Course Syllabus

ELCT 838 – Optimal Control and Estimation

<table>
<thead>
<tr>
<th>Course Coordinator:</th>
<th>Dr. Xiaofeng Wang</th>
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<tr>
<td>Catalog Description:</td>
<td>Optimal filtering, prediction, and smoothing in the presence of uncertainty.</td>
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<td>Credit Hours</td>
<td>3</td>
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<td>Prerequisite(s) by course</td>
<td>ELCT 331</td>
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<tr>
<td>Prerequisite by topics</td>
<td>Calculus, linear algebra, state space methods</td>
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Course Outcomes:
Students who successfully complete the course will be able to:

- Discuss selected areas of power electronics in greater depth
- Learn recent developments in power electronics
- Describe in detail applications of power electronics

Course Topics:
- Static Optimization
- Discrete-time LQR and Riccati equations
- Calculus of variations
- Continuous-time LQR and Ricatti equations
- Dynamic programming
- Hamilton-Jacobi-Bellman equations
- Pontryagin’s principle
- Model predictive control

General Course Policies

Academic Integrity
Unless otherwise stated, assignments and examination work are expected to be the sole effort of the student submitting the work. Students are expected to follow the University of South Carolina Honor Code and they should expect that every instance of a suspected violation will be reported. Students found responsible for violations of the Code will be subject to academic penalties under the Code in addition to whatever disciplinary sanctions are applied.

Accommodating Disabilities
Reasonable accommodations are available for students with a documented disability. If you have a disability and may need accommodations to fully participate in this class, contact the Office of Student Disability Services: 777-6142, TDD 777-6744, email sasds@mailbox.sc.edu, or stop by LeConte College Room 112A. All accommodations must be approved through the Office of Student Disability Services.

**Diversity**
When scheduling exams, I have attempted to avoid conflicts with major religious holidays. If, however, I have inadvertently scheduled an exam or major deadline that creates a conflict with your religious observances, please let me know as soon as possible so that we can make other arrangements.

**Deviations**
Minor deviations from the syllabus are a normal part of any adaptive teaching and learning process.