approval and emailed approval to the ECE Graduate Coordinator

Students must enroll individually under the specific section number of the research advisor/instructor for all research and independent study courses. Research courses and independent study courses are variable-credit courses; students must agree upon and confirm the number of credits with their research advisor/instructor.

Students whose research advisors are not ECE faculty or faculty affiliates must have an ECE academic advisor. Such students are expected to register for research courses in the research advisor's home department. They are also expected to register for at least 1 credit of ECE 790/890/990 each semester under the academic advisor to reflect the academic advisor's role in staying familiar with the student's research progress and serving as chair of the preliminary and final oral exam committees.

Non-ECE graduate students wishing to enroll in ECE graduate research courses must first obtain consent from the research advisor and then email their ECE Graduate Coordinator in order to have the permission officially entered in the system. Their ECE Graduate Coordinator will need to see the consent from the research advisor via email.

If enrolling in research or independent study courses in other departments, please contact the respective department's Graduate Coordinator.

10.7. Cooperative Education (Co-op) and Internships

Through the **Engineering Career Services** Co-op and Summer Internship programs, students gain valuable "real world" engineering experiences working with a variety of industries and governmental agencies. All students in these programs will get opportunities to work full-time, be competitively paid, complete engineering assignments, and work under the supervision of an engineer.

Students participating in a co-op or internship will enroll in ECE 702. While ECE 702 cannot be applied to the Research option curriculum requirements, co-ops and internships can provide very valuable experiences.

Obtaining work experience prior to completing your degree requirements typically increases employment opportunities and starting salaries after graduation.

Any questions regarding Cooperative Education and Internships should be directed to Engineering Career Services. Make sure to mention that you are a graduate student.

10.7.1. Cooperative Education

Co-op students work full-time in an engineering position from January-August or May-December. The co-op provides 26-28 weeks of full-time, paid engineering work experience. Alternating assignments are also an option.

Cooperative education is an academic option as part of your engineering education. Students who participate in co-op complete assignments and receive academic credit but cannot count the credits toward degree requirements. While on a co-op, students are considered full-time students and are eligible to maintain family or UW health insurance.

The advantage of a co-op over an internship is the increased level of responsibility received due to the longer duration of the work term. Students in co-ops can work on larger and more complex projects that require more time to complete.

For International students, see instructions for the Curricular Practical Training (**CPT) Process**.

10.7.2. Internships

The Summer Internship is for students seeking engineering employment during the summer months. These 12–14 week, full-time assignments provide students exposure to engineering while enabling the employer to fill short-term project needs.

10.8. Graduation Procedure and Checklist

Students are responsible for reaching out to the Graduate Coordinator at the beginning of their last semester to inform the coordinator of their intention to graduate. Students should also indicate their plans for graduation during their final semester in their MyUW Student Center.

A MS-R graduation checklist and FAQ can be found here. (must be signed into UW account)

10.9. Adding a Major Outside of ECE

Students wishing to add or change to a major (MS or PhD) in another department must submit an application for an Add/Change/Discontinue Program Request in the Grad Portal. It is advisable to check-in with the other department *before* completing the request, as they may require or suggest additional application materials.

See the Graduate School's **Addition/Change of Program, Plan, or Named Option** policy.

10.10. Continuing to ECE PhD

Students in good academic standing and with advisor approval can internally apply to enter the ECE PhD program even if they were not originally admitted to the ECE PhD program. The internal application requires a one page research plan, a course plan, and funding from your advisor. Applications will be reviewed by the ECE Graduate Admissions Committee. Transfers are not guaranteed.

The application deadline is October 1 for additions effective for spring semester, and March 1 for additions effective for fall term. Students must apply in the semester before planning to enroll in the PhD program. It is strongly recommended that students apply in or before their second semester of graduate studies to satisfy the requirements of the PhD Research Readiness Assessment. Applying for the PhD does not obligate you to enter the program.

11. DOCTORAL DEGREE

11.1. Introduction

The Doctorate Degree in Electrical and Computer Engineering (PhD ECE) is a research degree emphasizing creativity and original approaches to problem-solving in electrical and computer engineering. The ECE doctoral program provides in-depth training in research and allows students multiple opportunities to publish, including

the student's final dissertation. The ECE PhD program typically requires five years of study beyond the bachelor's degree, although the exact time to degree completion varies depending on research progress. Students who successfully complete the program coursework, defense, and dissertation will be awarded a doctorate degree titled “PhD in Electrical and Computer Engineering”.

11.2. Generic PhD Timeline

The following plan summarizes the minimum satisfactory academic progress for a graduate student entering with only a B.S. degree and pursuing a PhD degree. These guidelines represent the minimum standard for progress.

1st Calendar Year of Study (12 consecutive months)

Complete the ECE Seminar requirements ECE 610 (MS and PhD) and ECE 611 (PhD only).
Take any ESL courses recommended per the ESLAT if applicable
Complete 16 credits of advisor-approved graduate coursework with acceptable grades.

2nd Calendar Year of Study

Complete 16 graduate credits with acceptable grades.
Complete the MS degree.
Take the PhD Research Readiness Assessment.

3rd Calendar Year of Study

Achieve Advanced Graduate Standing.
Complete additional graduate credits with acceptable grades.
Satisfy the PhD primary ECE course requirement.

4th Calendar Year of Study

Complete additional graduate credits with acceptable grades.
Satisfy the PhD minor requirement.
Take Preliminary Examination within three semesters of receiving AGS.

5th Calendar Year of Study

Enroll as a dissertator for exactly three graduate credits each term and continue PhD thesis research.
Schedule the Final Oral Defense Examination before the end of the fifth year

11.3. Credit Requirement

The PhD degree in Electrical and Computer Engineering requires a minimum of 51 credits subject to the following constraints:

- ECE courses must be 400-level or above.
  - ECE 610 & ECE 611 are **required** and count
  - Research credits (ECE 790, 890, or 990) and independent study courses (ECE 699 and 999) count
  - ECE 702 CPT/internship credits count
- Non-ECE courses must be 300-level or above.
  - ESL courses 300-level or above count
- Primary and Doctoral Minor Coursework Completed

Exceptions

- Some credits taken as an undergraduate or graduate student at UW-Madison or at a previous institution may be used as described in Section 15 Prior Coursework.

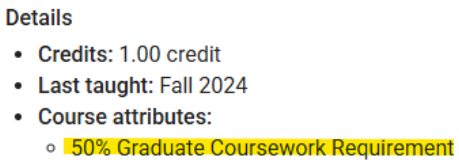
The following categories of courses may **not** be used to satisfy the 51-credit requirement.

- Audited courses.
- Courses taken Pass-Fail.

Students are allowed to take more than 51 credits but are expected to graduate within a reasonable time.

11.4. Graduate Coursework (50% Grad Attribute) Requirement

The minimum graduate coursework requirement states that at least 50% of credits applied toward the program's graduate degree credit requirement (26 of 51 credits) must be courses designed for graduate work (this includes but is not limited to online, thesis/research, independent study, and practicum/internship credits). Courses 700-level and above will always satisfy the (50% Grad attribute) requirement. Courses below the 700-level identified with the "50% graduate coursework requirement" attribute in the University's Course Guide and Class Search also meet the (50% Grad attribute) requirement. Note in the image below that ECE seminars and research credits have this attribute.


Details

- **Credits:** 1.00 credit
- **Last taught:** Fall 2024
- **Course attributes:**
  - 50% Graduate Coursework Requirement

Image above taken from ECE 610 in Fall 2025 Course Search and Enroll.

11.5. Credit Loads

Students are expected to satisfy minimum enrollment requirements (see Section 21 Satisfactory Progress – Academic Expectations for more details). Graduate students usually enroll in 8-12 credits in fall and spring terms, although students with specific appointments may enroll in fewer credits per term. Graduate students cannot enroll in more than 15 credits in the fall and spring terms without approval. Summer term enrollment is only required in some circumstances. Questions regarding your credit load should be brought to the ECE Graduate Student Services Coordinator (Graduate Student Services) and/or your faculty advisor.

11.6. ECE 610 and ECE 611 Requirement

All doctoral students must enroll in ECE 610 (1 credit) during their first semester of graduate studies and in ECE 611 (2 credits) during their second semester of graduate studies. Students with a course conflict with ECE 610 or ECE 611 should discuss with their faculty advisor as to how to resolve the problem.

Electrical and Computer Engineering is interdisciplinary in nature, and it is important for students to be aware of advanced research and development in areas other than their own. The purpose of ECE 610 is to prepare students for success in graduate school and expose them to areas within ECE as well as related fields outside of ECE, such as biotechnology, physics, computer science, mathematics, or business. ECE 611 will emphasize research experiences and methodologies to prepare students to pursue PhD research work.

11.7. Primary ECE Coursework Requirements

All ECE PhD students must take 12 credits of graduate-level ECE courses approved by their PhD advisors.
Of these, 9 credits must be at 700 level or above.

Exclusions:

- Research, independent study, or seminar credits (e.g., ECE 610, 611, 699, 790, 890, 990, 999, 922) may not be used to satisfy this requirement.
- ECE courses used to satisfy minor requirements may not be used to satisfy this requirement.
- Any cross-listed courses can count toward this requirement regardless of instructor.

A cumulative grade point average of 3.3 or higher must be achieved for the primary ECE coursework. Courses used to fulfill the primary ECE requirements cannot be used to fulfill other PhD course requirements.

Students should complete and turn in their PhD Prelim Warrant Form at the beginning of the last semester of which they are taking a classroom course required for PhD coursework. Forms should be turned into your ECE Graduate Coordinator, who will verify the student's grades and pass the forms to the ECE Graduate Committee for approval. Before submitting the Prelim Warrant Form, all temporary grades must be resolved. All incomplete grades and progress grades, for example, must be changed to final grades.

11.8. Doctoral Minor

The doctoral minor is meant to serve as a supplementary body of work to the major ECE field of study. All ECE PhD students must complete the doctoral minor course requirement. Typical doctoral minor fields for ECE students include, but are not limited to, other Engineering disciplines, Computer Science, Mathematics, Physics, Physiology, and Statistics. The minor is designed to represent a coherent body of work and should not simply involve an after-the-fact ratification of a number of courses.

Students have three options to satisfy the doctoral minor requirement: a minor in a single Non-ECE department (Option A), a distributed minor in two or more departments (Option B), or the completion of a graduate/professional certificate (Option C).

11.8.1. Option A: Single External Department

To satisfy Option A, a student must satisfy the minor course requirements as dictated by a single department outside of ECE. Most single department minors require 9-12 credits. Students should confirm the requirements with the minor department before taking courses. Minor requirements of other departments can be found on the **Graduate GUIDE.**

A cumulative grade point average of at least 3.0 must be achieved for the minor. Courses used to fulfill the minor requirements cannot be used to fulfill primary PhD course requirements. Approval of the courses for the Option A minor is certified by the minor department.

