Jordan University of Science and Technology
Faculty of Engineering
Chemical Engineering Department

CHE254 Computer Applications Lab For Chemical Engineering Ii Laboratory For Chemical Engineers 1 - JNQF Level: 7
Second Semester 2023-2024

Course Catalog
1 Credit Hours. Programming of chemical engineering problems using MATLAB, Introduction to process simulation
Teaching Method: On Campus

Text Book	
Title	MATLAB: An Introduction with Applications
Author(s)	AMO GILAT
Edition	5th Edition
Short Name	Text Book
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Reference	Microsoft Excel documentation.	Faculty of Engineering at J.U.S.T	1st Edition	

Instructor	
Name	**Mr. SALAHEDDIN ABUYAHYA**
Office Location	CH2 L-2
Office Hours	
Email	seabuyahya@just.edu.jo

Class Schedule & Room

Section 2:
 Lecture Time: Sun : 14:30 - 17:30
 Room: القاعة الذكية

	Tentative List of Topics Covered	
Weeks	**Topic**	**References**
Week 1	Excel basics: Introduction to spreadsheets, Basic text and cell formatting, Basic arithmetic calculation, Special paste, Sort and filter and Charts	From **Reference**
Week 2	Advanced Excel capabilities; Conditional formatting; Functions (Mathematical, IF, AND, OR, searching: match, search, vlookup) and Goal Seek	From **Reference**
Week 3	Introduction to MATLAB environment, Simple calculations using MATLAB	From **Text Book**
Week 4	First Exam	
Week 5	Matrix computations, solving system of linear algebraic equation and advanced graphs (2 D plotting)	From **Text Book**
Week 6	Solving systems of non nonlinear algebraic equations in MATLAB(fsolve command)	From **Text Book**
Week 7	Solving system of ODE in MATLAB (ode 45 and ode 23)	From **Text Book**
Week 8	Second Exam	
Week 9	Linearization and data regression using MATLAB	From **Text Book**
Week 10	Introduction to SIMULINK	From **Text Book**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	**Course Outcome Weight (Out of 100%)**	**Assessment method**
Use Microsoft Office Excel to Process and analyze data. [10SO1] [1L7K1]	10%	
Use Excel's built-in features and functions to analyze engineering data . [10SO1] [1L7S1]	10%	
Use the main features of MATLAB. [5SO1] [1L7S1]	5%	
Define vectors and matrices in MATLAB, [10SO1] [1L7S1]	10%	
Write Scripts and functions in MATLAB [10SO1] [1L7S3]	10%	

Solve systems of linear and non-linear algebraic equations. [15SO1] [1L7S1]	15%	
Solve systems of linear differential equations using ODE45 algorithm [15SO1] [1L7S1]	15%	
Perform Data Analysis using MATLAB. [15SO6] [1L7S3]	15%	
Use process simulator to solve simple chemical engineering problems. [10SO6] [1L7S2]	10%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
75					25	

Relationship to NQF Outcomes (Out of 100%)			
L7K1	L7S1	L7S2	L7S3
10	55	10	25

Evaluation	
Assessment Tool	Weight
First Exam	25%
Second Exam	25%
Final Exam	40%
Quizzes	10%

Policy	
Quizzes Policy:	One quiz will be conducted during the first 15 minutes of each Lab. The quiz will include the material covered in the previous Lab.
Attendance Policy:	Attendance will be checked at the beginning of each class. University regulations will be strictly followed for students exceeding the maximum number of absences.

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