Course Specification

(Bachelor)

Course Title: **Programming II**	
Course Code: **CS211**	
Program: **Computer Science**	
Department: **Computer Science**	
College: **Computer and Information Sciences**	
Institution: **Majmaah University**	
Version: **2**	
Last Revision Date: **31 May 2023**	

Table of Contents

A. General information about the course:

1. Course Identification

1. Credit hours: (4)

4(3,2,0)

2. Course type

A.	☐University	☒ College	☐Department	☐Track	☐Others
B.	☒ Required		☐Elective		

3. Level/year at which this course is offered: (L3/Y2)

4. Course general Description:

This course is an introductory course in object-oriented programming. The fundamental concepts of object-oriented programming will be studied using the C++ programming language.

5. Pre-requirements for this course (if any):

CS131 – Programming I

6. Pre-requirements for this course (if any):

7. Course Main Objective(s):

The students are expected to be able to:

(a) Understand the basic OO programming concepts.
(b) Compare the OO programming approach against the traditional approach.
(c) Identify the main objects/classes, methods, attributes from given problem specifications.
(d) Design and code small to medium sized problems from the start using the appropriate OO concepts and other concepts introduced (class, inheritance, polymorphism, generic programming etc.)
(e) Create and manipulate Files using the available I/O file streams classes.
(f) Contribute to a group effort to realize an OOP based solution

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	75	100%

No	Mode of Instruction	Contact Hours	Percentage
2	E-learning		
3	Hybrid • Traditional classroom • E-learning		
4	Distance learning		

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	30
3.	**Field**	
4.	**Tutorial**	
5.	**Others (specify)**	
Total		75

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1				
1.2				
...				
2.0	**Skills**			
2.1	Students will apply formulas and functions of mathematics.	S1	Classroom Teaching	Midterm Exam, Final Exam
2.2	Students will analyze a programming problem in object-oriented domain and find computing requirements which will map to the given problem and its solution.	S1	Classroom Teaching	Midterm Exam, Final Exam

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.3	Students will be able to analyze, design and implement a program using object-oriented programming tool and C++ programming language.	S2	Mini Project, Lab Exercises	Lab Based Assignments, Mini Project
3.0	**Values, autonomy, and responsibility**			
3.1	Students will perform programming and lab related activities in group	V1	Mini Project, Lab Exercises	Lab Project Evaluation

C. Course Content

No	List of Topics	Contact Hours
1.	Overview of C++ basic concepts	5
2.	Functions and an Introduction to Recursion	10
3.	Arrays and Vectors	5
4.	Pointers	10
5.	Classes and Objects	15
6.	Inheritance, Polymorphism, and Operator Overloading	10
7.	Templates	10
8.	File Processing	10
Total		**75**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Exam 1	8	15%
2.	Exam 2	13	15%
3.	Lab Assignments	Weekly	15%
4.	Project	14	15%
5.	Final Exam	16	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	C++ How to Program H. M. Deitel, P.J.Deitel, Prentice Hall, 2016, 10th ed.
Supportive References	
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classroom, lab, PCs
Technology equipment (projector, smart board, software)	Data show, MS Visual Studio
Other equipment (depending on the nature of the specialty)	-

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect
Effectiveness of Students assessment	Instructor	Direct
Quality of learning resources	Instructor	Direct
The extent to which CLOs have been achieved	Instructor	Direct/Indirec
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	COMPUTER SCIENCE DEPARTMENT
REFERENCE NO.	
DATE	