# MSEE Program

## MSEE Degree Requirements (All Courses must be 500- or 600-Level)

The student must maintain at least a B average in the following plan of study:

- **Specialization Courses (3 Courses)** (see Areas on Next Page):
  - 3 courses in a single area of specialization (see list of areas above);
  - Only in very special circumstances can EECE 597 Independent Study be used

- **Breadth Courses (2 or 3 Courses)**:
  - Thesis Option: 2 ECE Courses in *two* areas other than specialization
  - Project Option: 3 ECE Courses in at least two areas other than specialization

- **Math Methods Course**:
  - EECE 506 or ECE 507

- **Electives (2 Courses)**:
  - Any regular ECE Graduate Course not used above
  - EECE 597 Independent Study (can be used for both electives)
    - Must be done on a regular grade basis (rather than S/U or P/F).
  - Certain Out-of-Department Graduate Courses (details in Handbook):

- **Thesis or Project**:
  - EECE 599 Thesis (6 credits)
  - EECE 598 Project (3 credits)

### Grading:
Don’t give “I” grade if student has not completed thesis/project. Submit “S” unless student has really done no work (then use “U”). Successful completion is “controlled” by Approval Form

## Thesis
- 6 credits of *thesis* research culminating in the writing of and oral defense of a thesis.
- Research to answer some open question in their chosen area of specialization.
- Supervised by a full-time ECE faculty member in conjunction with a committee
- **Committee**: at least 3 members, including at least 2 full-time ECE faculty
- Thesis Defense should be scheduled early to allow revisions before deadlines
- Thesis formatting and deadlines:
- Three Forms for completion (Student gets from ECE Grad Forms Web Page)
  - Proposed Course of Study Form (Advisor Signs)
  - Thesis Approval Form (All Committee Members Sign)
  - Recommendation for Award of Masters Degree (Advisor Signs then Grad Director Signs)

## Project
- 3 credits of *project* culminating in the writing of a project report.
- Demonstration of ability to apply knowledge drawn from literature.
- Supervised by a full-time ECE faculty member (*No Committee*)
- Report (no required format) submitted to faculty advisor in time to meet deadlines
- Deadlines:
- Three Forms for completion (Student gets from ECE Grad Forms Web Page)
  - Proposed Course of Study Form (Advisor Signs)
  - Project Approval Form (Advisor Signs)
  - Recommendation for Award of Masters Degree (Advisor Signs then Grad Director Signs)
**MSEE Specialization Areas**

<table>
<thead>
<tr>
<th>DSP &amp; Communication</th>
<th>Computer Engineering</th>
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<tbody>
<tr>
<td>EECE 52x &amp; 62x</td>
<td>EECE 55x &amp; 65x</td>
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<tr>
<td>EECE 54x &amp; 64x</td>
<td>EECE 570, 573</td>
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<tr>
<th>Control Systems</th>
<th>Information Assurance</th>
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<tr>
<td>EECE 51x &amp; 61x</td>
<td>EECE 56x &amp; 66x</td>
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<tr>
<td>EECE 503, 504</td>
<td>EECE 657, 658</td>
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<td>EECE 527</td>
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<tr>
<th>Physical Electronics &amp; Electro-Optics</th>
<th>Power &amp; Energy</th>
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<tr>
<td>EECE 501, 504, 505, 508</td>
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<tr>
<td>EECE 53x, EECE 549</td>
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<td>EECE 578</td>
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<th>VLSI</th>
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<tr>
<td>EECE 501</td>
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<tr>
<td>EECE 570, 573, 574, 575, 577</td>
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**MSEE Full-Time Status**

- **# of credits needed for full-time**
  - 12 credits if student has NOT completed 24 credits
  - 9 credits once student HAS completed 24 credits

- **International Students *MUST* Maintain Full-Time Status!!**
  - “I” grades can jeopardize this!!

- **Full-Time at Completion of Program** (Two Options)
  - Full-Time Certification (Domestic & International)
    - See details on FTC forms online
  - “Reduced Course Load Due to Completion of Study” (International Only)
    - From available from ISSS
    - **Warning!!** If student does not really graduate, will then be out of visa status and risks losing all F-1 benefits.

**MSEE CPT (Curricular Practical Training)**

- Many International Students Wish to Do This
- *Advisor* is Responsible for Recommending this – Not the Grad Director
  - From ISSS: “Academic Advisors Recommendation Form for Curricular Practical Training”
  - [http://www.binghamton.edu/issss/employment/CPTAdvForm.pdf](http://www.binghamton.edu/issss/employment/CPTAdvForm.pdf)
- Contact ISSS with any questions/issues

grades of “I”, “F”, and “U” do not count towards this 24 credits
PhD Program

PhD Degree Course Requirements (If MS Degree not Earned)
If the student is going directly from BS to PhD without earning an MS along the way
• **Must complete a minimum of 14 courses (42 credits) beyond the BS degree:**
  − This is a *minimum*… The advisor may require more.
  − Only four courses (12 credits) may be Independent Studies
  − All Independent Studies must be done on a regular grade basis (rather than S/U or P/F).

PhD Degree Course Requirements (If Earned MS Degree)
If the student already has earned an MS degree (either at BU or elsewhere)
• **Must complete a minimum of 8 courses (24 credits) beyond the Masters degree:**
  − This is a *minimum*… The advisor may require more.
  − All of the courses may be Independent Studies if that is acceptable with the advisor
  − All Independent Studies must be done on a regular grade basis (rather than S/U or P/F).

Steps to the PhD Degree (See Time Line on Next Page)
• PhD Qualifying Exam (Can take only twice)
  − Offered every September and February
• Learning Contract - Provides expectations of background expected to build for research
  − Submit to Grad Secretary for filing
  − Link to Format Example
• Form Committee
  − Minimum of 3 members w/ at least 2 (including Principal Advisor) from ECE
  − Each member must be Asst., Assoc., or Full Professor; exceptions via grad school
  − Link to Principal Advisor & Guidance Committee Form
• Evidence of Proficiency in Teaching
  − Variety of flexible ways to achieve this
• Completion of Course Work – See above
• Comprehensive Exam
  − After course work completed, before significant research complete
  − Exam given by committee: typically written part & oral part
  − Link to Comp Exam Approval Form
• Admission to Candidacy (i.e., “ABD”)
  − After Course Work & Comprehensive Exam are complete…
  − Link to Recommendation for Admission to Candidacy Form
• Prospectus Submission & Colloquium Presentation
  − Link to form for Prospectus & Colloquium Approval
• Appoint “Outside Examiner” - Advisor asks Grad Director to Submit Appointment Form
  − Tenured Assoc or Full Prof in some other department
  − Acts as representative of graduate school…. Does NOT guide research
• Defend Dissertation
  − Schedule early enough to allow revisions before submission by deadline
  − Link to Recommendation of Award of Doctoral Degree Form
• Submit Final Accepted Dissertation to Graduate School – By Deadline & in Proper Format:
  − [http://www2.binghamton.edu/grad-school/new-and-current-students/academics/index.html](http://www2.binghamton.edu/grad-school/new-and-current-students/academics/index.html)
PhD Full-Time Status

- **If the student already has earned an MS degree (either at BU or elsewhere):**
  - Must enroll in 9 credits to be full time
- **If the student is going directly from BS to PhD without earning an MS along the way:**
  - 12 credits if student has NOT completed 24 credits
  - 9 credits once student HAS completed 24 credits
- **International Students *MUST* Maintain Full-Time Status!!**
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