

University of Jordan
King Abdullah II School for Information Technology (KASIT)
Department of Computer Science

Course: Computer Skills 2- (1931102) (Scientific)

Semester: Second 2012/2013

Prerequisite: Computer Skills 1 - (1900100)

Coordinator: Dr. Hazem Hiary

Course Description:

This course presents the fundamental concepts of programming using C++. It covers the basic structures of the programming tools such as: variable names; data types; control structures; arrays; functions; and an introduction to file processing.

Intended Learning Outcomes:

Successful completion of this course should lead to the following learning outcomes:

- A. Knowledge and Understanding: students should
 - A1. Understand the basic concepts of the C++ programming language.
 - A2. Understand memory location concepts, operators, and data types.
 - A3. Understand the basic problem solving techniques using: control structures; functions; and arrays.
- B. Intellectual Skills: students should be able to:
 - B1. Compare between the different control structures
 - B2. Compare and contrast the basic methods of parameter passing in C++: namely passing parameters by value vs. passing parameters by reference.
 - B3. Compare between void functions and value-returning functions
 - B4. Compare between one and two-dimensional arrays
- C. Subject Specific Skills: students should be able to:
 - C1. Analyze a problem and design an algorithm to solve it.
 - C2. Develop algorithms using: selection statements; repetition statements; functions; and Strings.
- D. Transferable Skills: students should be able to:
 - D1. Work in groups to help understand and analyze a given problem.
 - D2. Work in a group to implement an algorithm using C++
 - D3. Demonstrate the developed C++ program

Teaching/Learning Methods:

Lecturing and Discussions:	A1-A3 and B1-B5
Assignments	B1-B5 and C1-C2
Quizzes	D1-D3
Exams	A1-A3 , B1-B5, and C1-C2

Course Contents:

Chapter 2: Basic Elements of C++	1. Basics of a C++ program 2. Data types and Variables 3. Arithmetic operators, operator precedence, Expressions 4. Type Conversion (Casting) 5. <code>string</code> Type 6. Variables and Assignment statements 7. Increment and decrement operators 8. Basic input and output 9. Preprocessor directives	5 hours
	<i>Practical session</i>	1 hour
Chapter 3: Input/Output	1. I/O streams and standard I/O devices 2. Predefined functions (<code>get</code> function only) 3. Input Failure	2 hours
	<i>Practical session</i>	1 hour
Chapters 4: Control Structure (selection)	1. Relational operators 2. Logical operators and logical expressions 3. Selection (<code>if</code> and <code>if ... else</code>) 4. The conditional operator (<code>? :</code>) 5. The switch statement	5 hours
	<i>Practical session</i>	1 hour
First Exam (7th week) – Tuesday 19/3/2013		
Chapters 5: Control Structure (repetition)	1. The <code>while</code> loop 2. The <code>for</code> loop 3. The <code>do...while</code> loop 4. Nested control structures 5. <code>break</code> and <code>continue</code> statements	4 hours
	<i>Practical session</i>	1 hour
Chapters 6+7: User-defined functions	1. predefined functions 2. user-defined functions 3. value-returning and void functions 4. value and reference parameters, memory allocation 5. function overloading 6. default arguments 7. Scope of an identifier 8. Global variables, and side effects	6 hours
	<i>Practical session</i>	1 hour
Second Exam (12th week) – Tuesday 23/4/2013		
Chapter 9: Arrays	1. Accessing arrays components 2. processing one-dimensional arrays 3. Array index and bounds 4. Array initialization during declaration 5. Restrictions on arrays processing 6. Arrays as function parameters 7. 2D arrays processing	6 hours
	<i>Practical session</i>	1 hour
Chapter 8: Strings	1. <code>string</code> Type 2. String operations: <code>length</code> ; <code>size</code> ; operator (<code>+</code>); <code>find</code> ; <code>substr</code> ; <code>swap</code> ; and concatenation	2 hours
	<i>Practical session</i>	1 hour

Evaluation:

- Automated First Exam 20%
- Write-code Second Exam 20%
- Homework and/or Quizzes 10%
- Final Exam 50%

Tentative Grading Scale:

0 - 40	F
41-49	D-
50-53	D
54-57	D+
58-61	C-
62-66	C
67-70	C+
71-75	B-
76-79	B
80-84	B+
85-89	A-
90-100	A

Textbook:

- C++ Programming: From problem analysis to program design, **5th edition**, D.S. Malik, Thomson Learning, 2011.

References:

- C++ How to Program, 7th edition, P. Deitel and H. Deitel, Prentice Hall, 2009.
- Problem Solving with C++: the Object of Programming, W. Savitch, Addison Wesley, 2003.
- Programming in C++: Lessons and Applications, Timothy B. D’Orazio, 1st edition, McGrawHill, 2004.

Notes:

- Deliberate abstention from attending 1901102 classes and any other similar acts will lead to student deprivation from the course according to the UJ regulations.
- If you miss the midterm, then a makeup exam will not be provided unless you submit a valid absence excuse, within three days from the midterm, to your lecturer. This excuse must be signed and stamped from the UJ hospital in order to be valid. If your lecturer accepts the excuse then you’ll be able to take the midterm makeup. You need to follow up the departmental announcements regarding the makeup date and time. Please note that the lecturer may either accept or reject your excuse based on UJ regulations.