11.8.2. Option B: Distributed

To satisfy Option B, a student must earn at least nine credits in two or more departments.

Of the nine credits:

- three credits must be 700 level or above in Department A,
- three credits must be 700 level or above in Department B,
- and the remaining three credits may be 400 level or above in any department.
- Research, independent study, or introductory seminar credits (e.g., ECE 610, 611, 699, 790, 890, 990, 999) may not be used to satisfy this requirement.

One of the departments can be ECE. It is recommended that a Distributed Minor explore courses outside of a student's research area. Courses used to fulfill the minor requirements cannot be used to fulfill primary PhD course requirements. A cumulative grade point average of at least 3.0 must be achieved for the doctoral minor. Approval of the courses for the Option B minor is certified by the ECE Graduate Committee. Graduate-level courses offered by external department(s) that are designated by the offering department as being equivalent to a 700-level course for the purpose of a PhD minor can be counted as 700 level.

If a student wishes to count an ECE cross-listed course as if it were external to ECE, this requires a written appeal to the PhD Committee stating why you believe the course should be considered. This appeal should be submitted to the ECE Graduate coordinator. The Option B minor form may only be submitted to the student's file after all approved courses are satisfactorily completed.

11.8.3. Option C: Completion of a Graduate/Professional Certificate

To satisfy Option C, a student must complete a **Graduate/Professional Certificate** in a program outside of Electrical and Computer Engineering. The Graduate School's minimum course requirements for the doctoral minor and Graduate/Professional certificate to meet the breadth requirement include:

- An average GPA of 3.00 on all coursework;
- Coursework must be graded courses numbered 300 or above; no audits or pass/fail;
- Coursework may not be double counted for primary PhD requirements;
- Maximum 3 credits of independent study (e.g., 699, 799, 899, 999);
- Research and thesis cannot be used to satisfy the minor or Graduate/Professional certificate (e.g., 790, 890, 990);
- No more than 5 credits of coursework completed more than 5 years prior to admission to the doctoral program; coursework taken 10 years ago or more may not be used.

A student cannot earn a doctoral minor and a Graduate/Professional certificate of the same name.

11.9. Earning an ECE Master's Degree Along the Way

Students admitted to the ECE PhD program are encouraged to pursue a Master's degree along the way. Students must satisfy all MS-Research degree requirements as described in Section 10 MASTER OF SCIENCE IN ELECTRICAL AND COMPUTER ENGINEERING, RESEARCH OPTION. Students pursuing a Master's degree along the way should add the degree through MyGradPortal.

11.10. Research Courses and Independent Studies

Research courses (ECE 790, ECE 890, and ECE 990) are structured research projects that may lead to new knowledge, technology, or invention. The expected outcomes are a Master's thesis, Masters project report, or PhD dissertation. Independent study courses (ECE 699, ECE 999) provide students opportunities to learn course materials that are not available as regularly scheduled courses or new topic areas to facilitate research activities. The distinction between different course levels are:

11.10.1. Research Courses:

ECE 790: Master's Research or Thesis

- For MS Research option students, PhD students should use 890 even if earning MS along the way

ECE 890: Pre-Dissertator's Research

- Only for PhD students who have not yet taken their preliminary examination
- PhD students can use these credits toward MS degree requirements.

ECE 990: Research or Thesis

- Only for dissertators – PhD students that have already passed their preliminary examination
- Does not count toward MS degree requirements.

Independent Study Courses:

- ECE 699 course content generally corresponds to 500 or 600 level coursework.
- ECE 999 course content generally corresponds to 700 and higher-level coursework.
- Requires instructor approval and emailed approval to the ECE Graduate Coordinator

Students must enroll individually under the specific section number of the research advisor/instructor for all research and independent study courses. Research courses and independent study courses are variable-credit courses; students agree upon the number of credits with their research advisor/instructor.

Students whose research advisors are not ECE faculty or faculty affiliates must have an ECE academic advisor. Such students are expected to register for research courses in the research advisors home department. They are also expected to register for at least 1 credit of ECE 790/890/990 each semester under the academic advisor to reflect

the academic advisor's role in staying familiar with the student's research progress and serving as chair of the preliminary and final oral exam committees.

Non-ECE graduate students wishing to enroll in ECE graduate research or independent study courses must contact the ECE Graduate Coordinator(s) or COE Graduate Student Services for permission to do so.

11.11. Cooperative Education (Co-op) and Internships

Through the **Engineering Career Services** Co-Op and Summer Internship programs students gain valuable "real world" engineering experiences working with a variety of industries and governmental agencies.

All students in these programs can work full-time, be competitively paid, complete engineering assignments, and work under the supervision of an engineer.

Students participating in a co-op or internship will enroll in ECE 702. ECE 702 can be used toward the PhD degree requirements but cannot be used to satisfy primary area or minor course requirements. See Section 11.2 Credit Requirement.

Obtaining work experience prior to completing your degree requirements typically increases employment opportunities and starting salaries after graduation.

Any questions regarding Cooperative Education and Internships should be directed to Engineering Career Services. Make sure to mention that you are a graduate student.

11.11.1. Cooperative Education

Co-op students work full-time in an engineering position from January-August or May-December. The co-op provides 26-28 weeks of full-time, paid engineering work experience. Alternating assignments are also an option.

Cooperative education is an academic option as part of your engineering education. Students who participate in co-op complete assignments and receive academic credit toward graduation. While on a co-op, students are considered full-time students and are eligible to maintain family or UW health insurance.

The advantage of a co-op over an internship is the increased level of responsibility received due to the longer duration of the work term. Students on co-ops are able to work on larger and complex projects that require more time to complete.

For International students, see instructions on the Curricular Practical Training **(CPT) Process**.

11.11.2. Internships

The Summer Internship is for students seeking engineering employment during the summer months. These full-time assignments provide students exposure to engineering while enabling the employer to fill short-term project needs.

11.12. Research Readiness Assessment

The PhD Research Readiness Assessment (RRA) is a general assessment that places emphasis on a student's ability to reason, formulate and solve problems, apply basic engineering and analytical skills, and communicate effectively. Instructions on how to register for your RRA will be sent out by the Graduate coordinator at the beginning of each fall and spring semester to eligible students.

All ECE students intending to pursue a doctoral degree are required to take the RRA. Students must complete at least one semester of full-time graduate coursework before taking the RRA.
Students must take the RRA no later than the third semester after entering the ECE graduate program (summers not included). If a second attempt is required, it must occur no later than the fourth semester after entering the program. No student can take the RRA more than twice. If a student leaves the

department (i.e., to work between MS and PhD degrees), the time spent away from study will not count as part of the four semesters. In addition, one extra semester will be allotted for every two semesters the student is away, accumulating to at most three semesters after returning to take the exam for the first time. These rules apply to every graduate student, including those who initially set out to pursue only the MS degree. It is the student's responsibility to take the RRA on time. If a student does not take the RRA within the time required, the student may be requested to leave the ECE PhD degree program. Reasonable accommodations will be made by the PhD Graduate Committee for students that enter the program via an atypical route or timing.

Objectives: The primary role of this assessment is to help the student become a successful researcher. In this assessment the student will demonstrate the ability to:

- summarize technical ideas in writing and in an oral presentation
- critically evaluate scientific literature
- answer questions and engage in scientific discussion

The focus of the assessment is the presentation and discussion of a single, coherent topic based on the materials included in one or more published papers (up to a maximum of 5). Choosing one paper is highly recommended and students are strongly encouraged to not select a paper from their advisor's group. The advisor should assist the student in selecting the paper(s) and developing understanding and interpretation of them. The paper(s) should represent a research topic of collaborative interest to the student and advisor and must be approved by the advisor.

The student is fully responsible for understanding the content of the chosen paper(s), including relevant references and background source material. In addition to understanding the technical content, the student should be able to answer queries about why the paper(s) is important, how the authors may have decided on their approach, why the result matters, how the results compare to related work, and what could be improved.

The student is not expected to propose specific research directions or demonstrate any of their own initial research results.

Structure: The detailed structure of the PhD RRA is as follows:

1. Students receive email from the ECE Department near the beginning of the semester about registering for the RRA. When registering the student shall submit citations for the one to five papers they plan to use for the RRA, four possible committee members, and advisor approval to the PhD Graduate Committee. Committee members must be UW ECE faculty. Emeritus and affiliated faculty will not be considered.
2. Upon registration for the RRA, the ECE PhD Graduate Committee selects three examiners for each participating student:
    a. The advisor is a member of the committee. If a student has more than one advisor, only one of the advisors can serve on the committee.
    b. Usually, the two remaining committee members will be chosen from the list of four possible committee members recommended by the student. Load balancing amongst faculty and availability are examples of situations in which student recommendations may not be followed.
    c. The PhD Graduate Committee appoints a chair of the student's committee. The chair will not be the advisor.
3. The oral portion of the RRA will be held within a two-week period specified by the ECE Graduate Committee.
4. The student must contact the committee members and arrange a convenient time for taking the

oral portion within the specified period. The student is responsible for making the necessary room reservations.

Format:

1. The student submits a written summary of the chosen topic to the committee at least 24 hours prior to the scheduled assessment time. The written summary is limited to one page (1-inch margin all sides, single spaced, minimum 10-point font).
2. The oral assessment will be limited to 45 minutes. During that time, the student will give a presentation and the committee members will ask questions about various aspects of the selected paper(s) and related background material. The expectation is that the presentation will focus on a single, coherent topic that can be based on the materials included in one or more of the chosen published papers (up to a maximum of 5). The student must leave ample time in their presentation for questions and answers. Typically, this will involve keeping the presentation to less than 20 minutes, if given uninterrupted.
    a. The questions should address the student's competency in the relevant area background material.
    b. The questions may address the student's review of the paper(s), but are not limited to the paper(s).
3. The committee will also assess the student's communication skills.
    a. Students who have difficulty conversing in English are advised to take the necessary steps toward improvement in spoken English prior to taking the RRA.
    b. As the student may be presenting to a mixed audience of experts and non-experts in the field, the presentation should include sufficient high-level overview so that non-experts can understand the importance and basic approach of the work.
4. The student portion of the oral assessment will not exceed 45 minutes. The committee will discuss the student's performance following the student's departure and provide recommendations for improvement.
5. The advisor may not speak during the student portion of the assessment.
6. Each committee member independently grades the assessment, turning in a grade of either Excellent, Pass, Marginal, or Fail. The students will not learn the grades, only the recommendations for improvement. Students should not ask about grades.
7. Assessment grades are tabulated for each student at the end of the assessment period and are forwarded to the ECE PhD Graduate Committee. The ECE PhD Graduate Committee decides whether the student passes the RRA.

