



Module (Course Syllabus) Catalogue 2023-2024


College/ Institute	Erbil Technical Engineering College	
Department	Mechanical and Energy Engineering	
Module Name	Computer Application - MATLAB	
Module Code	CAM603	
Degree	Technical Diploma <input type="checkbox"/>	Bachelor <input checked="" type="checkbox"/> High Diploma <input type="checkbox"/> Master <input type="checkbox"/> PhD <input type="checkbox"/>
Semester	Sixth Semester	
Qualification		
Scientific Title	Lecturer	
ECTS (Credits)	5	
Module type	Prerequisite <input type="checkbox"/>	Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>
Weekly hours	3	
Weekly hours (Theory)	(0) hr Class	(0) Total hrs Workload
Weekly hours (Practical)	(3) hr Class	(3) Total hrs Workload
Number of Weeks	16	
Lecturer (Theory)		
E-Mail & Mobile NO.		
Lecturer (Practical)	Dr. Hindren A. Saber	
E-Mail & Mobile NO.	hindren.saber@epu.edu.iq & 07507430728	
Websites	https://moodle.epu.edu.iq/course/view.php?id=737	

Course Book

<p>Course Description</p>	<p>This course provides students with the best amount of knowledge about computer Software (MATLAB). The students will be learned how to use computer language and doing their math especially variables like vectors and matrixes.</p> <p>Prerequisites: computer application (MATLAB)</p>				
<p>Course objectives</p>	<p>At the end of this course, the student will be provided with a fair amount of knowledge that regards to MATLAB program. They will be learned how to encode mathematical equations and make programs and simulations using MATLAB.</p>				
<p>Student's obligation</p>	<p>Throughout the academic year, students will be assessed with the following duties:</p> <ol style="list-style-type: none"> 1. Home works 2. Class works 3. Assay 4. Group debates 5. Quizzes <p>In addition, the attendance and participation in the lectures are mandatory.</p>				
<p>Required Learning Materials</p>	<p>Computer software (MATLAB) to be installed on student's laptop.</p>				
<p>Evaluation</p>	Task	Weight (Marks)	Due Week	Relevant Learning Outcome	
	Paper Review				
	Assignments	Homework	10%	3,6	
		Class Activity	2%		
		Report	8%	5	
		Seminar			
		Essay	8%	10	
	Quiz		8%	4,9	
	Lab.				
	Midterm Exam		24%		
	Final Exam		40%		
	Total		100%		

Specific learning outcome:	Students who successfully complete the course should demonstrate the provided knowledge gradually according to the lectures by tests and assignments.	
Course References:	<ol style="list-style-type: none"> 1. Basics of MATLAB and Beyond, Andrew Knight 2. www.mathworks.com 3. Lecture notes. 	
Course topics (Practical)	Week	Learning Outcome
MATLAB Definitions	1	
Vector Generation	2	
Functions Used with Vectors	3	
Algebraic Processes on Vectors	4	
Applications on Vectors	5	
Matrixes	6	
Function Used with Matrixes	7	
Algebraic Processes on Matrix	8	
Application on Matrix	9	
Two-Dimensional Plots	10	
Loop Control	11-12	
Addition, Multiplication, and Division of Polynomials	13-14	
Simulink	15-16	

Questions Example Design

Ministry of Higher Education & Scientific Research	 ڕێکۆڵی پۆلیتێکنیک هه‌ولێر ERBIL POLYTECHNIC UNIVERSITY	Class: Third
Erbil Polytechnic University		Subject: Com. App. (MATLAB)
Erbil Technical Eng. College		Time: 3 hrs
Mechanical and Energy Eng. Dept.	2017 - 2018	Date: 11/6/2017
Note:	Final Exam	Code:
		1 st Attempt
Q1/		(36 Marks)
A// Generate the bellow matrix in MATLAB program then execute the following requirements: $X = \begin{bmatrix} 0 & 5 & 44 & -6 & 0 \\ 1 & -3 & 65 & 7 & 2 \\ 10 & 33 & 87 & 93 & 11 \\ -4 & 23 & -40 & 12 & -5 \\ 0 & 21 & 4 & 90 & 0 \end{bmatrix}$		
1. Create matrix $M = 21 \ 4 \ 90$ from matrix X. 2. Display the reverse diagonal of matrix X. 3. Transpose matrix X and assign the result in matrix U. 4. Multiply each element of matrix U by matrix X and assign the result in matrix A.		
B// Draw the following functions each individually using the <i>figure</i> command: $E = \cos(f) \quad 4 < f < 20$ $G = \sin(h) \quad 0 < h < 6\pi$ $I = \sinh(i) \quad \pi < i < 9\pi$		
1) Draw the 1 st function with blue color, dot dash line, and pentagram symbol. 2) Draw the 2 nd function with black color, solid line, and circle symbol. 3) Draw the 3 rd function with red color, dotted line, and star symbol. 4) Set the line width to 2 and marker size to 5 for all the drawings. 5) Put the title (Individual Plotting) with bold font. 6) Put the x and y labels with script (ranges of the functions). 7) Put the legend at the bottom right corner in the plotting area. 8) Put the status of the grid to on.		
Q2/		(32 Marks)
A// Write a MATLAB Program to find the variables v, w, x, y, and z for the following linear equations: (Use all three methods)		
$-7 = v \quad \text{-----} \quad (1)$ $x + 30 = 3v \quad \text{-----} \quad (2)$ $z - 12 = w \quad \text{-----} \quad (3)$ $y = 4z \quad \text{-----} \quad (4)$ $4 = v - 2w \quad \text{-----} \quad (5)$		
B// Plot the flowchart for if-elseif-else-end structure		
Q3/		(32 Marks)
A// Answer the following questions:		
1. Count the existing windows of MATLAB program. 2. Count the Display formats in MATLAB program. 3. Count the elementary math functions. 4. Count the ready matrixes in MATLAB program and show their cods.		
B// Write down the cods for the following commands:		
1. Linspace 2. Fplot 3. Axis scaling		
Good Luck		Examiner Dr. Hindren Ali Saber

External Evaluator

I hereby confirm that the syllabus is sufficient for the subject.

