EE2021/221 Computer Tools for Electrical Engineers

Fall 2018

Lectures: Wednesday 13:30 – 15:20 MB346
Labs: Monday 09:30-11:20 MB346, Thursday 12:30-14:20 MB343

Course Web: http://www.onurcihan.com
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Office Hours: MC460, Tuesday 15:30-16:20 and Wednesday 15:30-16:20

Course Outline: Introduction to a technical programming language and graphical user interface (GUI) design. Presenting simulation and design tools for circuits.

Text Books:
Engineering Computation with MATLAB by D.M. Smith, 2nd Edition (2009), Addison-Wesley
Essentials of MATLAB Programming by S.J. Chapman, 2nd Edition (2009), CENGAGE Learning

Projects: Projects are due one week from the assigned date, and will be collected at the end of the class.

Honor Code: Project concepts and approaches may be discussed with other students, but the work will be done by the individual. Group or copied projects are not permitted.

Grading:

Project 1	15%
Project 2	15%
Midterm Exam	30%
Final Exam	40%

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Tentative Schedule

Week	Subjects
1	MATLAB: Introduction to MATLAB
2	MATLAB: MATLAB Basics
3	MATLAB: MATLAB Basics
4	MATLAB: Branching Statements and Program Design
5	MATLAB: Loops
6	MATLAB: User-Defined Functions
7	MATLAB: Additional Data Types and Plot Types
8	MATLAB: Cell Arrays, Structures and Handle Graphics
9	MATLAB: Graphical User Interfaces
10	MATLAB: Introduction to Simulink
11	Electronics Workbench and MultiSIM: Introduction, Transient and AC analysis, Combinational Logic – A 2 to 4 decoder with enable
12	Electronics Workbench and MultiSIM: Sequential logic, D and JK Flip Flops, Displays, Probes, Buzzers and Busses
13	LabVIEW: Environmental Basics, Visual Instruments, Front Panel, Block Diagram, Palettes, Controllers and Indicators. Dataflow Programming Basics, Common Tools, Debugging Tools, Executions Structures, Loops, Case Structures and Other Structures
14	LabVIEW: Arrays, Clusters, Passing Data Between Loop Iterations