11.13. Advanced Graduate Standing

Advanced Graduate Standing is the departmental designation for official permission to pursue a PhD degree in ECE. The ECE Graduate Committee grants AGS. Instructions on how to request AGS will be sent out by the Graduate coordinator at the beginning of each fall and spring semester to eligible students.

The process of evaluation for AGS is distinct from the decision about whether a student passes the Research Readiness Assessment. Passing the Research Readiness Assessment does not ensure AGS will be granted. AGS evaluation is based on:

1. The student's performance on the PhD Research Readiness Assessment.
2. The student's performance in graduate courses. Although a cumulative grade point average of 3.3 is the minimum requirement for satisfaction of the primary ECE course requirement, a substantially higher overall GPA in graduate coursework is usually required before AGS is granted.
3. The student's submitted plan for meeting all course requirements.

Any additional supporting materials, such as publications, that the student wishes to provide are also welcomed.

Each student is evaluated for AGS the semester after their RRA or in the 4th semester whichever is sooner. Notification of the outcome of the review is made via email. If a student is turned down after the first AGS review, they are notified of the reasons with an indication of how and to what extent the student's chances of receiving AGS at the subsequent evaluation can be improved. Students not receiving AGS at the initial review are evaluated for AGS a second time by the end of the semester following the first review. No student is reviewed for AGS more than twice. A student who is turned down for AGS a second time will be required to leave the ECE PhD program.

11.14. Preliminary Examination

The Preliminary Examination (also abbreviated “Prelim”) is a detailed examination covering the proposed research leading to the PhD thesis. The purpose of the exam is to ascertain the capability of the student to perform the proposed research and the quality and appropriateness of the project. The preliminary exam is intended to be a proposal - not a nearly completed thesis. The goal is to present your plans for your thesis to a committee and receive feedback at an early stage in your research.

Students should consult with their advisors for advice on how to best communicate their current/to-date and proposed work to the committee. Typically, students will prepare a written report and a presentation. A detailed written report is strongly encouraged, as it provides a document the student and committee can refer to later.

The examination typically involves public presentation of selected research conducted to date by the student and a description of the proposed research to be completed for the PhD degree. Students are not permitted to bring refreshments for the committee and audience members. The research is presented to a committee convened by the student with the approval of the student's research advisor. Questions may be asked at any point in the presentation. After the presentation, the chair of the committee will ask any public attendees to leave the room and the committee will ask further questions of the student. Then the student will be asked to leave so the committee can discuss the student’s performance and form recommendations to be shared with the student.

Upon successful completion of the Preliminary Examination and PhD requirements except the completion of the dissertation, students are classified as dissertators (see Dissertator Status below).

11.14.1. Preliminary Examination Timeline

Every PhD student is required to pass the Preliminary Examination. Before taking the Preliminary Examination, the student must first achieve Advanced Graduate Standing (AGS) and satisfy the English Competency Requirement. There is no limit to the number of times a student may take the Preliminary Examination. The Preliminary Examination must be taken for the first time no later than three semesters after receipt of Advanced Graduate Standing.

11.14.2. Preliminary Examination Committee

The performance of the prelim is evaluated by a committee. It is recommended that the committee satisfy all the requirements of the Final Oral Examination committee (see Section 11.16.2) and that the Preliminary Examination Committee be selected with the intention of also serving as the Final Oral Examination committee. The minimum requirement of the prelim committee are as follows:

- consists of no less than three members, but preferably four members,
- at least two of which must be selected from the ECE Department (primary affiliation).
- *Note:* Some minor departments require that a representative from their department serve on the committee. If a student has an Option A minor in a single other department, the student should check with the minor department to confirm if a minor department committee member is necessary. For detailed information, see Doctoral Committees.

Committee members from the following categories must be approved by the PhD Committee: faculty from a department without a graduate program, academic staff (including emeritus faculty), visiting faculty, faculty from other institutions, scientists, research associates, and other individuals deemed qualified by the PhD Committee. To seek approval for these members, students should prepare a 3-4 sentence written explanation of why an individual should be allowed to serve on the committee. This explanation is due to the Graduate Student Services Coordinator(s) no later than 1 month before the student's preliminary exam date.

11.14.3. Preliminary Examination Procedure and Checklist

At least two months prior to the Preliminary Examination, students are required to turn in their PhD Prelim form with their advisor's signature to their ECE Graduate Coordinator. This form should be submitted at least four weeks prior to the date of the examination.

A PhD Prelim checklist, including where to find the Prelim Form, and FAQ can be found here. (must be signed into UW google account)

11.15. Dissertator Status

As soon as a student has completed and passed all the requirements of the PhD degree, with exception of the completion of the dissertation, a student is classified as a dissertator. Specifically, a student must:

1) have completed 32 graduate credits at UW-Madison;
2) have satisfied the Primary ECE course requirements;
3) have satisfied the Doctoral Minor course requirements;
4) have satisfied the English Competency Requirement;
5) have successfully completed ECE 610 and ECE 611;
6) have passed the Preliminary Examination; and
7) have a cumulative graduate GPA of 3.0.

Dissertator status is achieved by turning in the signed and dated Preliminary Examination Warrant to their ECE Graduate Coordinator by the dissertator eligibility deadline. Dissertator status is effective at the start of the semester following the completion of all dissertator requirements for the doctoral degree except for the dissertation. Students will receive a confirmation email from the Graduate School once dissertator status is applied to the student's record.

Dissertators must be enrolled in exactly three credits each term until the PhD is conferred according to Graduate School policy. Usually, a dissertator enrolls in three credits of ECE 990 in the section of their research advisor. Enrollment must be maintained every academic semester, regardless of whether the student is performing research on or off campus.

A dissertator who enrolls for more (or fewer) than 3 credits will be removed from dissertator status for the fall or spring term in which the enrollment is not exactly 3 credits. During the summer, however, an enrolled dissertator may ask their advisor to request an overload of 1-2 additional credits in a short session and still retain dissertator fee status, if the course is related to dissertation research or professional training that is not offered in regular semesters. If a dissertator chooses to pursue a graduate degree or certificate in another area, the dissertator fee status will be discontinued, and regular graduate fees will be assessed.

Students considering the removal of their dissertator status should contact their ECE Graduate Coordinator immediately.

For more information about dissertator status, please refer to the Graduate School policy: **https://policy.wisc.edu/library/UW-1247**.

11.16. Final Oral Examination (PhD Defense)

The final oral examination (often called “defense”) normally covers a student’s dissertation and areas of study. Students may not take the final oral examination until they have satisfied all other requirements for their degree. A final oral examination is required of all PhD students. There is no limit to the number of times a student may take the final oral examination.

The format of the defense typically involves public presentation of selected research conducted to fulfill the requirements of the PhD degree. Questions may be asked at any point in the presentation. After the presentation, the chair of the committee will ask any public attendees to leave the meeting and the committee will ask further questions of the student. Then the student will be asked to leave so the committee can discuss the student’s performance and whether to recommend or require changes to the PhD thesis.

Students are not to bring refreshments for the committee and audience members.

A student **must provide** a copy of their PhD thesis to the defense committee members at least two weeks prior to the scheduled defense.

If it is not possible for all committee members to attend the same defense time, students may conduct the defense multiple times. However, it is strongly recommended that students never complete their defense one-on-one with a committee member. The student’s committee chair should be present at all defense times to best support the student. Likewise, students may conduct their defense using teleconference technology such as Zoom.

11.16.1. Defense Timeline

Doctoral students are expected to take their initial final oral examination within five years of entering the ECE PhD program. For example, students entering in Fall 2022 should schedule their initial defense prior to the end of the Summer 2027 session. Students have a maximum of five years from the date of passing their Preliminary Examinations to pass their final oral examination and submit their dissertation. If a student cannot meet these requirements, a progress report must be submitted.

11.16.2. Defense Committee

The final oral examination is administered by a committee chosen by the student and their research advisor and approved by the Graduate School. The committee structure must meet the following requirements:

- The committee is chaired by the student’s academic advisor.
    - If the student has multiple advisors, all advisors should be on the committee.
- The committee must consist of at least four members.
    - At least three members of the committee must be current UW-Madison graduate faculty or former UW-Madison graduate faculty up to one year after resignation or retirement.
    - Two members, at minimum, must be ECE Department faculty members (affiliation counts).
    - The committee must have at least one member whose primary appointment is not within the ECE department (ECE affiliate counts). Students must designate at least three members of their committee to be readers of their dissertation.
    - If an ECE affiliate is on the committee, they can either count as ECE or external, but they cannot simultaneously count as both an ECE faculty member and an external to ECE member.For detailed information, see **Doctoral Committees**.

Committee members from the following categories must be approved by the PhD Committee: faculty from a department without a graduate program, academic staff (including emeritus faculty), visiting faculty, faculty from other institutions, scientists, research associates, and other individuals deemed qualified by the PhD Committee. To seek approval, students should prepare a 2-4 sentence written explanation of why an individual should be allowed to serve on the committee. This explanation is due to the Graduate Student Services Coordinator(s) no later than 1 month before the student’s Defense.

11.16.3. Graduation / Defense Procedures and Checklist

Students are responsible for reaching out to the Graduate Coordinator at least **two months prior** to their defense as important forms when important warrant forms are due. Students should also indicate their plans for graduation during their final semester in their MyUW Student Center.

A PhD graduation checklist and FAQ can be found here. (must be signed into UW google account)

11.17. Progress Report

Students that are unable to hold their defense within five years must submit a progress report form to the Graduate Committee. The progress report should be prepared in consultation with the advisor.

Progress reports forms can be found here (must be signed into UW google account) and completed forms are emailed to the Graduate Student Services Coordinator(s).

11.18. Adding a Major Outside of ECE

Students wishing to add or change to a major (master's or PhD) in another department must apply for an Add/Change/Discontinue Program Request in the Grad Portal. It is advisable to check-in with the other department before completing the request, as they may require or suggest additional application materials.

See the Graduate School's **Addition/Change of Program, Plan, or Named Option** policy.

12. FUNDING AND FINANCIAL INFORMATION

Students enrolled in the Machine Learning and Signal Processing, Professional, and Power Engineering Online MS degree options do not receive tuition remission associated with teaching assistantship, project assistantship, or research assistantship appointments. All students are eligible to apply for scholarships, external funding, and financial aid.

- **Financial Aid** information for domestic students
- Free, online financial wellness program for all graduate students: **GradReady**
- On-campus **Student Jobs**
- Student Jobs information for **international students**

Students in the Research option MS degree and the PhD degree programs are eligible for UW-Madison financial support, including fellowships and assistantships (research, teaching, or project), as well as any scholarships, outside funding, financial aid, or on-campus jobs. The ECE Department is able to award a limited number of fellowships, research assistantships, teaching assistantships, and grader positions each term/year to graduate students.

