Ministry of Higher Education and Scientific Research

Republic of Iraq

University: University of Basrah

College: Science

Department: Physics

Year: 2022-2023 **Semester: 2nd**

SYLLABUS: < MATLAB Applications >

INSTRUCTOR: Dr. Marwah Jawad Kadhim	***Phone:*** *07707670660*
Hours: 3	***Office:*** **Department of Physics**
Home Page:https://faculty.uobasrah.edu.iq/faculty/3903	***Email:*** Marwah.jawad@uobasrah.edu.iq

COURSE OVERVIEW

The main goal of study Course overview of studying the MATLAB Applications course is to get acquainted with the basics of programming in MATLAB
- Dealing with arrays with all programming commands, writing code, conditional statements, Loop statements, and graphs
- Preparing the student to deal with physical and mathematical applications through the MATLAB program

GOALS AND OBJECTIVES

The main goal of study Course overview of studying the MATLAB Applications course is to get acquainted with the basics of programming in MATLAB

- Dealing with arrays with all programming commands, writing code, conditional statements, Loop statements, and graphs

- Preparing the student to deal with physical and mathematical applications through the MATLAB program.

TEXTBOOK AND READINGS

[1] المنهج المعتمد من قبل عمادة كلية العلوم والموحد لجميع اقسام الكلية

[2] **''MATLAB An Introduction with Applications''** Fourth Edition, By Amos Gilat, PUBLISHER Dan Sayre, 2011.

COURSE ASSESSMENTS

The course grade (**100** points) will be based on the following elements:

	Points
Exams	**20 marks (monthly exam) and 60 marks (final exam)**
Laboratory Application	**13 marks**
Participation	**4 marks**
Attendance	**3 marks**
Assignments Total	**100 Marks**

COURSE DESCRIPTION AND ASSIGNMENT SCHEDULE

These (2 hours theoretical and 3 hours of Lab. Application) credit hour course is 15 weeks long.

WK	DATE	TOPIC	READING	ASSIGNMENT
1	March	**Chapter One: Introduction of MATLAB** General introduction of MATLAB, Brief History, MATLAB Operation, Main Windows, M-File,	[1] & [2]	
2	March	**Chapter Two: Variables and Constants** Numerical constants, string constants, Boleen Constants, Numerical Variables, string variables,	[1] & [2]	
3	March	Arithmetic statement, string statements, Library functions, Arithmetic expression, Precedence rule	[1] & [2]	
4	March	**Chapter Three: Array** CREATING A ONE-DIMENSIONAL ARRAY (VECTOR), CREATING A TWO-DIMENSIONAL ARRAY (MATRIX), The zeros, ones and, eye Commands	[1] & [2]	
5	March	THE TRANSPOSE OPERATOR, ARRAY ADDRESSING, USING A COLON : IN ADDRESSING ARRAYS, ADDING ELEMENTS TO EXISTING VARIABLES, DELETING ELEMENTS	[1] & [2]	
6	Abril	BUILT-IN FUNCTIONS FOR HANDLING ARRAYS, Inverse of a matrix, Determinants, USING ARRAYS IN MATLAB BUILT-IN MATH FUNCTIONS, BUILT-IN FUNCTIONS FOR ANALYZING ARRAYS,	[1] & [2]	
7	Abril	ADDITION AND SUBTRACTION, ARRAY MULTIPLICATION, ARRAY DIVISION, ELEMENT-BY-ELEMENT OPERATIONS	[1] & [2]	Assignment 1
8	Abril	**Chapter Four: input and output statement** Input statement (input, and inputdlg)	[1] & [2]	
9	Abril	Output statement (disp, fprintf, and msgbox)	[1] & [2]	
10	May	**Chapter Five: condition statement** relational and logical operators and if-end	[1] & [2]	
11	May	if-else-end if-else-elseif-end switch-case	[1] & [2]	
12	May	**Chapter six: Loop statement** For-end	[1] & [2]	
13	May	While-end	[1] & [2]	
14	May	**Chapter seven: Graphs** Graphs in 2-D, 3-D, function mathematical, vertical bar, horizontal bar, Sub plot	[1] & [2]	
15	June	Graphs And Application Physics	[1] & [2]	Assignment 2

	Mid Exam

Is it possible to develop the curriculum <within the teaching authority 20%> to include vocabulary that serves sustainability	
1- Yes, it is possible (point an appropriate aspect)	- Creativity and production
2- Suggest aspect that serves sustainability	

مفردات المنهج : < تطبيقات الماتلاب**>**

أسم التدريسي : م. د. مروة جواد كاظم راضي	**رقم الموبايل : ٠٧٧٠٧٦٧٠٦٦٠**
جهة الانتساب : كلية العلوم/قسم الفيزياء	**عدد وحدات الدرس : 3**
الايميل الرسمي : Marwah.jawad@uobasrah.edu.iq	**رابط الصفحة الرسمية :** https://faculty.uobasrah.edu.iq/faculty/3903

نظرة عامة

الهدف الرئيسي من دراسة مقرر تطبيقات MATLAB هو التعرف على أساسيات البرمجة فيMATLAB
التعامل مع المصفوفات بجميع أوامر البرمجة ، كتابة التعليمات البرمجية ، العبارات الشرطية ، جمل الدوران والتكرار ، والرسوم البيانية
إعداد الطالب للتعامل مع التطبيقات الفيزيائية والرياضية من خلال برنامج MATLAB

الأهداف والغايات

- ✓ اعداد الطلبة لما يؤهلهم بالتعامل مع برنامج الماتلاب كفيزيائين والعمل على التطبيقات الفيزيائية والرياضية من خلال هذا البرنامج
- ✓

المصادر

[1] **المنهج المعتمد من قبل عمادة كلية العلوم والموحد لجميع اقسام الكلية**
[2] **''MATLAB An Introduction with Applications''** Fourth Edition, By Amos Gilat, PUBLISHER Dan Sayre, 2011.

التقييمات المعتمدة

تعتمد درجة المادة (100) موزعة على الجوانب التالية :

التفاصيل	الدرجة
الامتحانات	20 - الامتحان الشهري و 60 الامتحان النهائي
درجة المختبر	13
المشاركة	4
الحضور	3
الدرجة الكلية	100

وصف الدرس وجدول التخصيص

يتضمن الدر س (3) ساعة - عدد الساعات الأسبوعية (3) معتمدة موزعة على 15 أسبوعًا .

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		Variables, string variables,		
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14	May	**Chapter seven: Graphs** Graphs in 2-D, 3-D, function mathematical, vertical bar, horizontal bar, Sub plot	[1] & [2]	
15	June	Graphs And Application Physics	[1] & [2]	الامتحان الثاني
	Mid Exam			

هل يمكن تطوير المنهج < ضمن صلاحية التدريسي 20% > على ان تتضمن مفردات تخدم الاستدامة	
١- نعم يمكن ضمن المحاور	- الابداع والانتاج
٢- أقترح موضوع يخدم الاستدامة	