

AIR UNIVERSITY
Spring 2009
Faculty of Basic and Applied Sciences
Department of Computer Science & Engineering

Course Information

Course Title & Course Code: Computer Programming Credit hrs: 4	Lab: Yes
Prerequisites For the Course: Nil	
This Course is Prerequisite For: CE211-Object Oriented Programming	
Instructor: Tahir Iqbal	
e-mail : tahir@mail.au.edu.pk	Office: 2 nd Floor, Academic Block-A
Web:	Office hours: To be announced
Text Book: Ivor Horton, "Beginning C++", 3 rd Edition, Wrox Publishers, 2005.	
Reference Book(s): Deitel & Deitel, "C++ <i>How to Program</i> ", 4 th Edition, Prentice Hall, 2002. Robert Lafore, " <i>Object-Oriented Programming in C++</i> ", 3 rd Edition, Sams Publishing, 1999.	

Course Outline

<p>This course provides a basic introduction to computers and fundamental programming concepts and methods. Emphasis is on problem solving using algorithmic development methods; good programming practices and style. A C++ is used as tool in learning programming. Designed to be a first course for students with little or no prior programming experience.</p>

Lecture Plan:

Week	Topic
1.	Introduction To Computers Computer Hardware and Software, Number system, Computer data : Binary notation, Bits & Bytes, ASCII coding system, Computer Organization, Memory concepts, Files, Operating system
2.	Introduction To Programming Languages High level / Low-level Languages, Compilers, Linkers, Prog. And Problem solving, Algorithms, Flow charts, Program design process: problem solving phase & Implementation phase, Program errors: Syntax / Runtime / Logic errors, Introduction to C++, Layout of a simple C++ program, A sample C++ program explained. Introduction to Visual C++ environment
3.	C++ Basics Data Types, Basic I / O, Constants, Variables, Arithmetic Operators, Operator precedence.

4.	Control Structures I (selection) Relational Operators, Logical Operators and Logical Expressions, Selection: if stmt., Switch stmt.
5.	Control Structures I (selection) while, for, do-while loops, Nested control structures.
6.	User-Defined Functions I Definition, Arguments, Returning a value
7.	User-Defined Functions II Scope rules, Call by value, Call by reference, Inline Functions
8.	Mid Term Exam
9.	Arrays and Strings Declaration, Initialization, Accessing and processing one-Dimensional Arrays
10.	Arrays II: Applications and Extensions List Processing: Searching, Sorting, Multidimensional Arrays
11.	User-Defined Simple Data Types, Namespaces, and string Type Enumeration Type, Namespaces, and string operations
12.	Pointers I Declaring, Dereferencing, Initializing Pointer variables, Functions and Pointers.
13.	Pointers II Pointer expressions and arithmetic
14.	Records(structs) Accessing, assignment, comparison, I/O, Arrays versus Structs, Structs in Arrays
15.	Input / Output Streams I/O streams, Output formatting, File Input/Output
16.	Project submission and presentation

Grading and General Course Policies:

<ul style="list-style-type: none"> • Visit class folder regularly for course updates, announcements, and for other course materials. Go to Common=>(Your Class: BETE01...)=>C++. • Assignments and/or grade percentages are subject to change. The breakdown is as follows: <table style="margin-left: 40px;"> <tr> <td>Quizzes & Assignments</td> <td style="text-align: right;">15%</td> </tr> <tr> <td>Project / Lab</td> <td style="text-align: right;">20%</td> </tr> <tr> <td>Mid Term</td> <td style="text-align: right;">20%</td> </tr> <tr> <td><u>Final</u></td> <td style="text-align: right;"><u>45%</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;">100%</td> </tr> </table> • No makeup tests will be given • No late assignments will be accepted. • Late programming assignments will be accepted with 10% penalty per day and will not be accepted after one week of the due date. • All assignments submitted should be the outcome of individual work only. Group work is explicitly prohibited (severe penalties for violation). 	Quizzes & Assignments	15%	Project / Lab	20%	Mid Term	20%	<u>Final</u>	<u>45%</u>	Total	100%
Quizzes & Assignments	15%									
Project / Lab	20%									
Mid Term	20%									
<u>Final</u>	<u>45%</u>									
Total	100%									

Objective of course:

Following are the objectives of this course:

- To develop basic concepts about computer hardware and software in students
- To develop programming skills in students from problem analysis to program design.