Research assistantship (RA) appointments are determined by individual faculty members. Students are encouraged to contact faculty for information about available research assistantships, even before and during the admissions process. Students that have accepted a teaching assistantship (TA) appointment are not allowed to switch to an RA appointment within four weeks of the start date of the upcoming term.

The **ECE TA/Grader Application** is used to apply for TA and grader positions in ECE. Students are able to have RA, TA, and/or grader appointments in other departments on campus and should contact the respective department with any questions. In addition to reaching out to faculty and other departments, students are able to search for

and apply for assistantship positions through the **UW-Madison student job database**. Usually, students secure TA and PA appointments once on campus or in midsummer leading up to the fall semester.

ECE fellowship decisions are made by the Graduate Fellowship, Admissions, and Recruiting Committee. The procedure to apply for fellowships varies; some applications require nomination by a faculty member, while others may involve open applications. Students are notified of any fellowship opportunities when they become available.

All Research MS and PhD degree program applicants are evaluated for departmental financial support at the time of admission. However, applicants are encouraged to reach out to individual faculty members ahead of time. Funding is limited and Research MS degree program students should be prepared to pay for the cost of their education.

13. INFORMATION FOR INTERNATIONAL STUDENTS

13.1. International Student Services (ISS)

International Student Services (ISS) is the main resource on campus for international students and has advisors to assist students with visa, social, and employment issues. Attend their walk-in advising hours or schedule an appointment with an International Student Advisor.

13.2. Student Visas

ISS issues the federal I-20 form for initial F-1 visa procurement and the initial J-1 visa document (DS-2019). To issue an I-20, ISS will request proof of adequate financial resources to cover expenses for the duration of a student's studies at UW-Madison. If a student is funded by an appointment, this may completely or partially serve as financial proof.

13.3. Information for New International Students

New international students must meet additional requirements before and after arriving on campus. Please see Section 5 GETTING STARTED INFORMATION FOR NEW STUDENTS for more information.

13.4. Funding for International Students

International students most often need to prove adequate financial resources for immigration purposes during the admissions process. For more information regarding the proof of funding requirement, please review **Requirements for Admission** and **International Applicant Financial Information**.

13.5. ESLAT and ESL Requirements

Non-native English speakers who do not meet the graduate school English proficiency requirements for admission and do not meet an exemption criteria will be required to take the ESLAT test prior to the start of their first semester. (https://grad.wisc.edu/apply/requirements/)

More information can be found about **ESLAT Placement** and **ESLAT Testing Information**.

A student's ESLAT score will not affect their status in the program. However, based on ESLAT performance, specific ESL courses may be recommended. These courses must be taken and passed within 12 months of the ESLAT. If the recommended courses are not taken and passed within a year, the student will not be permitted to enroll in courses for their third semester in the graduate program. The recommended ESL courses are a requirement for graduation according to ECE policy.

13.6. SPEAK Test

UW System policy requires non-native English speakers to demonstrate proficiency in spoken English before they are assigned classroom duties as teaching assistants.

Non-native English speakers admitted to a research program, who plan to be in research based program, or plan to be a teaching assistant (TA) in the ECE department should take the SPEAK test in their first semester of graduate studies unless you meet one of the exemptions on the SPEAK test page (https://esl.wisc.edu/ita-training/speak/).

It is the responsibility of the student to complete their SPEAK Test and receive their SPEAK score prior to applying for a TA position. Students are only allowed to take the SPEAK Test once in a three-month period. There are several SPEAK test dates throughout every semester. Registration is required at least 1 week prior to the intended test date. **To register please fill out the linked Google Form**.

Accelerated MS students are discouraged from pursuing Teaching Assistantships, but if they intend to apply, they must adhere to the SPEAK test policy stated above.

Students seeking TA appointments in a different department should inquire with the other department about how to register for the SPEAK Test.

If you were admitted to a graduate program in ECE prior to Fall 2025 and have already served as TA within the ECE department, you are not required to retake the SPEAK test.

13.7. Change of Education Level and Other ISS Forms

It is critically important that international students keep ISS updated with their student status. If a student changes their education level, would like to apply for a Reduced Course Load, or has another immigration notification, the student must fill out the appropriate forms and paperwork with ISS. Their ECE Graduate Coordinator can assist in filling out ISS forms as necessary.

14. COURSE ENROLLMENT

The ECE department follows the Graduate School policy regarding enrollment. Please see the following policy for more information: **enrollment requirements**

The Graduate School considers full-time enrollment to be 8-15 graded credits (taken at 300-level or above, excluding pass/fail and audit credits) during the fall and spring semesters, and 4-12 credits during the summer term. Dissertators are considered full-time at three credits for fall, spring, and summer terms. Students with teaching or project assistantships may have less credits required for full-time status. See the Graduate School's **enrollment requirements** policy for more detailed information.

Students are required to maintain full-time student status for fall and spring semesters for a variety of reasons: visa eligibility, fellowships, assistantships, financial aid, external funding agencies, and ECE satisfactory progress requirements. See Section 21 SATISFACTORY PROGRESS – ACADEMIC EXPECTATIONS for more information. Students may be required to enroll full-time during the summer. For information, please see the Graduate School's **enrollment requirements** policy.

International students have strict enrollment requirements and should consult with an advisor from **International Student Services** via Terra Dotta with any questions about their visa regulations.

All students must be enrolled in a minimum of two credits during the term in which they graduate.

It is important to recognize that some university services and facilities, like University Health Services and RecSports, are only available to currently enrolled students. If a student is not enrolled over the summer, they may have the option to pay an additional fee for these services and facilities.

In order to enroll in courses, students use the Course Search & Enroll. Enrollment information, including dates and deadlines, Course Search & Enroll help, and enrollment information is available on the **Office of the Registrar's** website.

15. PRIOR COURSEWORK

Prior Coursework Policy

Program	Maximum Transfer Credits	Transfer credit usage
MS-P, MS-MLSP, or MS-R	7	Degree requirements
Power Online	7 (9 if Special Student Credits)	Degree requirements
PhD	Greater than 7	Degree, Primary, and/or Breadth

Credits from previous college or university coursework may be transferred and applied towards your degree; however, specific rules apply both to the maximum number of credits you can transfer (above) as well as the maximum number of credits that can be transferred in a specific category (below).

General requirements and rules apply to prior coursework credits in all the categories listed below:

- All prior coursework credits for any of the categories must have been earned with a grade of B or better.
- Coursework earned ten or more years prior to admission into a UW-Madison Master's degree program is not allowed to satisfy requirements.
- Prior coursework will not count toward the student's graduate GPA.

Prior Coursework (Equivalency) categories:

Credits may come from one or more of the following categories under the conditions specified:

- **Graduate Work from Other Institutions:** With program approval, students enrolled solely in an MS program may count a maximum of seven credits of graduate coursework from other institutions (post-baccalaureate) toward the minimum graduate degree credit requirement and the minimum graduate coursework (50%) requirement. No credits from other institutions may be counted toward the minimum graduate residence credit requirement.
    - PhD students are eligible to transfer a greater number of credits from previous graduate coursework. Please consult your Graduate Student Services Coordinator for specific details.
- **UW–Madison Undergraduate:** With program approval, up to seven credits from UW–Madison numbered 400 or above can be counted toward the minimum graduate degree credit requirement, or ECE courses numbered 700 or above can be counted toward the minimum graduate coursework (50%) requirement. Partial credits from a course may be used to reach seven credits. No credits can be counted toward the minimum graduate residence credit requirement.
- **Undergraduate credits earned at other institutions:** With program approval, up to seven credits from any institution numbered 300 or above outside of ECE or 400 level or above within ECE can be counted toward the minimum graduate degree credit requirement. Transfer credits from other institutions must be equivalent to the rigor of UW-Madison courses numbered 300 and above. Prior coursework transfers will be assessed on a case-by-case basis by the ECE MS or PhD Committee. These credits cannot count toward the 50% graduate coursework minimum nor the minimum graduate residence credit requirement.
- **UW–Madison University Special Student Courses:** With program approval, students are allowed to count credits of coursework numbered 400 or above taken as a UW–Madison University Special student toward the minimum graduate residence credit requirement, and the minimum graduate degree credit requirement. See the table below for maximum allowed transfer credits based on program. Courses numbered 700 or above taken as a UW–Madison Special student can count toward the minimum

graduate coursework (50%) requirement. Partial credits from a course may be used to reach the maximum allowed credit transfer.

Program	Maximum number of UW Special Student Transfer Credits
MS-P, MS-MLSP, or MS-R	7
Power Online or PhD	9

Prior Coursework (Equivalency) Evaluation Process

To request evaluation of prior coursework from a different institution, please submit a Graduate Course Equivalency Request Form to the Graduate Student Services Coordinator.

16. PROFESSIONAL DEVELOPMENT AND CAREER PLANNING

There are a wide range of professional development and career planning resources offered through the Graduate School Office of Professional Development, through collaborators across campus, and in conjunction with national organizations.

16.1. Skill Identification, Development, and Planning

DiscoverPD is a competencies framework and planning tool built by the Graduate School for UW–Madison master's and doctoral students. Features include a skills self-assessment and activity tracker, customized reports and recommendations, and a database of 400+ in-person and online opportunities. DiscoverPD helps students identify and articulate transferable skills and provides scaffolding and recommendations for planning professional development. Login to the tool at my.grad.wisc.eu/DiscoverPD and watch a 3-minute overview at youtu.be/jz1KoblmaBk.

16.2. Individual Development Plan

myIDP is a long-standing career planning tool tailored to meet the needs of MS and PhD students and postdocs in the STEM disciplines. Features include: exercises to examine skills, interests, and values; twenty scientific career paths matched to users' skills and interests; a tool for setting strategic goals, with optional reminders; and career exploration articles and resources.

16.3. Development of Faculty and Future Faculty

Key campus partners have teamed up to coordinate and cross-promote robust support for graduate students preparing to enter the tenure track. Sponsors include: The Center for the Integration of Research, Teaching and Learning; the Delta Program in Research, Teaching and Learning; the Graduate School Office of Professional Development; the Office of Postdoctoral Studies; the Writing Center; and the UW-Madison Postdoctoral Association. Take advantage of the For Future Faculty Series.

UW–Madison has an institutional membership to the National Center for Faculty Development and Diversity (NCFDD), an independent organization that provides professional development, training, and a mentoring community to graduate students, postdocs, and faculty members. The site offers advice on developing a daily writing practice, dealing with stress and rejection, navigating department politics, and much more. Activate your individual account through the UW–Madison institutional membership, sponsored by the Division of Diversity, Equity and Educational Achievement, to take advantage of these resources at no cost to you.

