



Course Specifications

Course Title:	Programming 1
Course Code:	CS 131
Program:	Computer Science/Information Technology
Department:	Computer Science
College:	College of Computer and Information Science
Institution:	Majmaah University



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A. Course Identification

1. Credit hours: 4 (3,2,0)
2. Course type
a. University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Others <input type="checkbox"/>
b. Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered: Level 3
4. Pre-requisites for this course (if any):
5. Co-requisites for this course (if any):

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	50	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	20
3	Tutorial	
4	Others (specify)	
	Total	50

B. Course Objectives and Learning Outcomes

1. Course Description

This course introduces the students to the fundamentals of programming concepts with their implementation in the C++ programming language. It introduces students to structured, top-down programming design and implementation. This course covers the following topics: problem solving techniques using algorithms and flowcharts, variables, data types, operators, conditional statements, loop structures, functions, arrays, pointers, strings.

2. Course Main Objective

The objectives of the course are: learn basic structured programming concepts, divide a problem into its logical components, gain knowledge of input/output statements, if-then-else statements, while and for loops, functions, gain knowledge of built-in data types, arrays and pointers to solve programming problems, and construct error-free C++ programs.

3. Course Learning Outcomes

CLOs		Aligned PLOs
1	Knowledge and Understanding	
1.1	CLO1- Identify the basic components of a computer system.	K1
1.2		
1.3		
1...		
2	Skills :	
2.1	CLO2- Design an algorithm to solve a given problem using the top-down design approach	S1
2.2	CLO3- Understand the concept of using functions to increase modularity and reusability	S1
2.3	CLO4- Understand and use the three basic programming structures: sequence, selection, repetition.	S1
2...	CLO5- Use arrays, strings and pointers to manipulate data	
3	Values:	
3.1		
3.2		
3.3		
3...		

C. Course Content

No	List of Topics	Contact Hours
1	Introduction to Computers	5
2	Problem solving techniques using algorithms and flowcharts	5
3	Variables , Data types, Operators	5
4	Conditional statements	5
5	Repetition statements I	5
6	Repetition statements II	5
7	Functions, call by value, call by reference	5
8	Arrays (1-Dimensional and 2-Dimensional)	5
9	Passing arrays to functions	5
10	Pointers and Strings	5
Total		50

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	CLO1- Identify the basic components of a computer system.	Classroom	Quiz, Mid Exam, Lab, Homework, Final Exam
1.2			
1.3			
2.0	Skills		

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
2.1	CLO2- Design an algorithm to solve a given problem using the top-down design approach	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Homework, Final Exam
2.2	CLO3- Understand the concept of using functions to increase modularity and reusability	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Homework, Final Exam
2.3	CLO4- Understand and use the three basic programming structures: sequence, selection, repetition.	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Homework, Final Exam
2.4	CLO5- Use arrays, strings and pointers to manipulate data	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Homework, Final Exam
3.0	Values		
3.1			
3.2			
...			

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	Quiz 1	Week 3	5 %
2	Midterm Exam	Week 6	20 %
3	Quiz 2	Week 7	5 %
4	Lab Exams	Week 11	20 %
5	Programming Assignments	Week 11	10 %
6	Final Exam	Week 12	40 %
7			
8			

*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 :

Every faculty will be assigned a number of students in the corresponding department for academic advising. Students can meet the faculty during advising hours or whenever the faculty is in the office during the specified office hours.

F. Learning Resources and Facilities

1. Learning Resources

Required Textbooks	<ul style="list-style-type: none"> Dietel & Dietel, “C++: How To Program”, Prentice Hall, 10th edition (2017).
Essential References Materials	<ul style="list-style-type: none"> The C++ Programming Language: Special Edition, Bjarne Stroustrup, Addison-Wesley Professional, 2013. C++ Programming: From Problem Analysis to Program Design, De D. S. Malik, Cengage Learning, 2012.

	<ul style="list-style-type: none"> • C++ Programming for the Absolute Beginner, De Dirk Henkemans and Mark Lee, Course Technology, 2009.
Electronic Materials	www.dietel.com
Other Learning Materials	Dev C++ IDE or Visual C++ Software

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	Laboratory
Technology Resources (AV, data show, Smart Board, software, etc.)	PC with Windows/Linux, LCD Projector, Smart Board
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	C++ compiler

G. Course Quality Evaluation

Evaluation Areas/Issues	Evaluators	Evaluation Methods
Test/Quiz/Mid Term/ Final Exam assessment (Extent of achievement of course learning outcomes)	Instructure	Direct
Course Survey in the middle of the semester and at the end of the semester (Effectiveness of teaching and assessment)	Students	Indirect
Final Exam Answer Scripts Verification	Peer faculty members	Review (Direct)

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	
Reference No.	
Date	