University: *Fayoum University*
Faculty: *Computers and Information*
Department: *Computer Science*

Course Specification

1- Basic Information		
Code: CSC160	**Course Title:** Basics of computer science	
Program: B.Sc degree in Computer Science	**Number of units: Lecture:** 2 hrs/ week **Tutorial:** 0 hrs/ week **Practical:** 2 hrs/ week	

2- Aims of Course:	1. 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 programme and profession. 2. The course will explore fundamental concepts including: hardware and software; numbering systems; databases and information management; introduction to programming. 3. 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. 4. In particular, students will gain experience in the use of applications to benefit both their course of study at university and their subsequent careers. 5. Students will be expected to produce high quality documents. In addition to practical skills, students will learn about fundamental computer and programming concepts and the role of computers in our society. 6. Issues involving awareness of how computers impact upon society, such as ethics and privacy, will also be covered

3- Intended Learning Outcomes	
A- Knowledge and Understanding:	A2 List the Fundamental topics in Computer Science related to software engineering principles, computer organization and architecture. A9 Identify programming fundamentals and languages, algorithms analysis, and data structures. A10 Identify and explain the fundamental concepts, principles, and techniques needed for the analysis,

	development, validation, verification, deployment, and operations of computer-based systems. A13 Define the mapping of real-world problems to algorithmic solutions **Through the following**: a1. Classify the different types of computers. a2. List The basic components of the computer system a3. Define the algorithmic approach for problem solving a4. Identify the basics of C++ language a5. Describe the computer hardware (CPU, memory, input and output devices, storage systems) a6. Identify Computers representation of data and programs a7. Differentiate between System software and application software a8 Describe the main functions of the operating systems and utility programs a9 Define the document, workbook, worksheet, data base, form, table, query, report a10. Define Basics of computer networks
B- Intellectual Skills:	B1 Analyze real problems, and appropriate problem solving methods that satisfy commercial or industrial constraints and analyze results **Through the following:** b1. Interpret the operation of the CPU b2. Demonstrate skills in problem solving steps b3. Design algorithms for simple problems b4. Promote skills in tracing small programs b5. Compare between the different types of storage systems b6. Classify networks according to their topologies and architectures [
C- Professional and Practical Skills:	C1 Analyze and improve organizational processes from an ICT perspective. C9 Deploy different modeling techniques to model and analyze real life computing problems. C12 Design, implement, maintain, and manage software systems. Assess the implications, risks or safety aspects involved in the operation of computing equipment within a specific context. **Through the following:** c1. Perform independent information related to the topics of computer, using the scientific literature and Web sources.

	c2. Exhibit practical skills in dealing with the computer hardware and software in the lab. c3. Practice the use of some operating system interface and commands. c4. Develop experience with some software packages (MS office applications) and operating system (MS windows). c5. Implement algorithms for simple problems using high level language. c6. promote skills in debugging programs. Perform small projects (in teams)
D- General and transferable Skills	D4 Demonstrate independent critical thinking and problem solving skills. **Through the following** d1. Work effectively as an individual during the lab and the exercises. d2. Work effectively as a member of a team during preparing reports and projects. d3. Communicate effectively during preparing reports, discussions during lectures, tutorials, labs and introducing presentations. d4. retrieve information to write reports

4-Course Content:	1. Computer definition, different computer types, digital computer, 2. analog computer, general-purpose computer, special purpose computer, hybrid computer. 3. Computer organization, computer hardware, input/output units, storage media, computer memory types, 4. arithmetic and logical unit (ALU), computer software, computer programming, 5. computers and networking, software development systems, 6. Information management, database management systems and applications, operating systems. 7. Computer Crime and Security. Computer issues and Health. 8. Introduction to programming languages, General form of Pascal program: Expressions: arithmetic expressions. Simple data types: Real, integer, Boolean, character subrange, and enumerated Data types, 9. input and output statements. Conditional control structures: Compound statements, Boolean expressions, 10. IF statements, Case statements. 11. Repetition statements: While statement, repeat statement, For statement

5- Teaching and Learning Methods:	1. Lectures 2. Tutorials 3. Computer-lab Sessions 4. Practical lab work 5. Class discussions 6. Internet searches 7. Problem-based Learning

6- Teaching and Learning Methods for handicapped students :	-

7- Student Assessment	
A- Assessment Methods:	1. Assignments and Quizzes 2. Midterm written exam 3. Oral Exam 4. Practical exam 5. Final written exam
B- Assessment schedule:	Midterm Examination: Week 8 Practical examination: Week 13 Oral Examination: Week 14 Final Examination: Week 15
C- Weighting of assessments:	Mid-Term Examination: 15 Oral Examination: 10 Practical Examination: 20 Final-term Examination: 105

8- Books and References	
A- Notes:	Handouts and notes prepared by the instructor
B- Essential Books (Text Books):	Computer: A History of the Information Machine (The Sloan Technology Series)by Martin Campbell-Kelly and William Aspray (2013)
C- Recommended Books:	Exploring Microsoft Office 2010, Volume 1, (2011)
D- Periodicals, Web sites, … etc	▪ http://www.microsoft.com/en/us/default.aspx

Course Professor: Dr. Mohamed Khafagy Department Head: Dr.Amira Edress

urse Content	a. Knowledge and Understanding										b. Intellectual Skills						c. Professional Skills							d. General Skills			
	a1	a2	a3	a4	a5	a6	a7	a8	a9	a10	b1	b2	b3	b4	b5	b6	c1	c2	c3	c4	c5	c6	c7	d1	d2	d3	d4
Computer definition, different computer types, digital computer,	√	√					√										√										√
analog computer, general-purpose computer, special purpose computer, hybrid computer.		√	√	√	√			√			√	√	√	√	√	√	√				√	√		√	√		√
Computer organization, computer hardware,									√	√						√	√									√	√
arithmetic and logical unit (ALU), computer software, computer programming		√	√														√							√			√
computers and networking, software development systems,		√					√							√			√									√	√
Information management, database management systems				√		√	√							√				√	√	√				√	√		√
Midtern	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√		√	√	√	√
Computer Crime and Security. Computer issues and										√						√	√	√								√	√
0.Introduction to programming languages, General form of Pascal program: Expressions: arithmetic expressions.			√									√	√	√												√	
1.input and output statements. Conditional control structures: Compound statements, Boolean expressions,				√		√	√	√	√									√		√	√	√	√	√	√	√	
2.IF statements, Case statements.				√		√	√	√	√			√	√	√	√						√	√		√	√	√	√
3.Repetition statements: While statement, repeat statement, For statement				√		√	√	√	√			√	√	√	√						√	√		√	√	√	√

Course Content Intended Learning Outcomes Matrix
Course Title: Basics of Computer Science
Course Code:

Course Professor: Dr. Mohamed Khafagy Department Head: Dr.Amira Edress

Course coordinator: …… **Head of Department: ……**