16.4. Non-Academic Careers

The Graduate School has a valuable professional development series for non-academic career preparation: Beyond Graduate School, for MS students, Beyond the Professoriate PhD Career Training Platform and other resources. For a full list of opportunities, check out the **Graduate School's Professional Development** page.

The Interdisciplinary Professional Programs office in the College of Engineering offers a number of professional development opportunities in the form of short courses, certificates, and custom courses designed to enhance professional growth and provide opportunities for career advancement. These courses can satisfy CEUs for professional certifications. Learn more about our professional development offerings here: https://interpro.wisc.edu/courses/

16.5. Job Searches

Engineering Career Services coordinates co-op and internship opportunities, career fairs, interviews, and provides job search advice. The university uses Handshake to identify employment openings. Over 2,700 job postings are currently tagged as relevant to master's degree holders and 1,200 to doctoral. You may login and explore **Handshake**.

17. OPPORTUNITIES FOR STUDENT INVOLVEMENT

The ECE Department Graduate Student Association GSA is a student-run group engaging in social and service activities. You may connect with the GSA through their **Facebook** page or **Google site**. The ECE GSA also maintains an ECE Graduate Student Lounge open to all graduate students: Engineering Hall 2548. It is a great place to eat lunch, take a break, study, or talk with your fellow graduate students. If the door is locked, contact **gsa@ece.wisc.edu** to gain access.

Additionally, the College of Engineering has more than fifty **Student Organizations** that span a wide range of activities and interests, not to mention the other opportunities across campus.

18. STUDENT HEALTH AND WELLNESS

18.1. Health and Wellness at UW-Madison

Maintaining good health, physically and emotionally, is extremely important for student success. Our campus provides a wealth of resources to support students, including through **University Health Services**, other groups on campus, and the ECE Department.

18.2. University Health Services (UHS)

Students who pay segregated fees are eligible for **University Health Services**. There is no charge to students for many basic services, including counseling sessions, because services are paid through tuition and fees. Personal health and wellness services are also available in addition to medical services. Flu shots are typically available for students throughout the fall semester.

UHS provides many resources specifically for graduate students and engineering students, including targeted **Group Counseling** and **Let's Talk** sessions. Let's Talk is an opportunity for students to have walk-in, anonymous counseling.

It is strongly encouraged that students review the UHS website early in their first semester to ensure they are aware of all UHS has to offer.

18.3. Securing Health Insurance Coverage

Under federal law, all international students with F-1 and J-1 visas are required to have health insurance.

When an international student arrives on campus, they are issued a **SHIP** (Student Health Insurance Plan) to ensure they have health insurance coverage. SHIP members must use University Health Services (UHS) for all available primary, urgent, and preventive care. Most UHS services are fully covered for SHIP members with no out-of-pocket expense. Visit **uhs.wisc.edu** for more information. The main UHS clinic is located at 333 East Campus Mall, 608-265-5600.

When an international or domestic student receives funding and accepts appointment(s) totaling a minimum of 33% FTE, we offer **State Group Health Insurance**. The student has 30 days after the start date of the appointment to enroll and select coverage online through their MyUW portal for health insurance and other benefits.

When an international student enrolls in State Group Health Insurance, they must complete and send a Waiver to SHIP before the deadline set by SHIP. The purpose of the waiver is to provide SHIP with proof of other insurance. Upon receipt of the waiver and proof of other insurance, SHIP will terminate the SHIP health insurance plan.

SHIP is an option for students without appointments; however, State Group Health Insurance is a less expensive option for students with appointments totaling a minimum of 33% FTE.

Contact our Payroll and Benefits Specialists with questions at **payroll@ece.wisc.edu**.

- **Health insurance information and SHIP information** for domestic students.
- **SHIP for International Students**.
- **Health and safety information** for international students provided by ISS.

18.4. Disability Information

Students with disabilities, physical, learning, or other, have access to disability resources through UW-Madison's McBurney Disability Resource Center. As an admitted student, you should first go through the steps to **Apply for Accommodations**.

Additional [non-academic] disability campus resources (not found through the McBurney Center) can be found at:

- **Transportation**
- **Housing**
- **Personal Care**
- **Policies and Grievances**
- **Campus Accessibility Resources**

18.5. Mental Health Resources On and Off Campus

University Health Services (UHS) is the primary mental health provider for students on campus. UHS Counseling and Consultation Services offers a wide range of services to the diverse student population of UW-Madison. They offer immediate crisis counseling, same day appointments, and ongoing treatment, as well as Let's Talk sessions and group counseling. UHS service costs are covered for students through tuition and fees.

Also, there are many mental health resources throughout the Madison community, but UHS Counseling and Consultation Services is the best resource for referrals to off-campus providers. Call 608-265-5600 for assistance in finding an off-campus provider.

19. ACADEMIC EXCEPTIONS, EXTENSIONS, AND APPEALS

Petitions for exceptions to academic requirements are considered on an individual case-by-case basis. Exceptions that are granted do not constitute a precedent. Deviations from established policies are strongly discouraged, but certain extenuating academic and personal circumstances may warrant exceptions. Petitions for course exceptions/substitutions, exceptions to the Satisfactory Progress Expectations (academic or conduct), or other

policy exceptions shall be directed to the ECE Graduate Committee, and in some circumstances to the appropriate program coordinator. The following procedures apply to all petitions:

- Student must first consult with their advisor(s).
- Student is advised to also consult with an ECE Graduate Student Services Coordinator for additional advice.
- If student is appealing due to medical issue, the student needs to provide medical documentation
- Student and advisor(s) must both submit written documentation requesting and explaining the petition to an ECE Graduate Student Services Coordinator:
- Identify the specific requirement/rule/expectation pertinent to the petition;
- Explain the rationale for petition and why it should be granted;
- Advisor(s) must support the petition.

The ECE Graduate Student Services Coordinator will forward the petition to the ECE Graduate Committee and appropriate program coordinator for adjudication. Student and advisor(s) will be notified of the ECE Graduate Committee's decision and the note will be placed in the student's file.

Please note that petitions for exceptions to clearly defined program rules are rarely approved by the ECE Graduate Committee.

19.1. Progress Requirements

The ECE Graduate Committee may grant extensions to normal progress requirements in circumstances such as childbirth, adoption, significant responsibilities with respect to elder or dependent care obligations, disability or chronic illness, or circumstances beyond one's personal control. Petitions for extensions should provide evidence of plans and ability to return to conformance with program expectations and to acceptably complete the program. Extensions beyond one semester will be granted only in the event of highly extraordinary circumstances. Extensions will be recorded with a note of explanation placed in the student's file.

Students desiring confidentiality of their circumstances should consult with the Associate Chair for Graduate Studies.

19.2. Appeal of Previous Decisions

Appeals of ECE Graduate Committee decisions may be pursued regarding any academic issue, including exceptions to program requirements, progress requirements, AGS and Research Readiness Assessment decisions. Appeals will only be considered if the student provides new information that was not available to the ECE Graduate Committee at the time the original decision was made. Appeals must be submitted within one month of the date the student was notified of the ECE Graduate Committee action being appealed.

If the student believes their appeal was not appropriately handled or resolved by the ECE Department, the student may further appeal to the College of Engineering by contacting the Assistant Dean for Graduate Affairs. Such appeals must be submitted within one month of the date the student was notified of the ECE Graduate Committee denial.

20. PROGRAM TRANSFERS

Transfers between ECE Graduate Programs

ECE students may be eligible to apply to transfer between ECE graduate programs based on the criteria below. Program transfers are not guaranteed and should be considered carefully as they can impact tuition structure and degree timeline/milestones. Internal transfer from an in-person ECE program to the online Power MS program or

vice versa is not allowed. Students will need to apply directly to their program of interest. Students wishing to transfer should reach out to their ECE Graduate Coordinator.

New Program	Application Semester	Spring Deadline	Fall Deadline	Application Requirements
MS-MLSP	Case-dependent	None	None	Statement of reason for transfer, Committee approval, transcript
MS-Professional	Case-dependent	None	None	Statement of reason for transfer, Committee approval, transcript
MS-Research*	2nd Semester	October 1	March 1	Advisor approval, Committee Chair approval, transcript, research plan, course plan
PhD	After 1st semester	October 1	March 1	Advisor approval, Committee Chair approval, transcript, research plan, course plan, advisor funding and letter

* PhD Students can add MS-Research along the at any point but strongly encouraged prior to Preliminary Exam

21. SATISFACTORY PROGRESS – ACADEMIC EXPECTATIONS

Continuation in the Graduate School and ECE is at the discretion of a student's program and the Graduate School. Permission for an MS or PhD student in ECE to continue in the Graduate School and ECE is contingent upon progress toward a degree at a rate that is satisfactory to the Department of ECE and the Graduate School. These requirements apply to all graduate students pursuing research-based degrees, with or without appointments. Progress requirements for non-research-based MS degrees are described in the corresponding chapter of this handbook. Part-time study is only permitted with advance permission of the ECE Graduate Committee. Requests for part-time study must include a proposed timeline for meeting degree milestones and be signed by both student and advisor.

A student may be placed on probation or suspended from the ECE graduate program for low grades, for failing to resolve incompletes in a timely fashion, or for failing to meet satisfactory academic progress requirements as outlined below. All students without a research advisor are automatically placed on probation and are expected to find an advisor by the end of the subsequent semester to continue in the program.

21.1. Grades and GPA

The Graduate School requires that students maintain a graduate grade point average (GPA) of 3.00 (on a 4.00 scale) across all graduate courses to receive a degree, unless probationary admission conditions require higher grades. While a minimum graduate GPA of 3.0 is required to avoid probation, students in the PhD program are expected to maintain a significantly higher GPA to demonstrate satisfactory academic progress. For example, granting of Advanced Graduate Standing requires a minimum GPA of 3.3 in the primary ECE course requirement.

Courses taken for audit (S/NR), credit/no credit (CR/N), or pass/fail do not affect the GPA. Research courses graded on a Satisfactory/Unsatisfactory (S/U) basis do not impact GPA, but also do not count toward the Professional option requirements. Independent study credits graded on a Satisfactory/Unsatisfactory (S/U) basis do not impact GPA, but U grades are monitored by the Graduate School for satisfactory progress. A Permanent Incomplete (PI) grade does not impact the GPA. A No Report (NR), if not for audit, or Incomplete (I) grade does not impact the GPA, but these are temporary grades, indicating the instructor has not yet submitted a final grade. Incomplete (I) grades are monitored for satisfactory progress purposes and the Graduate School also considers Incomplete (I) grades to be unsatisfactory if they are not removed during the subsequent semester of enrollment; however, the instructor may impose an earlier deadline.

Grades and GPA are taken into consideration for satisfactory progress evaluation.

