

## Course specification

(1201 Structured Programming)

<b>Faculty:</b>	<i>HICIT- Higher Institute for Computers &amp; Information Technology-El Shorouk Academy</i>
<b>Programme(s) on which the course is given:</b>	Under graduate program in Computer Science
<b>Major or minor element of programme:</b>	Compulsory
<b>Department offering the programme</b>	Department of Computer Science
<b>Department offering the course:</b>	Department of Computer Science
<b>Year / Class</b>	1 <sup>st</sup> Year – 2 <sup>nd</sup> semester
<b>Date of specification approval</b>	1/8/2022

### B- Basic Information

<b>Title:</b> Structured Programming	<b>Code:</b> 1201		
<b>Weekly Hours:</b>			
<b>Lecture : 3</b>	<b>Exercise:</b>	<b>Practical :4</b>	<b>Total: 7</b>

### B- Professional Information

#### 1- Course Aims:

The aim of the module is to introduce the concepts of structured programming and to teach ways and techniques of good programming. The module provides an introduction to algorithms and to the C# language. Emphasis is put on problem solving and students are expected to develop the ability to write efficient computer program code for simple problems.

- Understand the principles of algorithms, flowcharts and pseudo code.
- Understand the modules
- Understand how to design a complete program

#### 2- Program ILOs Covered by Course

<i>Program Intended Learning Outcomes</i>			
<b>Knowledge and understanding</b>	<b>Intellectual Skills</b>	<b>Professional and practical skills</b>	<b>General and Transferable skills</b>
<b>A2, A13</b>	<b>B6, B9, B10,B13</b>	<b>C1, C5</b>	<b>D5,D8</b>

### 3- Intended learning outcomes of course (ILOs)

#### a. Knowledge and Under-Standing:

- a1. Define a problem solutions in the form of algorithms using pseudo-code .[A13]
- a2. Identify the essential concepts of structured programming concepts such as the C# data type, functions, array.[A2]
- a3. Clarify simple algorithms using C# different data types [A2]
- a4. Define the fundamental concepts, principles and theories of computing and computer science covering topics such as algorithms, [A13]
- a5. Explain structured programming logic, techniques and use in practical applications.[A2]

#### b. Intellectual Skills:

- b1. Illustrate methods to formulate and solve problems. [B6,B9]
- b2. Design and Apply the basic C# concepts including data types, conditional, looping mechanisms, functions and arrays.[B10,B13]

#### c- Professional and practical skills

- c1. Practice structured programming techniques to solve various problems using the C# programming language.[C1]
- c2. Implement programs which show an understanding of how to pass data between different modules. [C1]
- c3. Practice different forms of arrays and passing arrays to functions to solve problems.[C1,C5]
- c4. Implement code and debug simple computer programs in C#.[C5]

#### d- General and transferable skills

- d1. Learn some Internet/Library searching strategies.[D5]
- d2. write a short report using appropriate scientific language.[D8]
- d3. Use IT skills and display mature computer literacy.[D5]

### 4- Contents

Topic	Hours	Lec.	Exc/Lab
Introduction to Computer Programming	7	3	4
Introduction to the Visual Studio .NET IDE	7	3	4
Fundamentals of a C# Program	7	3	4
Introducing Data Types and Operators	7	3	4
Control Structures	14	6	8
Creating Conditional Statements	14	6	8
Creating Iteration Statements	14	6	8
Methods & Recursion	7	3	4
Selected Topics	3	3	-
Arrays	14	6	8

### 5- Teaching and learning methods

Teaching and learning methods	Used
Active Learning	

Lectures(blending learning – online learning using virtual classroom)	√
Tutorial Exercises (hybrid learning – online learning)	√
Practical Lab(blending learning– online learning)	√
Exercises	√
Discussions.	√
Self – Learning strategy	
Reading material	√
Websites search	√
Research and reporting	√
Self-studies	√
Experimental strategy	
Group work	√
Presentation	√
Problem solving strategy	
Problem solving/problem solving learning based	√
Case study	√
Synchronous E-Learning	
Virtual lab	-
Virtual class	-
Chat Room	√
Video lectures	√
Asynchronous E-Learning	
E-Learning	√

## 6- Student assessment methods

Methods	Assessment	Used
Electronic Midterm Exam	To assess the knowledge and understanding achieved by the student during the previous weeks. (online on e-learning hub )	√
Pencil-to-Paper Final Exam	To evaluate what the student gain at the end of the course, and to assess: the knowledge and understanding, general skills, and intellectual skills.	√
Course Project	To allow students work in team, and to evaluate knowledge, understanding, intellectual, and transferable skills. (online on e-learning hub , FTF)	-
Electronic Course Work & Quizzes	To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.(online on e-learning hub)	√
Practical Exam	to measure the ability of students to design and implement a software program(FTF).	√

Participation	To assess the knowledge and understanding achieved by the student during the previous weeks.	√
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### Assessment Schedule

Assessment	Week #
Participation	3-14
Electronic Mid Term Exam	8
Final Exam	16
Electronic / hard copy Course Work & Quizzes	2-14
Practical Exam	15

### Assessment Weight

Assessment	Weight %
Participation	10%
Electronic Mid Term Exam	
Final Exam	70%
Electronic / hard copy Course Work & Quizzes	10%
Practical Exam	10%
<b>Total</b>	<b>100</b>

- Course Work & Quizzes:
  - o Short Exams, Assignments, Researches, Reports, Presentations on e-learning hub
  - o Class/Project discussion in a virtual classroom

