اعتماد
NCAAA

T4

2020

Course Specifications

Course Title:	Programming Language
Course Code:	2023205-2
Program:	Bachelor in Mathematics.
Department:	Mathematics and Statistics Department
College:	Faculty of sciences
Institution:	Taif university

Table of Contents

A. Course Identification

1. **Credit hours:** 2

2. Course type

a. University ☐   College ☐   Department ☑   Others ☐

b. Required ☑   Elective ☐

3. Level/year at which this course is offered: 8th level / 3rd year

4. Pre-requisites for this course (if any)**:**

None

5. Co-requisites for this course (if any)**:**

None

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	3Hr /Week	100
2	Blended		
3	E-learning		
4	Distance learning		
5	Other		

7. Contact Hours (based on academic semester)

No	Activity	Contact Hours
1	Lecture	30
2	Laboratory/Studio	
3	Tutorial	
4	Others (specify)	
	Total	30

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces the Matlab as a programming language and teach how it can be used to solve practical problems in mathematics and data analysis that come from a wide range of disciplines. The course focuses on the foundations of Matlab programming and covers: The Matlab working environment, variables, constants and reserved words, arrays and matrices, scripts, the debugger, generating 2D and 3D graphics, simple statistical analysis, string manipulation, boolean logic and if statements, loops (while, for), functions & files and program design.

2. Course Main Objective

The student will be taught as follows:

1. Introducing the concepts and importance of programming language.
2. Describing basic methods and different applications of programming language.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge and Understanding:**	
1.1	Recognize the common concepts for creating programs via the programming language.	K1
1.2	Study different commands of the programming language.	K1
2	**Skills:**	
2.1	Use optimization algorithms on a computer and contrast factors and commands that affect the programming state	S3
2.2	Apply new programming languages and new language features	S3
2.3	Explain the characteristics of pure functional functions in functional programming	S3
2.4	Demonstrate the importance of computing mathematics.	S5
3	**Values:**	
3.1	Work effectively within groups and independently.	V1
3.2	Demonstrate ethical behavior associated with institutional Guidelines in classroom, and in Lab.	V3

C. Course Content

No	List of Topics	Contact Hours
1	The Matlab working environment.	3
2	Variables, constants and reserved words.	3
3	Arrays and matrices.	3
4	Scripts, The debugger.	3
5	Generating 2D and 3D Graphics.	3
6	**Midterm exam,** Simple statistical analysis.	3
7	String manipulation.	3
8	Boolean logic and if statements.	3
9	Loops (while, for).	3
10	Functions, Files and Program design.	3
Total		**30**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge and Understanding:**		
1.1	Recognize the common concepts for creating programs via the programming language.	• Lectures • Group discussions	• Quiz • Assignments
1.2	Study different commands of the programming language.	• Lectures • Group discussions	• Exams • Assignments
2.0	**Skills**		
2.1	Use optimization algorithms on a computer and contrast factors and commands that affect the programming state	• Interactive classes • Group discussions	• Quizzes Assignments
2.2	Apply new programming languages and new language features	• Lectures • Group discussions	• Exams • Quizzes
2.3	Explain the characteristics of pure functional functions in functional programming	• Lectures • Self-learning through the website	• Exams • Quizzes • Assignments
2.4	Demonstrate the importance of computing mathematics.	• Lectures • Self-learning through the website	• Exams • Quizzes • Assignments
3.0	**Values**		
3.1	Work effectively within groups and independently.	Interactive classes. Give students tasks of duties.	Assessment of design projects that have elements of interpersonal skills.
3.2	Articulate ethical behavior associated with institutional Guidelines in classroom, and in Lab.	• Lectures • Group discussions	• Exams • Quizzes

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	**Quizzes + Home works**	**Continues**	**10 %**
2	**Midterm exam**	**5th-6th**	**30 %**
3	**Class Work (Homework- report- class test….)**	**8th**	**10 %**
4	**Final exam**	**11th**	**50 %**

*Assessment task (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice: **6 hours per week (as defined in the teaching schedule of the faculty member) for academic advice and consultations.** **Teaching staff is also available using Blackboard web site and Taif University "Edugate" System.**

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	**Stormy Attaway, Matlab: A Practical Introduction to Programming and Problem Solving, Elsevier Inc/2012 ISBN 13: 9780123850812**
Essential References Materials	S. J. Chapman , MATLAB® Programming for Engineers, Fourth Edition ,THOMSON, 2008.
Electronic Materials	**https://en.wikibooks.org/wiki/MATLAB_Programming** **http://ivut.iut.ac.ir/content/1059/MATLAB_for_Beginners.pdf**
Other Learning Materials	**Matlab tutorial**

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Lecture halls, containing white boards, and electronic monitors - The seats fit the number of students - Laboratories equipped with suitable numbers of computers
Technology Resources (AV, data show, Smart Board, software, etc.)	Matlab software
Other Resources (Specify, e.g., if specific laboratory equipment is required, list requirements or attach a list)	Wi-Fi internet connections

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Effectiveness of teaching and assessment	Students	Indirect
Quality of learning resources	Peer Reviewer Students	Direct Indirect
Extent of achieving the course learning outcomes	Peer Reviewer Students	Direct Indirect

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Council / Committee	Department of Mathematics and Statistics
Reference No.	11
Date	12-7-1443 H