The following grade and GPA requirements must be satisfied for courses to count toward your degree requirements:

ECE Courses

- Grades of B or better are always acceptable.
- BC grades are acceptable if the cumulative GPA for ECE classroom courses is equal to or greater than 3.0.
- Grades of C or lower are not acceptable.

Non-ECE Courses

- Grades of B or better are always acceptable.
- BC and C grades are acceptable if approved by the ECE Graduate Committee by way of an appeal.
- Any grade lower than a C is not acceptable.

Independent Study Credits

- S grades are acceptable, while U grades are not.
- If it is letter-graded, only grades of B or better are acceptable.

Incomplete Grades

An Incomplete may be reported for a student who has carried a subject with a passing grade until near the end of the semester and then, because of illness or other unusual and substantiated cause beyond their control, has been unable to take or complete the final examination, or to complete some limited amount of term work. An Incomplete is not given to a student who stays away from a final examination unless the student proves to the instructor that they were prevented from attending as indicated above. The student must resolve the incomplete grade by the end of the following term in which they are enrolled. Please note that instructors may impose an earlier deadline. If the incomplete grade is not resolved by the respective deadline, the student is considered in "bad academic standing" by the Graduate School. Students may be placed on probation or suspended from the Graduate School for failing to complete the work and receive a final grade in a timely fashion. Outstanding incompletes must be resolved before a degree is granted. An unresolved I grade lapses to a grade of PI ("Permanent Incomplete") after five years. Please see the **Graduate School Policy on Incomplete Grades**.

21.2. Research Progress

Satisfactory progress in research is defined by the student's research advisor. If a student is not making satisfactory progress, the advisor will first discuss the situation with the student and then provide a written description of 1) specific expectations not being met by the student, 2) a description of actions the student must demonstrate to remedy the deficiency, 3) the date by which the student must demonstrate full remedy, and 4) consequences for not meeting the expectations prior to the deadline. The student is required to confirm receipt of

the written communication from the advisor within one week. Students will have a minimum of sixty days from the date of the advisor's written communication to meet the expectations outlined in the written notice. The advisor and student are expected to meet at least twice per month during the evaluation period so the advisor can provide input and student concerns can be addressed. If the advisor determines the student is not meeting expectations by the specified deadline, they may choose to not renew the student's research assistantship at the end of the current appointment and cease to serve as the student's research advisor.

21.3. Academic Progress

The following plan summarizes the minimum satisfactory academic progress for a graduate student entering with only a B.S. degree and pursuing either an MS Research or a PhD degree. These guidelines represent the minimum standard for progress.

1st Calendar Year of Study (12 consecutive months)

- Complete the ECE Seminar requirements ECE 610 (MS and PhD) and ECE 611 (PhD only).
- Take any ESL courses recommended per the ESLAT.
- Complete 16 credits of advisor-approved graduate coursework with acceptable grades.

2nd Calendar Year of Study

- Complete 16 graduate credits with acceptable grades.
- Complete the MS degree.
- Take the PhD Research Readiness Assessment.

3rd Calendar Year of Study

- Achieve Advanced Graduate Standing.
- Complete additional graduate credits with acceptable grades.
- Satisfy the PhD primary ECE course requirement.

4th Calendar Year of Study

- Complete additional graduate credits with acceptable grades.
- Satisfy the PhD minor requirement.
- Take Preliminary Examination within three semesters of receiving AGS.

5th Calendar Year of Study

- Enroll as a dissertator for exactly three graduate credits each term and continue PhD thesis research.
- Schedule the Final Oral Defense Examination before the end of the fifth year

Students that are not able to schedule their Final Oral Defense Examination before the end of the fifth year must file a progress report with the ECE Graduate Committee as described in Section 11.17 Final Oral Examination. Permission to continue in the Graduate School may be denied if the ECE Graduate Committee determines that it is unlikely that the student can finish the PhD degree in a reasonable period of additional study.

The ECE Graduate Committee may permit departures from this schedule upon recommendation from the student's faculty advisor. In special cases the Graduate School and ECE can permit students who do not meet these minimum standards to continue on probation upon recommendation and support of their faculty advisor.

PhD Students are expected to complete the GOAALS student assessment every spring semester.

22. SATISFACTORY PROGRESS – CONDUCT EXPECTATIONS

The ECE Department, the Graduate School, and the Division of Student Life all uphold the UW-System policies and procedures for academic and non-academic misconduct. Unprofessional behavior toward clients/subjects, faculty, staff, peers, and public are significant issues in the evaluation and promotion of students. In turn, we hold expectations for the highest level of academic integrity and expect professional, ethical, and respectful conduct in

all interactions. In addition, graduate students are held to the same standards of responsible conduct of research as faculty and staff.

Students may be disciplined or dismissed from the graduate program for misconduct or disregard for professional, academic, non-academic, or research conduct expectations regardless of their academic standing in the program. Separate and apart from a violation of conduct, a student may face University disciplinary action with regard to the same action. Students are responsible for reading the information here as well as the information published on all the relevant websites. Lack of knowledge of this information does not excuse any infraction.

22.1. Professional Conduct

All students are expected to adhere to the highest standards of professional behavior and ethics. Students should avoid even an appearance of improper behavior or lack of ethical standards while in Graduate School at UW-Madison, in all professional settings, and in their personal lives. Students should conduct themselves according to the standards expected of members of the profession to which the student aspires. Concerns about infractions of Professional Conduct may be effectively handled informally between the instructor/advisor and the student. If a resolution is not achieved, a graduate program representative may be included in the discussion. Furthermore, students may be disciplined or dismissed (Section 23 DISCIPLINARY ACTION AND DISMISSAL) from the graduate program if behavior is severe or does not improve.

- **Professional Ethics:** Students shall show respect for a diversity of opinions, perspectives and cultures; accurately represent their work and acknowledge the contributions of others; participate in and commit to related opportunities; aim to gain knowledge and contribute to the knowledge base of others; understand the UW Student Code of Conduct; represent their profession and the program; strive to incorporate and practice disciplinary ideals in their daily lives; and create resumes/CVs with accurate information.
- **Honesty and Integrity:** Students shall demonstrate honesty and integrity as shown by their challenging of themselves in academic pursuits; honesty and ethics in research and IRB applications—including honesty in interpretation of data, commitment to an unbiased interpretation of academic and professional endeavors; and the need to document research activities, protect subject/client confidentiality and HIPAA regulations. Students shall follow-through and pull their weight in group activities and understand where collaboration among students is or is not allowed; not plagiarize others or past work (self-plagiarism), cheat, or purposefully undermine the work of others; and avoid conflicts of interest for the duration of their time in the program. As a professional, honesty and integrity also extend to personal behavior in life outside of the academic setting by realizing that students are representatives of the program, UW-Madison, and the profession as a whole.
- **Interpersonal and Workplace Relationships:** Students shall interact with peers, faculty, staff and those they encounter in their professional capacity in a manner that is respectful, considerate, and professional. This includes, but is not limited to, attending all scheduled meetings, honoring agreed upon work schedules, being on-time and prepared for work/meetings, contributing collaboratively to the team, keeping the lines of communication open, offering prompt response to inquiries, and employing respectful use of available equipment/technology/resources. Chronic or unexplained absences are unprofessional in the workplace and could be grounds for termination or removal of funding. To facilitate the free and open exchange of ideas, any criticism shall be offered in a constructive manner, and the right of others to hold different opinions shall be respected.
- **Commitment to Learning:** Students are expected to meet their educational responsibilities at all times. Students should always come to class ready to actively participate and for questions and answers. It is the responsibility of the student to be on time for every class and always show courtesy during class or if leaving class early. If possible, students should notify the instructor at least one day in advance of a planned absence. Students who are unable to attend class are responsible for finding out what occurred that day and should not expect instructors to give them individual instruction. Recognizing that the

pursuit of knowledge is a continuous process, students shall show commitment to learning by persevering despite adversity and seeking guidance in order to adapt to change. Students shall strive for academic excellence and pursue and incorporate all critiques, both positive and negative, in the acquisition of knowledge in order to understand and respect the community in which they work.

- **Professional Appearance:** Students shall convey a positive, professional appearance in order to represent the program in a dignified manner. Appearance includes a person's dress, hygiene, and appropriate etiquette/protocols for the environment (including safety protocols and protective clothing in environments that require them).

22.2. Academic Misconduct

According to UW System policy (UWS 14.03(1)), Academic Misconduct is an act in which a student:

- seeks to claim credit for the work or efforts of another without authorization or citation;
- uses unauthorized materials or fabricated data in any academic exercise;
- forges or falsifies academic documents or records;
- intentionally impedes or damages the academic work of others;
- engages in conduct aimed at making false representation of a student's academic performance; or
- assists other students in any of these acts.

Examples of Academic Misconduct include, but are not limited to:

- cutting and pasting text from the Web without quotation marks or proper citation;
- cutting and pasting code from the Web without crediting the source or when such use is not allowed;
- paraphrasing from the Web without crediting the source;
- using notes or a programmable calculator in an exam when such use is not allowed;
- using another person's ideas, words, or research and presenting it as one's own by not properly crediting the originator;
- stealing examinations or course materials;
- posting course materials, such as exercises, assignments, or exams on the internet, or submitting course materials to a third-party service for posting on the internet;
- changing or creating data in a lab experiment;
- altering a transcript;
- signing another person's name to an attendance sheet;
- hiding a book knowing that another student needs it to prepare for an assignment;
- collaboration that is contrary to the stated rules of the course; or
- tampering with a lab experiment or computer program of another student.

Additional information regarding Academic Misconduct can be found at the various links:

- Graduate School Policy & Procedure: **Misconduct, Academic**.
- **Dean of Students Office: Information for Students** Review **Academic Integrity for Students** and Dean of Students Office: **Academic Misconduct Flowchart**.
- University of Wisconsin System: Chapter UWS 14: **Student Academic Disciplinary Procedures**

22.3. Non-Academic Misconduct

The university may discipline a student in non-academic matters in the following situations:

- for conduct which constitutes a serious danger to the personal safety of a member of the university community or guest;
- for stalking or harassment;
- for conduct that seriously damages or destroys university property or attempts to damage or destroy university property, or the property of a member of the university community or guest;

- for conduct that obstructs or seriously impairs university-run or university-authorized activities, or that interferes with or impedes the ability of a member of the university community, or guest, to participate in university-run or university-authorized activities;
- for unauthorized possession of university property or property of another member of the university community or guest;
- for acts which violate the provisions of UWS 18, Conduct on University Lands;
- for knowingly making a false statement to any university employee or agent on a university-related matter, or for refusing to identify oneself to such employee or agent;
- for violating a standard of conduct, or other requirement or restriction imposed in connection with disciplinary action.