### 7 -List of references

<b>Essential books (text books)</b>	<ul style="list-style-type: none"> <li>• Griffiths, Ian. Programming C# 10. " O'Reilly Media, Inc.", 2022.</li> <li>• Miles, Rob. "C# Programming: Yellow Book." (2019): c216843</li> <li>• Visual C# 2010 How to Program, 4/e, Deitel &amp; Associates, 2010</li> </ul>
<b>Course notes</b>	<ul style="list-style-type: none"> <li>• <a href="http://msdn.microsoft.com/en-us/vcsharp/default.aspx">http://msdn.microsoft.com/en-us/vcsharp/default.aspx</a></li> <li>• <a href="http://en.wikipedia.org/wiki/C_Sharp">http://en.wikipedia.org/wiki/C_Sharp</a></li> <li>• <a href="http://en.wikipedia.org/wiki/C_Sharp_(programming_language)">http://en.wikipedia.org/wiki/C_Sharp_(programming_language)</a></li> <li>• <a href="http://functionx.com/csharp/index.htm">http://functionx.com/csharp/index.htm</a></li> <li>• <a href="http://www.csharp-station.com/Tutorial.aspx">http://www.csharp-station.com/Tutorial.aspx</a></li> </ul>
<b>Recommended books</b>	<ul style="list-style-type: none"> <li>• Nakov, Svetlin, and Veselin Kolev. Fundamentals of Computer Programming with C#: The Bulgarian C# Book. Faber Publishing, 2013.</li> </ul>
<b>Periodicals, website</b>	<p><b>Powerpoint presentations of all course materials</b>  <b>All labs material</b>  <a href="https://moodle.sha.edu.eg/course/view.php?id=2245">[https://moodle.sha.edu.eg/course/view.php?id=2245]</a></p>

## 8. Required Facilities

To assess professional and practical skills given the following facilities:

- a. Tools & SW (Technologies facilities):
- **Microsoft Visual Studio 2018 .**
  - **Microsoft TEAMS to create virtual classrooms for lectures, discussions for project**
  - **portal(MOODLE) to make electronic quizzes and electronic midterm exam**
  - **portal(MOODLE) to upload project deliverable and assignment**
  - **academy portal(MOODLE) to upload electronic material**
- b. Teaching facilities:

	<i>Lecture</i>	<i>class</i>	<i>Lab</i>
Whiteboard	used	-	used
Pc/laptop	used	-	used
Data show	used	-	used
Webinars	MS TEAMS	-	MS TEAMS
SocialMedia	Facebook Page for 3 <sup>rd</sup> year	-	Facebook Page for 3 <sup>rd</sup> year
ChatRoom	ChatTeams	-	ChatTeams
Videos	Stream-MOODLE	-	Stream-MOODLE
Website	MOODLE	-	MOODLE

## 7- Course Matrices

### 8.1- Course Content/ILO Matrix

Course Contents	Knowledge & understanding					Intellectual skills		Professional and practical skills				General		
	a1	a2	a3	a4	a5	b1	b2	c1	c2	c3	c4	d1	d2	d3
Introduction to Computer Programming	√													
Introduction to the Visual Studio .NET IDE		√												
Fundamentals of a C# Program			√					√						
Introducing Data Types and Operators				√			√	√	√					
Control Structures					√		√		√	√		√		
Creating Conditional Statements					√		√			√	√	√		
Creating Iteration Statements					√	√	√				√			
Methods & Recursion					√	√	√							
Selected Topics	√						√							
Arrays					√	√	√							

### 8.2- Learning Method /ILOs Matrix

Learning Methods	Knowledge & understanding					Intellectual skills		Professional & practical skills				General		
	a1	a2	a3	a4	a5	b1	b2	c1	c2	c3	c4	d1	d2	d3
Lectures	√	√	√	√	√	√	√	√	√	√	√			
Tutorial Exercises						√	√	√	√	√	√			

Reading material	√	√	√	√	√	√	√	√	√	√	√			
Websites search	√	√	√	√	√	√	√	√	√	√	√			
Research and reporting	√	√											√	√
Problem solving/problem solving learning based	√	√	√	√	√	√	√	√	√	√	√			
Group work														
Practical Lab						√	√	√	√	√	√			
Discussions.						√	√	√	√	√	√	√	√	√

### 8.3 Assessment Methods /ILOs Matrix

Assessment Methods	Knowledge & understanding					Intellectual skills		Professional & practical skills				General		
	a1	a2	a3	a4	a5	b1	b2	c1	c2	c3	c4	d1	d2	d3
Electronic Mid Term Exam	√	√	√	√	√	√	√							
Final Exam	√	√	√	√	√	√	√							
Electronic /hard copy Course Project	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Electronic / hard copy Course Work & Quizzes	√	√	√	√	√	√	√	√	√	√	√	√	√	√
Practical Exam	√	√	√	√	√	√	√	√	√	√	√			

### 9. Course ILOs Vs Program ILOs

Course ILOs \ Prog ILOs	Knowledge & understanding		Intellectual skills				Professional & practical skills		General	
	A2	A13	B6	B9	B10	B13	C1	C5	D5	D8
a1		√								
a2	√									
a3	√									
a4		√								
a5	√									
b1			√	√						
b2					√	√				
c1							√			
c2							√			
c3							√	√		
c4								√		
d1								√		
d2									√	
d3										√

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