Electrical Engineering 3411: Discrete Linear Systems Laboratory
Prior Number - Electrical Engineering 216

Credit and Contact Hours
1 credit hour laboratory (One 90-minute sessions per week). This laboratory is taken simultaneously with Electrical Engineering 3410 (215).

Instructor
Graduate Teaching Assistants coordinated by a faculty member
K.Kosbar, Ph.D. (faculty coordinator)

Text(s)
Discrete Linear Systems Laboratory Manual
Available at: http://ece.mst.edu/currentcourses/classnotesinfo/

Course Information
Course Description
Software tools for signal and system representation and for time and frequency-domain system analysis.

Prerequisites
Electrical Engineering 2120 (153) with a grade of “C” of better; Passing the Electrical Engineering Advancement Exam II. Preceded or accompanied by Electrical Engineering 3410 (215).

Required or elective
Required (pre-2014 Catalog Years) for electrical and computer engineering majors

Course Goals
General Outcomes
1. Learn to use the MATLAB computer software package
2. Understand how to use MATLAB to analyze continuous-time signals
3. Obtain experience using MATLAB to model continuous-time systems
4. Learn a limited number of principles of communication system design and analysis
5. Understand how to use MATLAB for Laplace Transform and control system analysis
Relationship of Course to Program Outcomes

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<th>ECE Outcome</th>
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<td>MATLAB, and similar software analysis tools are widely used.</td>
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S – strong connection; M – medium connection; W – weak connection

Topics Covered

1. MATLAB Structure and Use (1 week)
2. Continuous-Time Signal Measurements (1 week)
3. Continuous-Time System Models and Characteristics (1 week)
4. Superposition Integral Evaluation (Convolution Evaluation) (1 week)
5. Spectra of Periodic Signals (1 week)
6. Spectra of Aperiodic Energy Signals (1 week)
7. Frequency Response (1 week)
8. Ideal Filters (1 week)
9. Communications Signals and Systems (1 week)
10. The Laplace Transform and Control System Characteristics (2 weeks)
11. Practical exam (1 week)
12. Written examinations (2 weeks)
13. Make-up Labs (1 week)