Examples of non-academic misconduct include, but are not limited to:

- engaging in conduct that is a crime involving danger to property or persons, as defined in UWS 18.06(22)(d);
- attacking or otherwise physically abusing, threatening to physically injure, or physically intimidating a member of the university community or a guest;
- attacking or throwing rocks or other dangerous objects at law enforcement personnel, or inciting others to do so;
- selling or delivering a controlled substance, as defined in 161 Wis. Stats., or possessing a controlled substance with intent to sell or deliver;
- removing, tampering with, or otherwise rendering useless university equipment or property intended for use in preserving or protecting the safety of members of the university community, such as fire alarms, fire extinguisher, fire exit signs, first aid equipment, or emergency telephones; or obstructing fire escape routes;
- preventing or blocking physical entry to or exit from a university building, corridor, or room;
- engaging in shouted interruptions, whistling, or similar means of interfering with a classroom presentation or a university-sponsored speech or program;
- obstructing a university officer or employee engaged in the lawful performance of duties;
- obstructing or interfering with a student engaged in attending classes or participating in university-run or university-authorized activities;
- knowingly disrupting access to university computing resources or misusing university computing resources.

Additional information regarding Non-Academic Misconduct can be found at the various links:

- Graduate School Academic Policies & Procedures: **Misconduct, Non-Academic**
- Dean of Students Office: **Non-Academic Misconduct Standards Statement**
  University of Wisconsin System: Chapter UWS 17: **Student Non-Academic Disciplinary Procedures**
- University of Wisconsin System: Chapter UWS 18: **Conduct on University Lands**

22.4. Research Misconduct

Much of graduate education is carried out not in classrooms, but in laboratories and other research venues, often supported by federal or other external funding sources. Indeed, it is often difficult to distinguish between Academic Misconduct and cases of Research Misconduct. Graduate students are held to the same standards of responsible conduct of research as faculty and staff. The Graduate School is responsible for investigating allegations of Research Misconduct. This is often done in consultation with the Division of Student Life as well as with federal and state agencies to monitor, investigate, determine sanctions, and train about the responsible conduct of research. For more information, contact the Associate Vice Chancellor for Research Policy, 333 Bascom Hall, (608) 262-1044.

Additional information regarding Research Misconduct can be found at the various links:

- Graduate School Policies & Procedures: **Responsible Conduct of Research**
- Office of the Vice Chancellor for Research and Graduate Education's - Office of Research Policy: **Introduction & Guide to Resources on Research Ethics**
- Office of the Vice Chancellor for Research and Graduate Education's Office of Research Policy: Policies, Responsibilities, and Procedures: **Reporting Misconduct**
- Office of the Vice Chancellor for Research and Graduate Education's Office of Research Policy: Policies, Responsibilities, and Procedures: **Responsible Conduct of Research Resources**

23. DISCIPLINARY ACTION AND DISMISSAL

Failure to meet the program's academic or conduct expectations can result in disciplinary action including immediate dismissal from the program. If a student is not making satisfactory progress in regard to academic or conduct expectations, the advisor will consult with the Graduate Committee to determine if disciplinary action or dismissal is recommended.

The status of a student can be one of three options:

Good Standing: The student is considered to be making satisfactory progress toward their degree. No further action will be taken and students will not receive any notification.

Probation: The student is considered to not be progressing toward their degree according to satisfactory progress policies and expectations See Section 21 SATISFACTORY PROGRESS – ACADEMIC EXPECTATIONS and Section 22 SATISFACTORY PROGRESS – CONDUCT EXPECTATIONS for more information. The student may have also been admitted on probation. The student is permitted to enroll in the subsequent semester on probation. Probationary terms are agreed upon by the student's advisor and the ECE Graduate Committee. Probationary terms may include, but are not limited to, required grades, coursework, credit loads, improvements in research, predetermined meetings, confirming an advisor, and utilizing recommended resources. Probation is typically used in circumstances of inadequate grades or cumulative GPA, not completing coursework in a timely manner, and transitioning advisors. Students may not earn a degree while on probation.

Dismissal: The student has failed to satisfy probationary terms, follow established deadlines (i.e. Research Readiness Assessment or Preliminary Exam timelines), or has been found guilty of significant misconduct. Dismissal may follow a probation status or be immediate. The student is not allowed to enroll in subsequent terms in the ECE Department. Students dismissed from the PhD program may or may not be allowed to finish with a MS.

23.1. Probation

Students with marginal or questionable undergraduate records are sometimes admitted on probation. Students placed on probation will be placed on probation for one semester and will be reviewed by the Graduate Committee following the probationary semester. Students placed on probation may be dismissed or allowed to continue based upon review of progress during the probationary semester.

A student is placed on probation at the end of any semester or summer session in which his or her graduate cumulative grade point average falls below 3.0. Removal from probation takes place when the cumulative grade point average equals or exceeds 3.0. While on probation, a PhD student is not eligible to take the Preliminary Examination or the Final Oral Examination. Unusual situations can be handled by appeal to the Associate Chair for Graduate Studies. All students on probation must earn a grade point average at or above 3.0 every semester or summer session. The Graduate Committee will recommend that any student who is on probation and does not meet these standards during a semester or summer be dismissed from the ECE graduate program.

ECE 790 or 890 is not considered for the purpose of academic probation determination. ECE 699 or 999 (Advanced Independent Study) is considered for probation determination only if a grade of BC or lower is attained in that

course. Audit courses or pass/fail courses may not be used to satisfy the full load requirement of probationary students. Students cannot graduate while on probation.

PhD students must always have a research advisor. Students without research advisors will be placed on probation and must find a research advisor before the end of the next semester or summer session. The Graduate Committee will recommend that any student who does not find a research advisor before the end of the next semester or summer session be dismissed from the ECE graduate program.

Students that do not remove themselves from probation in the semester (or summer) following their placement on probation will not be eligible for continued funding from the department at the end of their current appointment.

23.2. Discipline and Dismissal

Any graduate student who fails to meet the program's expectations during two consecutive semesters (not including summer) will be dismissed from the program at the end of the subsequent semester. Any student who fails to meet the program's expectations because of failure to pass any required exams and procedures within designated time limits will be dismissed from the program at the end of the subsequent semester.

Students may be disciplined or dismissed from the graduate program for any type of misconduct (academic, non-academic, professional, or research) or failure to meet program expectations regardless of their academic standing in the program. Separate and apart from a violation of Professional Conduct, a student may face University disciplinary action with regard to the same action. Concerns about infractions of the Professional Conduct may be effectively handled informally between the student and the advisor/faculty member. However, if a resolution is not achieved, the issue may be advanced for further review by the program.

Discipline may include one or more of the following actions:

- Written reprimand
- Denial of specified privilege(s)
- Imposition of reasonable terms and conditions on continued student status
- Removal of funding
- Probation
- Restitution
- Removal of the student from the course(s) in progress
- Failure to promote
- Withdrawal of an offer of admission
- Placement on Leave of Absence for a determined amount of time
- Suspension from the program for up to one year with the stipulation that remedial activities may be prescribed as a condition of later readmission. Students who meet the readmission condition must apply for readmission and the student will be admitted only on a space available basis. See the Graduate School Academic Policies & Procedures: **Readmission to Graduate School**.
- Suspension from the program. The suspensions may range from one semester to four years.
    - Dismissal from the program
    - Denial of a degree

Depending on the type and nature of the misconduct, the Division of Student Life may also have grounds to do one or more of the following:

- Reprimand
- Probation
- Suspension
- Expulsion
- Restitution

- A zero or failing grade on an assignment on an assignment/exam
- A lower grade or failure in the course
- Removal from course
- Enrollment restrictions in a course/program
- Conditions/terms of continuing as a student

24. IMPORTANT POLICIES

24.1. Sexual Harassment and Assault

Sexual harassment is a community concern. When sexual harassment occurs, it degrades the quality of work and education at the University of Wisconsin-Madison. It erodes the dignity and productivity of the individuals involved and diminishes the quality, effectiveness, and stature of the institution. It can occur in any university setting (an office, a classroom, a university program). Each of us has a collective responsibility not to harass others and to act responsibly when confronted by the issue of sexual harassment, thereby promoting an environment that better supports excellence in teaching, research, and service.

What is Sexual Harassment?

Unwelcome sexual advances, requests for sexual favors, and verbal or physical conduct of a sexual nature constitute sexual harassment when: submission to such conduct is a condition of employment, academic progress, or participation in a university program; submission to or rejection of such conduct influences employment, academic, or university program decisions; the conduct interferes with an employee's work or a student's academic career; or when it creates an intimidating, hostile, or offensive work, learning, or program environment.

Key Points about Sexual Harassment:

- Differences in power or status can be a significant component in sexual harassment. A person who seems to acquiesce to sexual conduct may still experience tangible action harassment or hostile environment harassment if the conduct is unwelcome.
- Harassment can occur between men and women or between members of the same gender.
- Sexual harassment may or may not involve a tangible injury (e.g., economic loss, lowered grades). A sexually harassing environment, in and of itself, may constitute a harm.
- Individuals in positions of authority are responsible for ensuring that employees, students, and others do not harass. In an academic or program setting, offenders can be faculty, instructors, lecturers, teaching assistants, coaches, tutors, or fellow students or program participants.
- The person filing a sexual harassment charge does not have to be the person harassed but could be anyone significantly harmed by the harassing conduct.
- Some behavior that is not in violation of university policy may, nonetheless, be unprofessional under the circumstances. Consequences of such unprofessional behavior may include poor performance evaluations or possible discipline.

What to do if you feel you've been sexually harassed:

- Seek advice. Consult your department chair, another divisional resource person, the **Office of Equity and Diversity,** or another campus resource to discuss options for resolution.
- You may choose to seek informal resolution or file a **Sexual Harassment Complaint**.

For more information and other resources on discrimination against students: **Discrimination Complaints Policies & Procedures**.

24.2. Hostile and Intimidating Behavior

Hostile and intimidating behavior, sometimes known by the shorthand term “bullying,” is defined in university policy as “unwelcome behavior pervasive or severe enough that a reasonable person would find it hostile and/or intimidating and that does not further the University’s academic or operational interests.”

Hostile and intimidating behavior (HIB) can occur in the university setting. Even individual instances of such behavior can have a significant effect on the person it’s aimed at, and can take a physical and emotional toll, reducing the effectiveness of a person’s work or learning. It is a significant reason for unhealthy workplace climate and culture and should be addressed immediately. Hostile and intimidating behavior is prohibited by university policy.

What is Hostile and Intimidating Behavior?

