### MASTER OF ELECTRICAL AND COMPUTER ENGINEERING WITH SPECIALIZATION IN ENERGY/ENVIRONMENT/ECONOMICS (E3)

#### Curriculum

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Credits Required</td>
<td>32</td>
</tr>
<tr>
<td>Maximum 400-Level Credit</td>
<td>12</td>
</tr>
<tr>
<td>Minimum 500-Level Credit</td>
<td>18</td>
</tr>
<tr>
<td>Maximum 700-Level Credit</td>
<td>6</td>
</tr>
<tr>
<td>Minimum ECE Credit</td>
<td>24</td>
</tr>
<tr>
<td>Maximum Transfer Credit</td>
<td>9</td>
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</tbody>
</table>

**E3 Courses** (12)

- **CHE 543**  
  Energy, Environment, and Economics  
  Credit Hours: 3

Select a minimum of two courses from Group A

- **ECE 411**  
  Power Electronics  
  Credit Hours: 4

- **ECE 412**  
  Electric Motor Drives  
  Credit Hours: 4

- **ECE 417**  
  Power Distribution Engineering  
  Credit Hours: 3

- **ECE 419**  
  Power Systems Analysis with Laboratory  
  Credit Hours: 4

- **ECE 420**  
  Analytical Methods in Power Systems  
  Credit Hours: 3

Select a minimum of one course from Group B

- **ECE 438**  
  Control Systems  
  Credit Hours: 3

**Power & Control Courses** (6-8)

Select a minimum of two courses from the following:

- **ECE 411**  
  Power Electronics  
  Credit Hours: 4

- **ECE 412**  
  Electric Motor Drives  
  Credit Hours: 4

- **ECE 417**  
  Power Distribution Engineering  
  Credit Hours: 3

- **ECE 419**  
  Power Systems Analysis with Laboratory  
  Credit Hours: 4

- **ECE 420**  
  Analytical Methods in Power Systems  
  Credit Hours: 3

- **ECE 505**  
  Applied Optimization for Engineers  
  Credit Hours: 3

- **ECE 506**  
  Analysis of Nonlinear Systems  
  Credit Hours: 3

- **ECE 531**  
  Linear System Theory  
  Credit Hours: 3

- **ECE 535**  
  Discrete Time Systems  
  Credit Hours: 3

- **ECE 538**  
  Renewable Energies  
  Credit Hours: 3

- **ECE 539**  
  Computer Aided Design of Electric Machines  
  Credit Hours: 3

- **ECE 540**  
  Reliability Theory and System Implementation  
  Credit Hours: 3

- **ECE 548**  
  Energy Harvesting  
  Credit Hours: 3

- **ECE 549**  
  Motion Control Systems Dynamics  
  Credit Hours: 3

- **ECE 550**  
  Power Electronic Dynamics and Control  
  Credit Hours: 3

- **ECE 551**  
  Advanced Power Electronics  
  Credit Hours: 3

- **ECE 552**  
  Adjustable Speed Drives  
  Credit Hours: 3

- **ECE 553**  
  Power System Planning  
  Credit Hours: 3

- **ECE 554**  
  Power System Relaying  
  Credit Hours: 3

- **ECE 555**  
  Power Market Operations  
  Credit Hours: 3

- **ECE 556**  
  Power Market Economics and Security  
  Credit Hours: 3

- **ECE 557**  
  Fault-Tolerant Power Systems  
  Credit Hours: 3

- **ECE 558**  
  Power System Reliability  
  Credit Hours: 3

- **ECE 559**  
  High Voltage Power Transmission  
  Credit Hours: 3

- **ECE 560**  
  Power Systems Dynamics and Stability  
  Credit Hours: 3

- **ECE 561**  
  Deregulated Power Systems  
  Credit Hours: 3

- **ECE 562**  
  Power System Transaction Management  
  Credit Hours: 3

- **ECE 563**  
  Computational Intelligence in Engineering  
  Credit Hours: 3

- **ECE 564**  
  Control and Operation of Electric Power Systems  
  Credit Hours: 3
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ECE 580</td>
<td>Elements of Sustainable Energy</td>
<td>3</td>
</tr>
<tr>
<td>ECE 581</td>
<td>Elements of Smart Grid</td>
<td>3</td>
</tr>
<tr>
<td>ECE 582</td>
<td>Microgrid Design and Operation</td>
<td>3</td>
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</tbody>
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**Master's Project**

Select three to six credit hours \(^1\)  
(3-6)

**General Electives**

Select 6-11 credit hours of electives from ECE 400-599, ECE 601-699, and ECE 700-799  
(6-11)

\(^1\) ECE 594 or ECE 597