جامعة آل البيت
دائرة ضمان الجودة والتخطيط

بسم الله الرحمن الرحيم

جامعة آل البيت

College of Science
Department of Mathematics
Course syllabus: Computer Applications in Mathematics
First semester 2019/2020

1. Instructor Information:

Instructor Name	Ayat Al-Meanazel
Office Hours	Sunday ,Tuesday, Thursday 11:00 – 10:00 Monday, Wednesday 10:00 – 9:00
Office Number and Telephone Extension	57 Bukary
Email	ayat_taisir@yahoo.com

2. Course Description:

This course is designed for the students to solve the problems occurred in Mathematics with the help of Mathematical software packages. In particular, we are interesting in solving problems from Calculus, Linear Algebra, Ordinary Differential Equations, Numerical Analysis and Statistics.

3. Course Information:

Course number: 401473	Course Title: Computer Applications in Mathematics	Level : Fourth year
Course Nature: Theoretical & practical	Prerequisite: Fourth year level	Lecture time: Sun. Tue. Thu. 12:00 – 1:00
Academic year: 2019 – 2020	Semester: First	Credit Hours: 3

4. Course Objectives:

This course sheds light on MATLAB which is a powerful computing system for handling the calculations involved in scientific and engineering problems. MATLAB is a powerful and comprehensive tool for performing all kinds of computations, graphics, and scientific data visualization. MATLAB has proven to be a very flexible and usable tool for solving problems in applied mathematics.

5. Intended Student Learning Outcomes:

Successful completion of the course should lead to the following outcomes:
- Apply MATLAB to solve several problems in applied mathematics.
- Make use of the knowledge of mathematical techniques in Calculus, Algebra, numerical analysis and differential equations to solve- using MATLAB - various problems in Mathematics.
- Students should be able to write short programs in MATLAB to solve some Mathematical problems.
- Students should be able to plot several functions to verify the information related to the student's courses in the Calculus.

6. Course Content:

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7. Teaching and learning Strategies and Evaluation Methods:

Learning Outcomes	Teaching Strategies	learning Strategies	Evaluation Methods
- Understanding the MATLAB environment. - Being able to do simple calculations using MATLAB - Being able to carry out simple numerical computations and analyses using MATLAB.	- Writing on the blackboard - Ask students questions and discuss them - Solve various issues	Give homework assignments	- Classroom presentations - Discussion - First exam
- Design simple algorithms to solve problems - Write simple programs in MATLAB to solve scientific and mathematical problems.	- Writing on the blackboard - Ask students questions and discuss them - Solve various issues	Give homework assignments	- Classroom presentations - Discussion - Second exam
- Deal with Variables, arrays, conditional statements, loops, functions, and plots.	- Writing on the blackboard - Ask students questions and discuss them - Solve various issues	Give homework assignments	
- Understanding the MATLAB environment. - Being able to do simple calculations using MATLAB - Being able to carry out simple numerical computations and analyses using MATLAB.	- Writing on the blackboard - Ask students questions and discuss them - Solve various issues	Give homework assignments	- Classroom presentations - Discussion - Final exam

8. Assessment:

Assessment	Grade Proportion	Week/Dates
Class Work (Quizzes, Homework and Attendance of the lecture)	**6 %**	
First exam	**22 %**	**Tuesday 29/10/2019**
Second exam	**22 %**	**Tuesday 10/12/2019**
Final exam	**50 %**	**Tuesday 24/12/2019**
Total	**100 %**	

9. Text Book:

The main reference	The MATLAB 5 Handbook
Author(s)	Eva Part-Ender, Andres Sjobrg
Publisher	Prentice Hall
Year	1999
The edition	1st edition
The reference website	https://www.amazon.co.uk/MATLAB-5-Handbook-Eva-Part-Enander/dp/0201398451

10. References and additional resources:

1)	Amos Gilat, MATLAB, An Introduction with Applications, (2010) , 4th edition.
2)	Brian R. Hunt Ronald L. Lipsman Jonathan M. Rosenberg with Kevin R. Coombes, John E. Osborn, and Garrett J. Stuck, A Guide to MATLAB for Beginners and Experienced Users , Cambridge University Press (2001).