Ph.D. Degree Program in
Electrical & Computer Engineering at
Michigan Tech
The ECE Graduate Program

- The student is responsible for following all the rules and getting everything done in time.
- The final word on the degree requirements and procedures is that published in the graduate student bulletin and other university publications.
- The graduate student homepage is: www.gradschool.mtu.edu
- The source for forms for graduation is: www.gradschool.mtu.edu/policies/trackingforms.html
Ph.D. Degree Requirements

Coursework

- A minimum of 60 credits of approved coursework and research.
- Grades of B or better in all ECE courses.
- A minimum of 6 credits from the EE5000-6000 series. (Expect much more!)
- A minimum 3 credits coursework from outside the ECE department.
- Approval of the advisor.
Ph.D. Degree Requirements

Other Requirements

- Passing the Ph.D. qualifying examination and other examinations as explained later.
- Passing grades in the research thrust area seminars every semester in residence.
- Official final transcripts showing proof of your previous degrees (if not from MTU).
- Filled out Patent, Research and Proprietary Rights form.
Ph.D. Comprehensive Examination
http://www.ece.mtu.edu/pages/graduate/PhD_Exam_Guidelines/index.htm

I. Codification of procedures, rules, etc.

1. The PhD Comprehensive exam is composed of a Written exam, typically administered in the 4th week of the semester, followed by an Oral exam.
2. A student may attempt the Comprehensive exam twice.
3. All students must attempt the Comprehensive exam by their 3rd semester.
4. Upon passing the Written exam, the Oral exam can be scheduled and must be taken in the same semester of passing the Written.
5. A failed Oral exam does not require retaking of the Written portion.
6. A failed Written exam must be retaken and passed upon the next offering of the exam.
7. A failed Oral exam must be retaken and passed by the end of the following semester.
II. Issues of content

1. There will be Written and Oral parts of the Comprehensive exam. The purpose of the Written exam is to test fundamental engineering problem solving skills and conceptual understanding at the undergraduate senior level. The Oral exam is to test skills in independent research, written expression, and oral presentation.

2. The Written will consist of a 3 hour closed-book, closed notes fundamentals exam. The student must answer 6 of the 8 questions with scope defined by the course specifications for the list of required courses, in either EE or CpE. For EE, the required courses are EE2110, 2150, 2171, 3120, 3130, 3140, 3160, 3170; for CpE, EE2110, 2150, 2171, 3130, 3160, 3173, 3175, 3970. All course specifications are given at: http://www.ece.mtu.edu/faculty/rmkieckh/abet/COURSE-SPECS/. The fundamentals exams, EE and CpE, will be assembled by the Chair of the Grad committee.

3. The Oral will consist of

   1. follow-up of the student’s performance on the Written exam
   2. the student presenting to his/her committee a paper written in IEEE format as a response to a set of selected questions provided by the faculty in the candidate’s field of interest. The selected questions will be given to the student upon returning the results of the Written exam. A minimum of 2 weeks will be allowed for preparation for the Oral. The committee will serve as “referees” to the student’s work and the student will be expected to orally defend their paper.
Other Ph.D. Examinations

- **Dissertation Proposal** - Oral Presentation and an Oral Exam on the Proposed Research
- **Dissertation Defense** – Oral Presentation and an Oral Exam on the Dissertation
Research Thrust Areas

- **Computer Engineering**
  - Embedded Computing, Real-Time Systems
  - High Assurance systems, Safety-Critical Systems, Fault-Tolerance
  - Memory Systems Architectures and Performance
  - Memory Controller Interconnects and Policy Decisions

- **Energy Systems**
  - Energy Conversion
  - Systems
  - Transients
Research Thrust Areas (cont.)

- Information Systems
  - Signal and Image Processing
  - Communication Systems

- Solid State Electronics
  - Electromagnetics
  - Electronic Materials and Devices
Procedures for Ph.D. Students

First and Second Semesters
- Choose an advisor (Graduate Program Director will help, if required).
- Complete a study plan.
- Register for the next semester courses.
- Submit final official transcripts showing proof of your previous degrees (if not from MTU or unless done previously).
- Fill out the Patent, Research and Proprietary Rights form.
Procedures for Ph.D. Students (cont.)

- If you are a Michigan Tech master’s student applying to a doctoral program, and substitution of the D1 for a regular application is okay with your program, file an Acceptance into the Doctorate Program form (D1)
- choose an advisor and file a Recommended Advisor form (D2)
- file a Preliminary Program of Study form with your program - this form is not required by the Graduate School (D3)
- successfully complete the comprehensive exams report on the Comprehensive Examination form (D4, D4-EngPhysics)
- choose an advisory committee and chair and file a Recommend Advisory Committee form (D4A)
- file a Degree Schedule form (D5)
- develop and defend a dissertation plan and file an Approval of Dissertation Proposal form (D6)
- file a Scheduling of Final Oral Examination form (D7) and defend an approved dissertation in an oral exam
- file a Report on the Final Examination form (D8)
- submit the corrected, approved dissertation and associated forms
- finish the degree within the prescribed time limit
- Forms are available on-line at [http://www.gradschool.mtu.edu/policies/trackingforms.html](http://www.gradschool.mtu.edu/policies/trackingforms.html)

— Graduate!