Graduate Program Curriculum Outline  
Cooperative Education Option in Electrical & Computer Engineering  
Master of Science in Electrical Engineering

**Major Required (Core) Courses** (Total # of courses required = 3)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Semesters Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fall, Spring,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Summer, Other*</td>
</tr>
<tr>
<td>Choose any three of the following:</td>
<td></td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>EECE.5070</td>
<td>Electromagnetic Waves and Materials</td>
<td></td>
<td>O'</td>
</tr>
<tr>
<td>EECE.5080</td>
<td>Quantum Electronics for Engineers</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>EECE.5090</td>
<td>Linear Systems Analysis</td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>EECE.5130</td>
<td>Control Systems</td>
<td></td>
<td>F, Sum</td>
</tr>
<tr>
<td>EECE.5150</td>
<td>Power Electronics</td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>EECE.5200</td>
<td>Computer-Aided Engineering Analysis</td>
<td></td>
<td>S</td>
</tr>
<tr>
<td>EECE.5430</td>
<td>Introduction to Communications Theory</td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>EECE.5840</td>
<td>Probability and Random Processes</td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>EECE.5950</td>
<td>Solid State Electronics</td>
<td></td>
<td>S</td>
</tr>
</tbody>
</table>

SubTotal # Core Credits Required 9

**Elective Course Choices** (Total # of courses required = 7)*

Choose seven from one concentration  See Attached List  21

SubTotal # Elective Credits Required 21

**Professional Co-op Option Courses** (Total # of courses required = 3)

<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Credit Hours</th>
<th>Semesters Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGN.6020</td>
<td>Graduate Professional Development for Engineers</td>
<td>1</td>
<td>F, S</td>
</tr>
<tr>
<td>ENGN.6030</td>
<td>Graduate Cooperative Experience</td>
<td>1</td>
<td>F, S</td>
</tr>
<tr>
<td>ENGN.6040</td>
<td>Workforce Development</td>
<td>1</td>
<td>F, S</td>
</tr>
</tbody>
</table>

SubTotal # Co-op Credits Required 3

**Curriculum Summary**

| Total number of courses required for the degree | 13 |
| Total credit hours required for degree         | 33 |

**Prerequisite, Concentration or Other Requirements:**

*Electives for the Master’s in Electrical Engineering: All courses are 3 credits unless otherwise indicated. Course availability is subject to change.

Notes:

(1) Last offered Fall 2016
### Concentration Courses in Electrical Engineering

#### Information Systems (Telecommunications) Concentration
- EECE.5100 Digital Signal Processing
- EECE.5110 Medical Imaging Diagnosis
- EECE.5460 Computer Telecommunications
- EECE.5480 Coding and Information Theory
- EECE.5820 Wireless Communications
- EECE.5860 Stochastic Modeling in Telecommunications
- EECE.6170 Modeling and Simulation Techniques for Communication Networks
- EECE.6180 Performance of Wireless Communications Networks
- EECE.6610 Local Area /Computer Networking
- EECE.6850 Statistical Theory of Communications
- EECE.6870 Stochastic Estimation
- EECE.6880 Theoretical Acoustics

#### Information Systems (Communications Engineering) Concentration
- EECE.5330 Microwave Engineering
- EECE.5460 Computer Telecommunications
- EECE.5480 Coding and Information Theory
- EECE.5710 Radar Systems
- EECE.5820 Wireless Communications
- EECE.5860 Stochastic Modeling in Telecommunications
- EECE.6170 Modeling and Simulation Techniques for Communication Networks
- EECE.6180 Performance of Wireless Communications Networks
- EECE.6610 Local Area/Computer Networking
- EECE.6840 Time Series Analysis
- EECE.6850 Statistical Theory of Communications
- EECE.6870 Stochastic Estimation
- EECE.6880 Theoretical Acoustics

#### Power and Energy Engineering Concentration
- EECE.5140 Power Systems Transmission
- EECE.5150 Power Electronics
- EECE.5160 Advanced Machine Theory
- EECE.5250 Power Systems Distribution
- EECE.5280 Alternative Energy Sources
- EECE.5290 Electric Vehicle Technology
- EECE.6150 Solid State Drives Systems
- EECE.6160 Computational Power Analysis

#### Opto-Electronics Concentration (students in this concentration must also take EECE.5680 Electro-Optics and Integrated Optics)
- EECE.5080 Quantum Electronics for Engineers
- EECE.5180 Electromagnetic Materials for Optical Engineering
- EECE.5190 Engineering of Submicron Machines
- EECE.5230/4230 Introduction to Solid State Electronics
- EECE.5320 Computational Electromagnetics
- EECE.5830 Wave Propagation in Plasmas
- EECE.5900 Fiber Optic Communications
- EECE.5950 Solid State Electronics
- EECE.6070 Electromagnetics of Complex Media
- EECE.6080 Scattering and Diffraction of EM Waves
- EECE.6100 Optics for Information Processing
- PHYS.6310 Non-Linear Optics

**EECE.5680 Electro-Optics and Integrated Optics**

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The table above lists the courses offered in different concentrations within the Electrical Engineering program. Each course code and title are listed alongside notes indicating whether the course is summable (Sum), not summable (S), or not listed (Not listed).
Plan of Study – Fall Start + 6-month Co-op
Cooperative Education Option in Electrical & Computer Engineering
Master of Science in Electrical Engineering

<table>
<thead>
<tr>
<th>Fall Start with 6-month Co-op</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
<th>Spring</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9 credits</td>
<td>12 credits + 1-credit Grad. Devel. for Engin. Course</td>
<td>1-credit Co-op Experience</td>
<td>9 credits + 1-credit Workforce Devel. Course</td>
<td></td>
</tr>
<tr>
<td>Required</td>
<td>choose 1 required</td>
<td>ENGN.6020</td>
<td>ENGN.6030</td>
<td>ENGN.6040</td>
<td>choose 1 required if 1 required selected in spring or choose 0 required if 2 required were selected in spring</td>
</tr>
<tr>
<td>Electives</td>
<td>choose 2 electives</td>
<td>choose 3 electives if 1 required selected above or choose 2 electives if 2 required selected above</td>
<td></td>
<td></td>
<td>choose 2 electives if 3 electives selected in spring or choose 3 electives if 1 elective selected in spring</td>
</tr>
</tbody>
</table>

Plan of Study – Spring Start + 6-month Co-op
Cooperative Education Option in Electrical & Computer Engineering
Master of Science in Electrical Engineering

<table>
<thead>
<tr>
<th>Spring Start with 6-month Co-op</th>
<th>Spring</th>
<th>Fall</th>
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</tr>
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<td></td>
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