



Course Specification

Course Name: Programming - 1

Course Code: CS112

I. Basic Course Information

Major or minor element of program: [General]

Department offering the course: [Computer Science Department]

Academic level: [100 Level]

Semester in which course is offered: [Second (spring) semester]

Course pre-requisite(s): [CS 111]

Credit Hours: 3

Contact Hours Through:

Lecture	Tutorial *	Practical *	Total
2.5	0.0	1.5	4.0

* 1.5 hours for **either** Tutorial or Practical

Approval date of course specification: January 2015

II. Overall Aims of Course

[The course aims at teaching students the basic principles of programming languages which help the students to easily learn high level programming languages. Also, it aims at teaching students the capability of developing programs in C++ for solving small and medium scale problems.]

III. Program ILOs covered by course

Program Intended Learning Outcomes (By Code)			
Knowledge & Understanding	Intellectual Skills	Professional Skills	General Skills
[K2,K15]	[I1,I5]	[P2,P3]	[G1,G2,G8]



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IV. Intended Learning Outcomes of Course (ILOs)

a. Knowledge and Understanding

On completing the course, students should be able to:

- K.1 Recognize the concepts of programming languages.
- K.2 List different data types and variable declaration.
- K.3 List the basic arithmetic and logical operations and control, loop structure.
- K.4 Describe function definition and declaration, passing by value and passing by reference.
- K.5 Explain character and string manipulation, explain recursion, arrays dynamic allocation and file concepts.]

b. Intellectual/Cognitive Skills

On completing the course, students should be able to:

- I.1 Distinguish between the different types of loops (for, while, do while).
- I.2 Design, set up flow charts for the problems, taking into consideration trade-offs, limitations (costs, benefits, and environmental impact).]

c. Practical/Professional Skills

- P.1 Practice algorithmic problem solving using different techniques.
- P.2 Use available Integrated Development Environments (IDEs) to apply the solved problems.
- P.3 Use generic libraries to aid solve problems.]

d. General and Transferable Skills

On completing the course, students should be able to:

- G.1 Demonstrate ability to work as a team member.
- G.2 Manage one's own learning and development, and demonstrate the ability to use a variety of learning resources and acquire information.
- G.3 Appreciate the need for life-long learning of different programming languages.]

V. Course Matrix Contents

	Main Topics / Chapters	Duration (Weeks)	Course ILOs Covered by Topic (By ILO Code)			
			K & U	I.S.	P.S.	G.S.
1-	[Introduction to computers and C++ programming.]	[1]	[K1]	[]	[]	[G1,G3]
2-	[An overview of software development process.]	[1]	[K1]	[]	[P2]	[]
3-	[Variables, constants, and data types.]	[1]	[K2]	[]	[P2]	[G2]
4-	[Arithmetic and operators.]	[2]	[K3]	[I1]	[]	[]
5-	[Control structures and decisions.]	[2]	[K3]	[I1,I2]	[]	[]
6-	[Functions.]	[2]	[K4]	[I2]	[P1]	[]
7-	[Arrays and pointers.]	[2]	[K5]	[]	[]	[]
8-	[Character and String Manipulation]	[1]	[K5]	[]	[]	[]
9-	[Files.]	[1]	[K5]	[]	[]	[]
	Net Teaching Weeks	13				



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VI. Course Weekly Detailed Topics / hours / ILOs

Week No.	Sub-Topics	Total Hours	Contact Hours	
			Theoretical Hours	Practical Hours *
1	Introduction to computers and C++ programming	[2.5]	[2.5]	
2	Overview of software development process	[4]	[2.5]	[1.5]
3	Variables, constants, and data types	[4]	[2.5]	[1.5]
4	Arithmetic operators	[4]	[2.5]	[1.5]
5	Logical Operator	[4]	[2.5]	[1.5]
6	If and switch statements	[4]	[2.5]	[1.5]
7	Midterm Exam			
8	Loops	[4]	[2.5]	[1.5]
9	Functions	[4]	[2.5]	[1.5]
10	Functions	[4]	[2.5]	[1.5]
11	Arrays	[4]	[2.5]	[1.5]
12	Pointers	[4]	[2.5]	[1.5]
13	Character and String Manipulation	[4]	[2.5]	[1.5]
14	Files	[4]	[2.5]	[1.5]
15	Final Exam			
Total Teaching Hours		51	33	18

* No Practical/Tutorial during the first week of the semester

VII. Teaching and Learning Methods

Teaching/Learning Method	Selected Method	Course ILOs Covered by Method (By ILO Code)			
		K & U	Intellectual Skills	Professional Skills	General Skills
Lectures & Seminars	*	[All]	[All]	[]	[G3]
Tutorials	[]	[]	[]	[]	[]
Computer lab Sessions	*	[All]	[All]	[All]	[]
Practical lab Work	*	[All]	[All]	[All]	[G2]
Reading Materials	[]	[]	[]	[]	[]
Web-site Searches	[]	[]	[]	[]	[]
Research & Reporting	[]	[]	[]	[]	[]
Problem Solving / Problem-based Learning	[]	[]	[]	[]	[]
Projects	*	[All]	[All]	[All]	[All]
Independent Work	[]	[]	[]	[]	[]
Group Work	*	[]	[I2]	[]	[All]
Case Studies	[]	[]	[]	[]	[]
Presentations	[]	[]	[]	[]	[]
Simulation Analysis	[]	[]	[]	[]	[]
Others (Specify):	[]	[]	[]	[]	[]



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VIII. Assessment Methods, Schedule and Grade Distribution

Assessment Method	Selected Method	Course ILOs Covered by Method (By ILO Code)				Assessment Weight / Percentage	Week No.
		K & U	I.S.	P.S.	G.S.		
Midterm Exam	*	[K1,K2]	[I2]	[]	[G2]	[20%]	7
Final Exam	*	[All]	[All]	[]	[G2]	60%	15
Quizzes	[]	[]	[]	[]	[]	[]	[]
Course Work	[*]	[All]	[All]	[]	[G2]	[15%]	[Bi-Weekly]
Report Writing	[]	[]	[]	[]	[]	[]	[]
Case Study Analysis	[]	[]	[]	[]	[]	[]	[]
Oral Presentations	[]	[]	[]	[]	[]	[]	[]
Practical	[]	[]	[]	[]	[]	[]	[]
Group Project	[*]	[All]	[All]	[]	[All]	[5%]	[13]
Individual Project	[]	[]	[]	[]	[]	[]	[]
Others (Specify):	[]	[]	[]	[]	[]	[]	[]

IX. List of References

Essential Text Books	<ul style="list-style-type: none"> [No specific book is adopted. A set of books is available to choose from. One possible option is Starting Out With C++ From Control Structures Through Objects, by Tony Goddis.]
Course notes	<ul style="list-style-type: none"> [Course notes are available with all the slides used in lectures in printed and electronic formats. Lab sheets and their solutions are also available in the same way.]
Recommended books	<ul style="list-style-type: none"> [None]
Periodicals, Web sites, etc ...	<ul style="list-style-type: none"> [A yahoo group is available with the latest updates and files and for emailing students.]

X. Facilities required for teaching and learning

<p>List the facilities required</p> <ul style="list-style-type: none"> Adequate computer lab space and time to accommodate all the students Free lab time open to all students for practice A license for (or open source) C++ IDE environment like MS Visual C++ or Dev C++ A lecture theatre that can easily and comfortably accommodate 700 people equipped with a data show for the period of 3 hours of lectures and 1.5 extra tutorial session per week.
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Course coordinator:[Dr. Khaled Tawfeek]

Head of Department: Prof. Abeer El Korany

Date: January 2015