

School of Engineering and Computer Science
MECH 251: Numerical Computing for Engineers

Catalog Data:		251 Numerical Computing for Engineers 2 Course Prerequisite: MATH 172 or 182; MATH 220 or concurrent enrollment. Introduction to numerical computing in the context of problem solving including data analysis, data visualization, MATLAB programming and numerical techniques. Typically offered Fall.	
Class Schedule:		Two 50-minute lectures per week, for one semester	
Laboratory Schedule:		None	
Prerequisites by Course:		MATH 172 or 182; MATH 220 or c//	
Prerequisites by Topic:		<ol style="list-style-type: none"> 1. Linear algebra 2. Calculus II 	
Textbook:		Holly Moore, <i>MATLAB for Engineers</i> , 4 th Edition, Prentice Hall	
Course Coordinator:		Dr. Linda Chen	
Course Objectives:		Ensure that students: <ol style="list-style-type: none"> 1. Can competently use the MATLAB programming environment. 2. Understand basic programming concepts and structures. 3. Be able to carry out numerical computations and analyses. 4. Apply problem solving skills to the solution of engineering problems. 	
Topics Covered:		<ol style="list-style-type: none"> 1. Introduction to MATLAB 2. Arrays and matrices 3. Programming 4. Data visualization 5. Numerical techniques for engineering problems 	
Lab Experiments and Activities:		This course will not hold regular laboratory activities, but some lectures will be delivered in the computer labs.	
Course Outcomes:	Assessed for Student Outcomes	Students will be able to:	
		<ol style="list-style-type: none"> 1-d. Apply numerical methods to obtain engineering solutions. 6-b. Develop basic computer codes to solve problems using MATLAB. 6-c. Perform data analysis and visualization with MATLAB. 	
	Other		
Required or Elective Course:		Required	
Relationship of Course to Program:		Meets: Educational Objectives <u>1</u> Student Outcomes <u>1,6</u>	
Prepared by:		Linda Chen	Date: March 7, 2018 (04/09/18 mb)
Approved by USC:		4/9/2018	

