



University/Academy: Arab Academy for Science and Technology & Maritime Transport

Faculty/Institute: College of Computing and Information Technology

Program: Computer Science / Information Systems / Software Engineering

**Form No. (12)
Course Specification**

1- Course Data

Course Code: CS111	Course Title: Introduction to Computer	Academic Year/Level: Year 1 / Semester 1
Specialization: Computer Science	No. of Instructional Units: 2 hrs lecture 2 hrs lab 2 hrs tutorial	Lecture:

2- Course Aim	This course introduces students to the fascinating world of computer science. Students learn to think logarithmically to solve simple problems. Topics include computer structure and internal operation, numbering systems and internal data representation, systematic thinking and problem solving skills, and modular programming. Students apply concepts learned using Scratch and a high level language.
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3- Intended Learning Outcome:

a- Knowledge and Understanding	Students will be able to demonstrate knowledge of: K1. Essential facts, concepts, principles and theories relating to computing and information and computer applications as appropriate to the program of study. K6. The current and underlying technologies that support computer processing and inter-computer communication. <ul style="list-style-type: none">• Understand why it's essential to learn about computers today. (K6)• Describe several uses for computers in business or personal life. (K6)• Differentiate between system software and application software(K6)• List the functions of the operating system(K6)• List the functions of utility programs(K6)• Identify the basic features of application software (K6)• Identify some of the major components of a computer system and explain their relationships to one another. (K6)• Understand the basic of computer networking(K6)• Identify the stages of the program development life cycle (K1)• Explain the importance of, and provide examples of, proper programming style and documentation (K1)• Explain the differences between syntax errors, runtime errors, and logic errors (K1)• Understand computer basics, programs, and operating systems(K1)• Explain the basic syntax of a Scratch program (K1)• Know how to obtain input from a program's user by using the input function• use identifiers to name variables (K1)• understand assigning data to variables (K1)
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	<ul style="list-style-type: none"> • define named constants (K1) • understand using use the operators +, -, *, /, and %(K1) • understand using augmented assignment operators to simplify coding (K1) • Understand representing and process strings and characters (K1) • Understand to encode characters using ASCII and Unicode (K1) • To avoid common errors in if statements (K1) • Know To program with selection statements (K1) • Understand To combine conditions by using logical operators (and, or, and not) (K1) • Know To use selection statements with combined conditions (K1) • Understand the rules governing operator precedence and associativity(K1) • Understand the loop structures(K1) • Understand To control a loop with the user's confirmation (K1) • Know To control a loop with a sentinel value (K1) • learn loops from a variety of examples (K1) • Know To define functions (K1) • Know To invoke value-returning functions (K1) • Understand To invoke functions that does not return a value (K1) • Understand to passing arguments by values (K1) • Understand to determine the scope of variables (K1) • To define functions with default arguments (K1) • Know to return multiple values from a function(K1)
b- Intellectual Skills	<p><u>By the end of the course, the student acquires high skills and an ability to understand:</u></p> <p>I1. Analyze computing problems and provide solutions related to the design and construction of computing systems.</p> <p>I2. Realize the concepts, principles, theories and practices behind computing and information as an academic discipline.</p> <ul style="list-style-type: none"> • Convert between numbering systems. (I2) • Solve given problems by drawing a flowchart (I1) • evaluate numeric expressions (I1) • evaluate numeric type conversion and rounding with the int and round functions (I1) • Solve mathematics problems by using the functions in the math module (I1,I2) • design and implement functions using stepwise refinement apply the concept of function abstraction in software development (I1)
c- Professional Skills	<p><u>By the end of the course the student will have the ability to:</u></p> <p>P1. Operate computing equipment, recognizing its logical and physical properties, capabilities and limitations.</p> <p>P4. Apply computing information retrieval skills in computing community environment and industry.</p> <ul style="list-style-type: none"> • Use the computer to do basic Word & Powerpoint documents (P1,P4) • Develop and run a simple program(P1,P4) • Solve common problems using programming(P1,P4) • Develop programs with selection statements(P1,P4) • Develop programs with loops of different types(P1,P4)
d- General Skills	<p><u>Students will be able to:</u></p> <p>G1. Demonstrate the ability to make use of a range of learning resources and to manage one's own learning.</p> <p>G2. Demonstrate skills in group working, team management, time management and organizational skills.</p>

	<p>G7. Show the use of general computing facilities.</p> <ul style="list-style-type: none"> • Using Internet to increase Knowledge • Use computer-related terminology. 												
4- Course Content	<table border="1"> <tr> <td>1</td> <td>Introducing Computational thinking</td> </tr> <tr> <td>2</td> <td>Identifying the hardware and software components of a computer</td> </tr> <tr> <td>3</td> <td>Introducing data types and understanding data internal representations</td> </tr> <tr> <td>4</td> <td>Use a programming language to implement, test, and debug algorithms for solving simple problems.</td> </tr> <tr> <td>5</td> <td>Introduce Modular programming</td> </tr> <tr> <td>6</td> <td>Introducing the Internet and World Wide Web</td> </tr> </table>	1	Introducing Computational thinking	2	Identifying the hardware and software components of a computer	3	Introducing data types and understanding data internal representations	4	Use a programming language to implement, test, and debug algorithms for solving simple problems.	5	Introduce Modular programming	6	Introducing the Internet and World Wide Web
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5- Teaching and Learning Methods	Lectures, Labs, Individual study & self-learning.												
6- Teaching and Learning Methods for Students with Special Needs	<ul style="list-style-type: none"> • Students with special needs are requested to contact the college representative for special needs (currently Dr Hoda Mamdouh in room C504) • Consulting with lecturer during office hours. • Consulting with teaching assistant during office hours. • Private Sessions for redelivering the lecture contents. • For handicapped accessibility, please refer to program specification. 												
7- Student Assessment:													
a- Procedures used:	Written Exams, Practical Exams, assignments												
b- Schedule:	<p>2 written midterm exams 2 practical midterm exams Assignments throughout the semester Week 16 Final exam</p>												
c- Weighing of Assessment:	<p>Written Midterms 23% Practical Midterms 20% Assignments 32% Final exam 25%</p>												
8- List of References:													
a- Course Notes	From the Moodle on www.aast.edu												
b- Required Books (Textbooks)	Parker, Charles S., and Deborah Morley, <i>Understanding Computers Today and Tomorrow</i> , 2004 Edition, Course Technology, 2004												

c- Recommended Books	○ eBook: Learn C the Hard Way
d- Periodicals, Web Sites, ..., etc.	○ Harvard CS50

Course Instructor:

Head of Department:

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