



جمهورية مصر العربية

وزارة التعليم العالي والبحث العلمي

Ministry of Higher Education and Scientific Research



المعهد العالى للحاسبات وتكنولوجيا المعلومات  
مدينة الشروق - القاهرة  
شعبة علوم الحاسب

## Course specification

**Course Code:** CS 101

**Course Title:** Introduction to computer science

**Academic Year:** /

**Course specification**  
**(CS 101 - Introduction to computer science)**

Course Outline	
<b>Faculty:</b>	HICIT- (Higher Institute for Computers & Information Technology-El Shorouk Academy)
<b>Programme(s) on which the course is given:</b>	Undergraduate program in Computer Science
<b>Major or minor element of programme:</b>	Compulsory
<b>Department offering the program</b>	Department of Computer Science
<b>Department offering the course:</b>	Department of Computer Science
<b>Level</b>	First Level
<b>Date of specification approval</b>	DD/MM/YYYY

Basic Information			
<b>Code:</b>	CS 101	<b>Title:</b>	Introduction to computer science
<b>Prerequisites:</b>	-		
<b>Weekly Hours:</b>			
<b>Lecture:</b> 2	<b>Exercise:</b> -	<b>Practical :</b> 2	<b>Total:</b> 4 credit hours

Professional Information
<p><b><u>Course Aims:</u></b></p> <p>The aim of this course is to offer the traditional coverage of computer concepts to enable students to effectively apply computing systems as support tools within their study program and profession. The course will explore fundamental concepts including:</p> <p>Hardware and software; computers components and their operations; Data representation and number systems; databases and information management; networking, understand and use the Internet; operating system; system utilities, information system; Branches of computer science; Algorithm development – algorithm representation – flowcharts – stepwise refinement – problem solving methods and tools.</p> <p>Also, this course will provide students with effective practical skills in using a range of computing applications. Students will learn to choose the most effective applications for specific tasks. In particular, students will gain experience in the use of applications to benefit both their course of study at university and their subsequent careers. Students will be expected to produce high quality documents.</p> <p>The course will increase familiarity with computers, their components and their operations.</p>

## Program Intended learning outcomes (ILOs)

a8	Understanding fundamental topics of computer systems especially hardware architectures.
a9	Understanding of fundamental topics in computer science, including software architectures, software engineering principles and methodologies, and software tools.
a13	Demonstrate strong knowledge of fundamentals of programming and the construction of computer-based systems.
a14	Demonstrate strong knowledge of fundamentals of Data Warehousing, data structures and algorithms.
b4	Identify attributes, components, relationships, patterns, main ideas, and errors.
b15	Apply the concepts, principles, theories and practices underpinning computing as an academic discipline.
c4	Perform independent information acquisition and management, using the scientific literature and Web sources.
c7	Apply the principles of effective information management, information organization, and information-retrieval skills to information of various kinds, including text, images, sound, and video.
d5	Demonstrate efficient IT capabilities.
d8	Search for information and adopt life-long self-learning.

## Program ILOs Covered by Course

Knowledge and understanding	Intellectual Skills	Professional and practical skills	General and Transferable skills
A8, A9, A13, A14	B4, B15	C4, C7	D5, D8

## Intended learning outcomes of course (ILOs)

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

- a1- Describe the basic components of the system unit, the different types of hardware devices (input, output and storage), and the way that they interact to form a single computing system.(a8)
- a2- Explain the rules of using the Internet and its access., the basic concepts of operating systems and system utility software, computer-based communications and networking concepts.(a9)
- a3- Identify the basic concepts surrounding databases, database management systems and understand the need for information management.(a9, a14)
- a4- Explain the processes involved in program development. (a9, a13)
- a5- Identify the processes involved in different numbering systems different than the decimal one such as binary, octal, hexadecimal. (a8)
- a6- Identify different branches of computer science. (a9).

### **b. Intellectual Skills:**

- b1. Illustrate traditional and non-traditional problems, set goals towards solving them, and observe results. [b4]
- b2- Discuss and clarify methods to formulate and solve problems. [b15]

### **c. Professional and practical skills**

- c1- Analyze the components of the system unit and the way that they interact to form a single

computing system.[c7]

c2- differentiate between different types of operating systems (e.g., DOS and Windows XP).[c4,c7]

c3- Analyze given information to conclude the correct results.[c4]

c4- Examine various numbering systems different than the decimal system.[c4]

**d. General and transferable skills**

d1- Learn some Internet/Library searching strategies.[d8]

d2- Write a short report using appropriate scientific language.[d8]

d3. Use IT skills and display mature computer literacy.[d5]

Contents		
Topic	Contact Hours	
	lecture	Lab
Computer system components, types of computers	2	2
Computer hardware and software components	2	2
Data representation and number systems	2	2
Introduction to Internet	4	4
Branches of computer science	4	4
Introduction to Networking	2	2
Problem solving Methods and tools	2	2
Algorithm development , Algorithm representation	4	4
Flowcharts – stepwise refinement	4	4
Selected Topics(Data Warehouse, AI)	2	2

