Course Syllabus

ELCT 564 – RF Circuit Design for Wireless Communications

<table>
<thead>
<tr>
<th>Course Coordinator:</th>
<th>Dr. Mohammod Ali</th>
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<tbody>
<tr>
<td>Catalog Description:</td>
<td>RF design fundamentals, lumped elements, transmission line theory, transmission lines and waveguides, S-parameters, impedance matching, microwave resonators.</td>
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<td>Credit Hours</td>
<td>3</td>
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<td>Prerequisite(s) by course</td>
<td>ELCT 361</td>
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<td>Prerequisite by topics</td>
<td>Electromagnetics</td>
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<td>Other Materials</td>
<td>Class notes posted on Blackboard</td>
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Course Outcomes:
Students who successfully complete the course will be able to:

- Compute reflection coefficients of transmission lines, assess the losses in a line, and apply the Smith chart to find various parameters of a line
- Design or analyze printed transmission lines with specific characteristic impedances
- Design impedance matching networks for RF/microwave circuits using analytical and graphical techniques (the Smith chart)
- Calculate scattering parameters of an RF circuit

Additional work will be required to receive graduate credit. Students enrolled for graduate credit will be given examinations with more challenging problems. In addition, graduate credit students may be assigned projects.

Course Topics:
- Transmission Line Theory
- Transmission Lines and Waveguides
- Microwave Network Analysis
- Impedance Matching and Tuning
- Resonators
- Power Dividers and Directional Couplers

Course Contribution to Program Outcomes:
ELCT 564 contributes to an achievement of:
- Outcome A – an ability to apply knowledge of mathematics, science and engineering
- Outcome C – an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
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.

Recommended Study Habits
- Read the assigned material before class.
- Bring thoughtful questions to class for discussion.
- Prepare for the exams in study groups.
- Take notes during class discussions and while completing reading assignments.

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