



## DEPARTMENT OF SCIENCE

### COURSE OUTLINE – FALL 2015

#### EG1050 – ENGINEERING DESIGN – 3.8(3-0-1.5) UT

**INSTRUCTOR:** Tanvir Sadiq, Ph.D., P.Eng.      **PHONE:** 780.539.2865  
**OFFICE:** J 209      **E-MAIL:** TSadiq at gprc dot ab dot ca

**OFFICE HOURS:** TBD or By Appointment

**DELIVERY MODE(S):** Lectures, Seminars, Labs

**PREREQUISITE(S)/COREQUISITE:** None

**REQUIRED TEXT/RESOURCE MATERIALS:** (i) *MATLAB: An Introduction with Applications* by Amos Gilat, 5<sup>th</sup> Edition, Publisher: Wiley. Available in paperback, e-book and kindle format.

(ii) MATLAB<sup>®</sup> Student Version. Available from [http://www.mathworks.com/academia/student\\_version/](http://www.mathworks.com/academia/student_version/) (optional).

**CALENDAR DESCRIPTION:** Engineering science and design problem solving using MATLAB.

**LEARNING OUTCOMES:** Upon successful completion, a student is expected to be able to write and document computer codes in MATLAB to solve engineering and scientific problems.

**COURSE OBJECTIVES:** This course is designed to teach engineering students basic programming concepts, terminologies and MATLAB. Students are expected to design and develop several well-structured programs based on proposed algorithms to solve assigned problems.

## COURSE SCHEDULE/TENTATIVE TIMELINE:

This schedule is subject to change without notice at the discretion of the instructor.

Week	Subject	Assignment
1	Course outline -Introduction to course goals. Introduction - History of computers Using MATLAB, MATLAB Environment, Simple programs	No lab
2, 3	MATLAB Fundamentals –variables, workspace, operators, repetition, conditional programming, input/output	Assignment
4	Program Architecture, Design, Development. Built-in Functions	Assignment
5, 6	Logicals. Matrices & Arrays, Matrix Operations, Linear Equations. M-Files, Debugging M-files	Assignment
6	MIDTERM EXAM	
7	Loops. Errors	Assignment
8	Graphics 2D, Graphics 3D	Assignment
9	Arrays & Structures, Cell Arrays, Sorting, Classes and Objects.	Assignment
10	Applications – Dynamical Systems	Assignment
11	Simulation	
12	Numerical Methods: Equations, Integration, Differentiation, ODE, PDE	
13	Syntheses of all we have learned. Review and preparation for the Cumulative Final Exam	No Lab

## EVALUATIONS:

Assignments/Quizzes*	5%	
Labs – Lab assignments, Lab exams/project**	25%	(Attendance Required)
Midterm	30%	(Thursday October 22, 2015, Afternoon/Evening)
Final Exam	40%	(Time & Location TBA by Registrar’s office)

Your final course grades will be announced by the Student Services. Grades/Marks will NOT be disclosed by email or telephone.

\*There will be a quiz based on assignment material on the assignment due date. Some quizzes may not be announced in advance. Missed quizzes cannot be made up. Minor (up to 10%) adjustments may be made to the weights of assignments and quizzes at the discretion of instructor.

\*\*There is 10% penalty for each day an assignment or project is late. Late work will not be accepted after the submissions have been graded and returned to the class.

MIDTERM EXAMINATION MISSED FOR ANY REASON WILL NOT BE RESCHEDULED. Students not writing the midterm exam, with a valid excuse (as defined by College policy) will have the midterm weight added to

the final exam. This is not automatic, and if you miss the midterm, you should follow all College guidelines and contact your instructor as soon as possible.

Students are expected to attend all classes. If you miss a class, make arrangements to copy the notes from your class fellows. If you are using older edition of the textbook, you are responsible for matching page numbers, topics, figures, and problems with the editions being used in the class. You are encouraged to ask questions, but do not monopolize the class time.

**GRADING CRITERIA:**

<b>GRADING CONVERSION CHART</b>			
<b>This is a general guideline only</b>			
<b>Alpha Grade</b>	<b>4-point Equivalent</b>	<b>Percentage Guidelines (General)</b>	<b>Designation</b>
A+	4.0	90 – 100	EXCELLENT
A	4.0	85 – 89	
A-	3.7	80 – 84	FIRST CLASS STANDING
B+	3.3	77 – 79	
B	3.0	73 – 76	GOOD
B-	2.7	70 – 72	
C+	2.3	67 – 69	SATISFACTORY
C	2.0	63 – 66	
C-	1.7	60 – 62	
D+	1.3	55 – 59	MINIMAL PASS
D	1.0	50 – 54	
F	0.0	0 – 49	FAIL
WF	0.0	0	FAIL, withdrawal after the deadline

**STUDENT RESPONSIBILITIES:**

Refer to the College Policy on Student Rights and Responsibilities at [www.gprc.ab.ca/d/STUDENTRIGHTSRESPONSIBILITIES](http://www.gprc.ab.ca/d/STUDENTRIGHTSRESPONSIBILITIES)

**STATEMENT ON PLAGIARISM AND CHEATING:**

Refer to the College Student Misconduct: Academic and Non-Academic Policy at [www.gprc.ab.ca/d/STUDENTMISCONDUCT](http://www.gprc.ab.ca/d/STUDENTMISCONDUCT)

\*\*Note: all Academic and Administrative policies are available at [www.gprc.ab.ca/about/administration/policies/](http://www.gprc.ab.ca/about/administration/policies/)

***UNIVERSITY TRANSFER (If applicable):*** UA, UL, AU, Augustana UA, CUC, GMU, KUC

**\*\* Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**

Please refer to the Alberta Transfer guide for current transfer agreements:

[www.transferralberta.ca](http://www.transferralberta.ca)