Philadelphia University
Faculty of Administrative and Financial Sciences
Department of Networking and Systems Management

Course Syllabus	
Course title: Advanced Programming I	Course code: (0371211)
Course level: Fourth year	Course prerequisite (s) and/or co requisite (s): 0371210)
Lecture time:	Credit hours: (3) hours.

Academic Staff Specifics				
Name	Rank	Office Number/ Location And Office Phone Number	Office hours	E-mail address
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Course Description:

In this course students are introduced to the basics of programming logic and to algorithm design and development, using the C++ programming language. Students will learn the basic constructs of programming in C++, starting with reviews of previously learned topics common with the C programming language, such as variables, constants, expressions, control structures, functions pointers and arrays. In parallel, students will be introduced to C++ programming specifics, such as object-oriented I/O, references (pointers) and C++ memory allocation, the string C++ class, ADTs (abstract data types, including unions and structs), classes, inheritance, polymorphism and virtual functions.

Course Objective:

Upon completion of this course, the student will be able to:
- Explain and use the C++ console input and output streams.
- Create and use classes.
- Overload operators.
- Explain and use inheritance and polymorphism.
- Create input and output file streams.
- Manage dynamically allocated memory.
- Explain and use the Standard Template Library.

Teaching / Learning Methodology:

Hands-On Lab, Lectures Notes, Slideshows, & Active Presentations
Technical Information and Practice Programs

Learning Outcomes:

- **Knowledge and understanding:**
  The data show is used to demonstrate practical exercise in the class to enable students see how it is done to save time and make lecture effective.

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- **Cognitive skills (thinking and analysis).**
  - The lecturer will present the material in the text book in an interactive way that stimulates the thinking side of students.
  - Conducting the learning objectives for each module components in clear manner to insure the material is digested by the students.

- **Communication skills (personal and academic).**
  - For every lecture the last five minutes will be open for discussion. For further discussion, the students are welcome at the lecturer's office hour as appeared in first page.
  - Project Development: Groups of approximately two to three students develop projects, complete research, schedule meetings, write papers and reports, and deliver a 20-30 minute oral presentation using visual aids.
  - Group Management: Students work on group projects to practice interpersonal skills by communicating with group members, other groups, and peers outside the group.

Assessment instruments
- Short Reports and/or Presentations and/or Short Research Projects.
- Quizzes.
- Home works.
- Final examination.

Allocation of Marks		
Assessment Instruments	**Mark**	**Exam Date and Day**
First Examination	**20**	
Second Examination	**20**	
Final Examination	**40**	
Attendance, Quizzes, Home works, and Reports and/or Research	**20**	
Total	**100**	

Documentation and academic honesty
This course is given from the textbook mentioned above. It is copyright protected. Students are encouraged to purchase this textbook from the university bookshop.

Definition of Plagiarism
Plagiarism is the unacknowledged borrowing of another writer's words or ideas.

How Can Students Avoid Plagiarism?
To avoid plagiarism, you must give credit whenever you use
- another person's idea, opinion, or theory;
- any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge;
- quotations of another person's actual spoken or written words; or
- Paraphrase of another person's spoken or written words.

If you are in doubt about whether what you are doing is inappropriate, consult your instructor. **A claim that "you didn't know it was wrong" will not be accepted as an excuse.**

Penalty for Plagiarism

The minimum penalty for an act of plagiarism is a 0 on the assignment, homework, and project. Serious cases of plagiarism may result in failure in the course as a whole, or expulsion from the university.

Course Contents:

week	Basic and support material to be covered	Homework/reports and their due dates
(1)	• Overview of Computers and Programming Languages • Basic Elements of C++	• Quiz
(2)	• Input/output • Control Structures	• Quiz • Homework
(3)	• User-Defined Functions	• Quiz • Homework
(4)	• User-Defined Simple Data Types, Namespaces, and the String Type	• Quiz • Homework
(5)	• Arrays and Strings	• Quiz • Homework
(6) First examination	• First Exam • Applications of Arrays (Searching and Sorting) and the Vector Type	
(7)	• Records	• Quiz • Homework
(8)	• Classes and Data Abstraction	• Quiz • Homework
(9)	• Inheritance and Composition	• Quiz • Homework
(10)	• Pointers, Classes, Virtual Functions, and Abstract Classes	• Quiz • Homework
(11) Second examination	• Second Exam • Overloading and Templates	
(12)	• Exception Handling	• Quiz • Homework
(13)	• Recursion	• Quiz • Homework
(14)	• Linked Lists	• Quiz • Homework
(15) Specimen examination (Optional)	• Stacks and Queues • Discussion	• Quiz • Homework
(16) Final Examination	• Revision +Final Exam	

Textbook:

C++ Programming: From Problem Analysis to Program Design, by D.S. Malik, THOMSON Course Technology, 5th Edition, 2010