

Course Syllabus

Course Name: Programming Fundamentals

**Course Number(s):
600116/605116/6051211**

General Course Information:

Course title	Programming Fundamentals
Course number	6051211
Credit hours (theory, practical)	3
Contact hours (theory, practical)	2, 2
Prerequisites/corequisites	-
Academic Program	Department of Renewable Energy
Program code	605
Awarding institution	Isra University
Faculty	Faculty of Engineering
Department	Department of Computer Science
Level of course	1 st year
Academic year /semester	2022/2023, First Semester
Awarded qualification	Bachelor (Bsc)
Other department(s) involved in teaching the course	CIS, SE, CyS, CMS, NS
Language of instruction	English
Date of production/revision	2020-2021

Course Coordinator:

Coordinator's Name: Eng. Faten Alsarayrah
Office No.: Third floor
Office Phone: Ext. 2502
Office Hours: Sun: [9:00-10:00], Mon: [11:00-12:00], Tue: [9:00-10:00], Wed: [11:00-12:00], Thu: [12:00-1:00]
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Other Instructors:

Coordinator's Name:
Office No.:
Office Phone:
Office Hours:
Email:

Course Description:

Fundamental concepts of programming using high-level computer programming language, solving problems using flowcharts and algorithms, basic programming components, data types, I/O operations, control structures, conditional statements, repeated statements, matrices, functions, and pointers.

Textbook: *Author(s), Title, Publisher, Edition, Year, Book website.*

1. C# Programming: From Problem Analysis to Program Design, Barbara, Doyle, Cengage Learning, 4th Edition.

References: *Author(s), Title, Publisher, Edition, Year, Book website.*

Required book (s), assigned reading and audio-visuals:

1. Paul Deitel, Harvey Deitel, C# How to Program, Pearson; latest edition, 2019.
2. Dimitrov, D. et.al, Fundamentals of Computer Programming with C# , Svetlin Nakov & Co., 2013.

Course Educational Objectives (CEOs):

1.	Provide students with basic concepts of computer programming environment and tools, and solving problems using algorithms and flowcharts.
2.	Illustrate the concepts of data, variables, and constants.
3.	Explain the use of I/O, arithmetic operators, and control structures.
4.	Explain the concepts of arrays, and dynamic memory allocation, and functions.
5.	Solve problems by writing programs and gain practical experience to become a programmer.

Intended Learning Outcomes (ILO's):

	Intended Learning Outcomes (ILO's)	Relationship to CEOs	Contribution to PLOs
A	Knowledge and Understanding:		
A1	Understand fundamental knowledge of programming environment, and problem-solving using flowchart and algorithms	1	A
A2	Solving problems and writing code using input/output methods, and arithmetic operators, and operator precedence	2, 3	B
B	Intellectual skills:		
B1	Solving problems and writing code using selection statements such as if, if-else and switch, and looping statements such as while, for and do-while	3, 5	A, B
C	Subject specific skills:		
C1	Solving problems and writing code using functions with parameters passed by value and by reference. In addition to Recursion	3, 5	B
D	Transferable skills:		
D1	The student will use both one dimensional and multi-dimensional arrays. In addition to string manipulation and dynamic memory allocation	4, 5	A,B

Topic Outline and Schedule:

Topic	Weeks	Achieved ILOs
Introduction Basic concepts: <ul style="list-style-type: none"> - Computer Organization - programming languages, - programming environment - program solving and flowcharts 	1	A1
Flowchart: Simple flowcharts, conditional, flowchart, Simple iteration flowchart, and multiple iteration flowchart Data	2	A1,A2
Basic Elements of C#: Program structure, I/O, Types, Constants, variables, Expressions: Arithmetic, Assignment statement, block of statements	3,4	B1
Control Structures I (Selection) Selection (simple) <ul style="list-style-type: none"> - Logical operators, if statement, nested if - While, nested while 	5,6	A1,B1
Control Structures II (Repetition) <ul style="list-style-type: none"> - do-while, for statement - Switch statement Midterm Exam	7,8	B1,C1, D1
Control Structures III <ul style="list-style-type: none"> - Nested Loops Selection (alternated, and multiple(switch)),break, continue Operator Precedence	9, 10	D1
Functions <ul style="list-style-type: none"> - Standard library functions (abs, floor, ceil, pow, sqrt), Scope rules, User Defined functions <ul style="list-style-type: none"> - Parameters definition and passing (function depth look) - Recursive functions 	11, 12	C1
Arrays:	13, 14	C1,D1

- One dimensional array (declare an array, read array, print array, minimum, maximum)		
Arrays: - one and Two-dimensional array (declare an array, read array, print array, minimum, maximum) - Arrays and functions: Passing the whole array .	15	B1, D1
Final Exam	16	

Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

- Lectures
- Lab
- Assignment

Course Policies:

A- Attendance policies:

The maximum allowed absences is 15% of the lectures.

B- Absences from exams and handing in assignments on time:

First Exam and second exam can be retaken based on approval of excuse by the instructor's discretion.

Not handing assignment on time will incur penalties.

C- Academic Health and safety procedures

D- Honesty policy regarding cheating, plagiarism, and misbehaviour:

Cheating, plagiarism, misbehaviour will result in zero grade and further disciplinary actions may be taken.

E- Grading policy:

- All homework is to be posted online through the e-learning system.
- Exams will be marked within 72 hours and the marked exam papers will be handed to the students.

F- Available university services that support achievement in the course: **Labs, Library.**

Required equipment:

Visual Studio or Equivalent

<https://dotnetfiddle.net/Mobile> (for mobile)

Assessment Tools implemented in the course:

✓	Mid Online Exam.
✓	Final Online Exam.
✓	Online Quizzes.
✓	Online Homework.
□	Integrative Projects.
□	Case Study.
□	Written Reports.
□	Participation in Lecture.
□	Practice in the Lab.
□	Illustrative Presentations.
□	Oral Exams.
□	Others (identify):

Program Learning Outcome (PLOs):

Program Learning Outcomes describe what students are expected to know and be able to do by the time of graduation. These relate to the knowledge, skills, and behaviours that students acquire as they progress through the program. A graduate of the () program will demonstrate	
a.	Analyse a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
b.	Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
c.	Communicate effectively in a variety of professional contexts.
d.	Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
e.	Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline.
f.	Apply computer science theory and software development fundamentals to produce computing-based solutions. [CS]

Responsible Persons and their Signatures:

Course Coordinator	Eng. Faten alsarayrah	Completed Date	
		Signature	
Received by (Department Head)		Received Date	

Signature	
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