

COURSE DESCRIPTION

Course number	0418-143	Course Title	Fundamentals of Computer Programming
Credit hours	4 (3:3:4)	Course Coordinator	Dr. Mohamed Smaoui
Compulsory	No	Prerequisite	0418-101

Catalog Description

Overview of programming concepts. Repetition techniques. Functions, recursion, parameter passing mechanisms. Data structures, programmer-defined structures, programmer-defined types, classes, and objects. I/O concepts, including file processing. Basic problem-solving techniques and design of simple algorithms.

Textbook

Title:	<i>C++ How To Program</i>
Author:	<i>Paul Deitel and Harvey Deitel</i>
Publisher:	<i>Pearson, Latest Edition</i>

Major Topics Covered in the Course

	Topic	Hours
1	Advanced loops including nested loops	6
2	Arrays, vectors, lists, multidimensional arrays, sets	6
3	Library functions, programmer-defined functions, parameter passing mechanisms, function overloading, lambda functions, type inference (auto keyword)	6
4	Recursive functions, simple recursive algorithms, comparison of recursive and iterative methods	6
5	I/O and file processing, text-formatting, and encoding modes	3
6	Classes and Objects	9
7	Problem-solving techniques such as searching and sorting algorithms	6
	Total	42

Laboratory work:

	Topic	Week
1.	Loops	1
2.	Loops	2
3.	Arrays	3
4.	Arrays	4
5.	Functions	5
6.	Functions	6
7.	Recursion	7
8.	Recursion	8
9.	I/O	9
10.	I/O	10
11.	Classes and Objects	11
12.	Classes and Objects	12
13.	Classes and Objects	13
14.	Classes and Objects	14

Grading

20%	Midterm 1
20%	Midterm 2
15-20%	Lab
0-5%	Hmk/ quiz
40%	Final

Course Outcomes

Students should be able to: 1. Analyze and explain the behavior of simple and intermediate programs. 2. Understand and implement methods to structure programs into simple, reusable code using object-oriented programming concepts. 3. Design, implement, test, and debug programs. 4. Understand basic problem-solving techniques.

Relationship between Course Outcomes and Student Outcomes

Course Outcomes	CS SOs					
	1	2	3	4	5	6
1.	H					
2.		H				
3.		H				
4.	H					