Teaching and learning methods	
Teaching and learning methods	Used
Lectures	√
Tutorial Exercises	√
Practical Lab	√
Discussions.	√
Self – Learning (Reading material, Websites search,)	√
Self-studies	-
Group work	-
Presentation	√
Problem solving/problem solving learning based	√
Case study	√
Synchronous E-Learning	-

Video lectures	√
Asynchronous E-Learning	√

<b>Student assessment methods &amp; Schedule</b>		
<b>Methods</b>	<b>Used</b>	<b>Week#</b>
Midterm Exam	√	7
Final Exam	√	15
Course Work & Quizzes	√	2-14
Practical Exam	√	14

<b>Assessment Weight</b>	
<b>Assessment</b>	<b>Weight %</b>
Mid Term Exam	10%
Practical Exam	20%
Final Exam	60%
Course Work & Quizzes	10%
Total	100

<b>Course Work &amp; Quizzes</b>
Short Exams, Assignments, Research, Reports, Presentations

<b>List of references</b>	
<b>Essential books (textbooks)</b>	Enhanced Discovering Computers, Essentials, 1st edition; Cengage Learning, Mar 2, 201276.
<b>Course notes</b>	- Enhanced Discovering Computers, Essentials, 1st edition; Cengage Learning, Mar 2, 201276.
<b>Recommended books</b>	Introduction to computers 2022 edition
<b>Periodicals, website</b>	PowerPoint presentations of all course materials All labs material <a href="https://moodle.sha.edu.eg/course/view.php?id=1352">https://moodle.sha.edu.eg/course/view.php?id=1352</a>
<b>Videos link</b>	

### Required Facilities

Tools & SW (Technology facilities):	<ul style="list-style-type: none"> <li>- Microsoft visio, Visual Studio</li> <li>- Microsoft Teams to create virtual classrooms for lectures, discussions for project</li> <li>- portal(MOODLE) to make electronic quizzes and electronic - midterm exam</li> <li>- portal(MOODLE) to upload project deliverable and assignment</li> <li>- academy portal(MOODLE) to upload electronic material</li> </ul>		
Teaching facilities:	Whiteboard	√	
	Computer Lab	√	
	Data show	√	
	E-Learning	√	
	Videos	√	
	Website	√	

### Course Content/ILO Matrix

Course Contents	Knowledge & understanding						Intellectual skills		Professional and practical skills				General		
	a1	a2	a3	a4	a5	a6	b1	b2	c1	c2	c3	c4	d1	d2	d3
Computer system components, types of computers	x								x						
Computer hardware and software components	x								x	x					
Data representation and number systems					x			x				x			
Introduction to Internet		x					x								
Branches of computer science					x	x							x	x	
Introduction to Networking		x					x								
Problem solving Methods and tools				x			x	x			x				
Algorithm development , Algorithm representation				x			x	x			x				x
Flowcharts – stepwise refinement				x				x			x				
Selected Topics( Data Warehouse, AI )			x				x								

### Learning Method /ILOs Matrix

Learning Methods	Knowledge and understanding					Intellectual skills		Professional and practical skills				General		
	a1	a2	a3	a4	a5	b1	b2	c1	c2	c3	c4	d1	d2	d3
Lectures	x	x	x	x	x	x	x	x	x	x	x			
Tutorial Exercises						x	x	x	x	x	x			
Reading material														
Websites search						x	x					x	x	x
Research and reporting						x	x					x	x	x
Problem solving/problem solving learning based						x	x	x	x					
Group work														
Presentations														
Practical Lab						x	x	x	x	x	x			
Discussions.	x	x	x	x	x	x	x	x	x	x	x	x	x	x

### 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
Mid Term Exam	x	x	x	x	x	x	x							
Final Exam	x	x	x	x	x	x	x							
Course Work & Quizzes	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Practical Exam	x	x	x	x	x	x	x	x	x	x	x			

Course ILOs Vs Program ILOs											
Course ILOs \ Prog ILOs		Knowledge & understanding				Intellectual skills		Professional and practical skills		General	
		A8	A9	A13	A14	B4	B15	C4	C7	D5	D8
Knowledge and Understanding	a1	√									
	a2		√								
	a3		√								
	a4		√	√							
	a5	√									
	a6		√								
Intellectual skills	b1					√					
	b2						√				
Professional and practical skills	c1								√		
	c2								√		
	c3							√			
	c4							√			
General skills	d1										√
	d2										√
	d3								√	√	

**Course Coordinator** : A.Prof. Mohamed EL-Zeweidy ( )

**Head of Department** : A.Prof. Ahmed El-Abbas ( )

**Date**: --/--/2023