

School of Management, Engineering and Technology  
Department of Electrical Engineering and Renewable Energy  
ENGR 266: Computer Programming for Engineers

Catalogue Description (2009/2010):	Programming and problem solving using current computer software. General programming techniques using conditional statements, looping, subroutines, and data input/output will be stressed. Consideration of features specific to the software being used will also be presented.		
Hours/Credits: (Lecture-Lab-Total)	(2-3-3)		
Class Schedule:	2 hours lecture per week or online with video lectures		
Lab Schedule:	3 hours lab per week or online with video lectures and 1.5 hours face-to-face labs session		
Prerequisites:	EE 223 with grade "C" or better, MATH 321		
Required Text:	LabVIEW Programming by Bishop		
Reference Text:	MATLAB and LaView Course Notes & Labs by Mateo Aboy		
Course Coordinator:	Mateo Aboy, Ph.D.		
Regular Instructors:	Mateo Aboy (OIT-PDX)		
Course Objectives - Lecture:	<p>Upon completion of the lecture, a student should be able to:</p> <ul style="list-style-type: none"> <li>• Understand the fundamentals of engineering programming including how to use functions (modular programming), scripts, data types, and programming control structures.</li> <li>• Understand the fundamentals of MATLAB and LabVIEW programming.</li> <li>• Understand the general characteristics and features of modern programming languages.</li> <li>• Appreciate the importance of engineering programming and CAD as tools to solve engineering problems including advanced computation, numerical methods, data acquisition, data analysis, and data visualization.</li> </ul>		
Course Objectives - Lab:	<p>Upon completion of the lab, students should be able to:</p> <ul style="list-style-type: none"> <li>• Use MATLAB as a tool and programming environment to solve complex engineering problems.</li> <li>• Use MATLAB programming to solve computationally and data intensive problems.</li> <li>• Use MATLAB for data analysis and visualization.</li> <li>• Design and implement LabVIEW programs to solve engineering problems.</li> <li>• Design and implement programs in LabVIEW to perform data acquisition, data analysis, and data processing.</li> <li>• Design and implement programs in LabVIEW to perform hardware control.</li> </ul>		
Topics Covered:	<ul style="list-style-type: none"> <li>• This course covers programming fundamentals for engineers and scientists using MATLAB/Octave and LabVIEW. This includes programming control structures, data types, data structures, input/output, engineering data analysis, engineering data processing, signal acquisition, signal generation, hardware control, and automatic report generation.</li> </ul>		
Relevant Program Outcomes:	<p>(a) an ability to apply knowledge of mathematics, science, and engineering  (b) an ability to design and conduct experiments, as well as to analyze and interpret data  (e) an ability to identify, formulate, and solve engineering problems  (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice</p>		
Required or Elective:	Required		
Category:	Engineering Topics		
Prepared By:	Dr. Mateo Aboy	Updated:	2010-05-05