Hostile and intimidating behavior is defined as unwelcome behavior pervasive or severe to the extent that it makes the conditions for work inhospitable and impairs another person’s ability to carry out their responsibilities to the university, and that does not further the University’s academic or operational interests. A person or a group can perpetrate this behavior. The person need not be more senior than or a supervisor to the target. Unacceptable behavior may include, but is not limited to:

- Abusive expression (including spoken, written, recorded, visual, digital, or nonverbal, etc.) directed at another person in the workplace, such as derogatory remarks or epithets that are outside the range of commonly accepted expressions of disagreement, disapproval, or critique in an academic culture and professional setting that respects free expression;
- Unwarranted physical contact or intimidating gestures; Conspicuous exclusion or isolation having the effect of harming another person’s reputation in the workplace and hindering another person’s work;
- Sabotage of another person’s work or impeding another person’s capacity for academic expression, be it oral, written, or other;
- Abuse of authority, such as using threats or retaliation in the exercise of authority, supervision, or guidance, or impeding another person from exercising shared governance rights, etc.

Repeated acts or a pattern of hostile and/or intimidating behaviors are of particular concern. A single act typically will not be sufficient to warrant discipline or dismissal, but an especially severe or egregious act may warrant either.

What to do if you feel you’ve been the target of hostile and intimidating behavior

Undesired consequences of hostile and intimidating behavior can be avoided or minimized when the problem is addressed early on, but victims are often hesitant to pursue a formal process before the impact is severe. Educational opportunities and campus resources have been implemented with the intent of aiding all employees and students in defusing situations before they become severe. These resources, including trained personnel who can advise and mediate, comprise the “informal process.” It is possible that situations will continue to arise in which informal interventions are not effective, and the “formal process” has been designed to address those situations.

You are encouraged to seek out advice and consultation after the first instance of hostile and intimidating behavior: consultation is not escalation. Discussing what’s happened in a timely way can often prevent continued bullying. Here are some ways to do this:

- Seek advice from a trusted colleague;
- You may choose to seek **informal resolution** by approaching the individual yourself or with an intermediary;
- Consult your advisor, human resources representative, department chair, director, dean, or any campus resource to discuss options for resolution;
- Keep notes of what happened, when, where, and who was present. Retain copies of any correspondence.

Graduate Students sometimes experience hostile and intimidating behavior from faculty members. If you are a student who is experiencing such behavior, you are entitled to support as a university employee through the Ombuds office, the Dean of Students office, and (if a grad student) the Graduate School. Graduate student workers should also consult with their Graduate Coordinators, TAA Stewards, and/or the Graduate School.

ECE graduate students with concerns may contact the Associate Chair for Graduate Studies, the ECE Grievance Advisor, or the **College of Engineering Assistant Dean for Graduate Affairs**. Additional campus information on hostile and intimidating behavior is available at **https://hr.wisc.edu/hib/**.

24.3. Parental Leave for Graduate Student Assistants

The University's Paid Parental Leave policy provides eligible employees with a maximum of up to 6 weeks of paid time off every 12 months when they experience a qualifying birth or adoptive event. Graduate Student Assistants with the title Teaching Assistant, Research Assistant, Project Assistant (including reader/grader), or Lecturer are considered eligible for Paid Parental Leave. Refer to the University policy here.

Students should ideally notify their department (through the Department Administrator or Department Chair) six months prior to the expected birth or adoption to request the leave. Students should alert their research advisor or TA coordinator at that time as well to ensure that the ongoing research and teaching environment is safe for the student who is pregnant. It is recognized that each case will be unique in terms of the timing of the pregnancy or adoption relative to the academic calendar, and that creative and supportive solutions will be required on the part of advisors, chairs, TA coordinators, etc.

Departments – both advisors and chairs – are expected to provide flexibility in working out the details of the leave and to adjust the timeline of the leave as needed to accommodate any unexpected medical issues that arise during pregnancy (e.g. doctor-ordered bed rest).

All academic requirement deadlines (e.g., Research Readiness Assessment) will be extended for the student requesting the leave, consistent with department academic timelines.

25. GRIEVANCE PROCEDURES AND REPORTING MISCONDUCT AND CRIME

25.1. Grievance Procedures

The ECE Department, College of Engineering, and University of Wisconsin offer multiple avenues to resolve unfair or inappropriate treatment by faculty, staff, or another student. This includes hostile and intimidating research group climate, authorship disputes, unreasonable expectations, and disrespectful behavior. The manner in which the grievance is handled depends on the nature of the issue and specific concerns of the aggrieved student. Graduate Assistants in TA, PA and/or RA appointments may utilize the **Graduate Assistantship Policies and Procedures** (GAPP) grievance process to resolve employment-related issues. Examples of matters appropriate for the GAPP grievance process include allegations of excessive work hours, violations of sick days or vacation policies, or disputes regarding the assignment of duties.

In some cases, the best approach is for the aggrieved student to discuss their concern directly with the person responsible for the objectionable action.

If the student is uncomfortable making direct contact with the other individual or desires a confidential consultation about their concern, they may contact the ECE Associate Chair for Graduate Studies, the ECE Grievance Advisor Professor Mikhail Kats, or the College of Engineering Assistant Dean for Graduate Affairs. These individuals work to resolve the concern while being sensitive to student confidentiality.

Students enrolled in the online Power Engineering MS and online Power Conversion & Control Capstone certificate programs should follow grievance procedures outlined in the Interdisciplinary Professional Programs (Interpro) Handbook.

25.2. Change of Advisor

Students who believe they are in a research environment that fails to meet ECE and College of Engineering standards for climate and culture should contact the ECE Associate Chair for Graduate Studies, the ECE Grievance Advisor, or the College of Engineering Assistant Dean for Graduate Affairs for additional consultation. They will work with the student to explore alternate advising arrangements and ensure continuity of financial support should the student need to leave the research group. Note that immigration status is NOT tied to a specific research advisor.

Before selecting or changing advisors including adding or removing a Co-Advisor, students are recommended to discuss the change with both their new and current faculty advisor. If the student is uncomfortable discussing a change with their current advisor, they should discuss the change with the Associate Chair for Graduate Studies or the College of Engineering Assistant Dean for Graduate affairs. After discussing the situation, students need to notify their ECE Graduate Coordinator by email about the change. The student's new advisor needs to email a confirmation of the change to their ECE Graduate Coordinator. Once their ECE Graduate Coordinator receives the necessary email confirmations, the change will be made official in the system.

25.3. Formal Written Complaint Process

Issues that are not resolved to the student's satisfaction may be pursued at the student's discretion by submitting a written complaint to the ECE Grievance Advisor. The steps described below are based on the Definition and Procedure section of the **Graduate Assistantship Policies and Procedures** (GAPP) Grievance Procedure.

Step One: The grievant must file a written statement with the ECE Grievance Advisor specifying the grievant's name, a clear and concise statement of the grievance and the issue(s) involved, the date(s) the incident or violation took place and the specific departmental, college, or university policies involved, and the relief sought. The grievance shall be signed and dated by the grievant(s) and representative (if any).

Within twenty (20) days of receipt of the written grievance, the ECE Grievance Advisor will meet with the grievant and their representative (if chosen) to hear the grievance and will return a written answer to the grievant and their representative (if chosen) no later than ten (10) days after this meeting. This answer will include a copy of the grievance procedure appeal process timeline, a list of resources and relevant contact information for future steps.

Step Two: If the decision in Step One is not accepted by the grievant, the grievant shall have 10 days from receipt of the answer in Step One to file an appeal with the College of Engineering Assistant Dean for Graduate Affairs. The Assistant Dean for Graduate Affairs will meet with the grievant and their representative (if chosen) within twenty (20) days from receipt of the appeal of Step One and attempt to resolve the grievance. The Assistant Dean for Graduate Affairs will provide the grievant and their representative (if chosen) with a written response to the grievance no later than ten (10) days after this meeting.

Step Three: If the decision in Step Two is not accepted by the grievant, the grievant shall have 10 days from the receipt of the answer in Step Two to file an appeal with the Graduate School as described in **Grievances and Appeals**.

25.4. Reporting Misconduct and Crime

The campus has established policies governing student conduct, academic dishonesty, discrimination, and harassment/abuse, as well as specific reporting requirements in certain cases. If you have a grievance regarding unfair treatment toward yourself, please reference the procedures and resources identified above. If you learn about, observe, or witness misconduct or other wrongdoing, you may be required to report that misconduct or abuse. Depending on the situation, it may be appropriate to consult with your advisor, Graduate Program Coordinator, or other campus resources.

25.4.1. Research Misconduct Reporting

The University of Wisconsin-Madison strives to foster the highest scholarly and ethical standards among its students, faculty, and staff. Graduate students and research associates are among the most vulnerable groups when reporting misconduct because their source of financial support and the progress in their careers may be at risk by raising questions of wrongdoing. They are also often the closest witnesses to wrongdoing when it occurs and therefore must be appropriately protected from the consequences of reporting wrongdoing and be informed of their **rights**.

25.4.2. Academic Misconduct Reporting

If you know a classmate is cheating on an exam or other academic exercise, notify your professor, teaching assistant, or proctor of the exam. As a part of the university community, you are expected to uphold the standards of the university. Also, consider how your classmate's dishonesty may affect the overall grading curve and integrity of the program.

25.4.3. Sexual Assault Reporting

UW-Madison prohibits sexual harassment, sexual assault, dating violence, domestic violence, and stalking. These offenses violate UW-Madison policies and are subject to disciplinary action. Sanctions can range from reprimand to expulsion from UW-Madison. In many cases, these offenses also violate Wisconsin criminal law and could lead to arrest and criminal prosecution.

Students who experience sexual harassment, sexual assault, domestic violence, dating violence, and/or stalking have many **options** and services available to them on and off campus, including mental health counseling, victim advocacy, and access to the criminal and campus disciplinary systems.

Faculty, staff, teaching assistants, and others who work directly with students at UW-Madison are required by law to report first-hand knowledge or disclosures of sexual assault to university officials for statistical purposes. In addition, disclosures made to certain university employees, such as academic advisors or university administrators, may be forwarded to the campus **Title IX Coordinator** for a response.

25.4.4. Child Abuse Reporting

As a UW-Madison employee (under Wisconsin Executive Order #54), you are required to immediately report child abuse or neglect to Child Protective Services (CPS) or law enforcement if, in the course of employment, the employee observes an incident or threat of child abuse or neglect, or learns of an incident or threat of child abuse or neglect, and the employee has reasonable cause to believe that child abuse or neglect has occurred or will occur. Volunteers working for UW-Madison sponsored programs or activities are also expected to **report suspect abuse or neglect**.

25.4.5. Reporting and Response to Incidents of Bias/Hate

The University of Wisconsin-Madison values a diverse community where all members are able to participate fully in the Wisconsin Experience. Incidents of Bias/Hate affecting a person or group create a hostile climate and negatively impact the quality of the Wisconsin Experience for community members. UW-Madison takes such incidents seriously and will investigate and respond to reported or observed incidents of **bias/hate.**