Electric Power Systems Engineering (MS): Internship Concentration

Degree Requirements

This concentration will require an Internship of at least four months duration (maximum of seven months) and the student to take 3 credit hours of ECE 650 and obtain a Satisfactory grade. An internship of at least four calendar months duration would require that it span at least one semester and possibly part of summer. The credits for ECE 650 would be taken during the semester that includes the internship. The student would be considered as being enrolled full time during that semester.

A student would not enroll in this concentration in their first semester. They would switch to it in a later semester if they secure a suitable internship. Per normal CPT rules, International students studying on an F-1 visa would have to be present on a US campus for two full semesters (a full academic year), and present at NC State for one semester, before using CPT privileges to take an internship. If a student switches to this concentration but does not start the internship, they will switch back to the original plan.

This will be a concentration only for on-campus students. Students enrolled in our distance education – Engineering Online (EOL) - option will not be eligible.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
<th>Counts towards</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECE 550</td>
<td>Power System Operation and Control</td>
<td>18</td>
<td>Core Courses</td>
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<tr>
<td>ECE 551</td>
<td>Smart Electric Power Distribution Systems</td>
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<td>ECE 552</td>
<td>Renewable Electric Energy Systems</td>
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<tr>
<td>ECE 583</td>
<td>Electric Power Engineering Practicum I</td>
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<tr>
<td>ECE 584</td>
<td>Electric Power Engineering Practicum II</td>
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<tr>
<td>ECE 534</td>
<td>Power Electronics</td>
<td>or ECE 587, Power System Transients Analysis</td>
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</table>

Concentration Requirement 3

Elective Courses 9

Select a minimum of four of the following:

- ECE 516 System Control Engineering
- ECE 534 Power Electronics
- ECE 535 Design of Electromechanical Systems
- ECE 554 Electric Motor Drives
- ECE 581 Electric Power System Protection
- ECE 585 The Business of the Electric Utility Industry
- ECE 586 Communication and SCADA Systems for Smart Grids
- ECE 587 Power System Transients Analysis
- ECE 589 Solid State Solar and Thermal Energy Harvesting
- ECE 592 Special Topics in Electrical Engineering
- ECE 726 Advanced Feedback Control
- ECE 732 Dynamics and Control of Electric Machines
- ECE 736 Power System Stability and Control
- ECE 753 Computational Methods for Power Systems
- CE 578 Energy and Climate

Total Hours 30

* ECE 650 requires that a written report be submitted and accepted by an ECE faculty examiner as meeting the standards required by the course. The written report should cover both technical and non-technical aspects of what the student did and learned during the internship. The report should not disclose company proprietary information.

Faculty

Full Professors

Mesut E. Baran

Subhashish Bhattacharya
Aranya Chakrabortty
Robert Wendell Heath
Iqbal Husain
Ning Lu
Srdjan M. Lukic
Daryoosh Vashaee
John Victor Veliadis
Wenyu Wang
Jonathan Wierer

Associate Professors
Zeljko Pantic
Nuria Gonzalez Prelcic
Nitin Sharma

Assistant Professors
Amay Jairaj Bandodkar
Spyridon Pavlidis
Wenyuan Tang

Practice/Research/Teaching Professors
Douglas C. Hopkins
David Lee Lubkeman
Leonard Wilson White
Wensong Yu