Cairo University
Faculty of Engineering

Department of Electronics and Electrical Communications Engineering

Course Specifications

Program(s) on which this course is given:	Electronics & Electrical Communications Engineering
Major or Minor element of programs:	Major
Department offering the program:	Electronics & Electrical Communications Engineering
Department offering the course:	Electronics & Electrical Communications Engineering
Academic year / Level:	First Year
Date of original/modified specification approval:	2003/
Semester of course offering:	2010-2011/Second

A- Basic Information

1.a. Title:	Computer 1 B			**1.b. Code:**		ELC 103 B		
2. Units/Credit hours per week:	2.a. Lectures	3	2.b. Tutorial	1	2.c. Practical	0	2.d. Total	4

B- Professional Information

1. Overall Aims of the Course:	To be able to deal with object- oriented programming. To know the basics and core of programming with C++. To be an accomplished C++ programmer. To be familiar with computer interfacing; Analog signal interfacing. To learn the serial data interfacing: UART, USRT. To be able to deal with memory interfacing.
2. Intended Learning Outcomes of Course (ILOs):	**a) Knowledge and Understanding**
	1. Explain the basics and core of programming with C++ (1.7). 2. Explain computer interfacing, serial interfacing, and memory interfacing (1.7). 3. Explain the operation of Registes, Counters, FSM, and memory (1.7).
	b) Intellectual Skills
	1. Design Registers, Counters and FSM for a specific purpose (3.9).
	c) Professional and Practical Skills
	1. Implement a hardware system applied to the course (2.2, 2.4, and 2.6).
	d) General and Transferable Skills
	1. Develop a complete software project using C++ (4.1, 4.2, 4.7, and 4.9).

3. Contents

Topic	Total hours	Lectures	Tutorial/ Practical
Overview of Programming and Program Solving	3	2	1
C++ Syntax and Semantics, and the Program Development Process	7	5	2
Conditional, Logical Expressions, and Selection Control Structures	7	5	2
Arrays, Lists, and Strings	7	5	2
Fundamentals of Functions, Overloading and Default Arguments	7	5	2
Pointers, Dynamic Data, and Reference Types	5	4	1
Registers, General Purposes Register, Shift Register, Counters: Ring, Johnson, Ripple and Synchronous Counters, Design of Counters	8	6	2

Finite state Machine, Synthesis of finite state machine, State diagram, Design and Implementation of finite state machine	12	10	2
Memory Types: ROM Types, Static RAM and Dynamic RAM, Structure of a simple SRAM, SRAM read and Write Timing.	9	7	2

4. Teaching and Learning Methods	Lectures (Y)	Practical Training/ Laboratory (Y)	Seminar/Workshop (N)
	Class Activity (Y)	Case Study (Y)	Projects (N)
	E-learning (N)	Assignments /Homework (Y)	Other:

5. Student Assessment Methods	
5.a. Method	**To assess (with reference to the ILOs)**
- Practical Test	d1
- Mid-term exam	a1, a2, a3, b1
- Final Exam	a1, a2, a3, b1
5.b. Assessment Schedule	**Week**
-Assessment 1; Practical Test	4
-Assessment 2; Mid-term exam	8
-Assessment 4; Final Exam	15
5.c. Weighting of Assessments	
-Mid-Term Examination	20%
-Final-term Examination	70 %
-Practical Test	10%
-Total	100 %

6. List of References
6.a. Course Notes
6.b. Essential Books (Text Books) :
• **"C++ from the ground up",** Herbert Schildt.
6.c.Recommended Books.
• **Logic and computer design fundamentals,** M. Morris Mano.
6.d. Periodicals, Web Sites, … etc: N/A
7. Facilities Required for Teaching and Learning
• PCs for LABs and Digital Training Kits

Course Coordinator:	**Prof. Dr. Nemat Abdelkader**
Head of Department:	**Prof. Dr. Mahmoud El-Hadidi**
Date:	**18.6.2011**