<u>Course Specifications</u>

Programme(s) on which the course is given   B.Sc. of Pure Mathematics and

Computer   Science,
Physics and computer science

Major or minor element of programs   Major
Department offering the program   Mathematics
Department offering the course   Mathematics
Academic year / Level   First level   (1)
Semester
Date of specification revision   September 2012
Date of specification approval   September 2012

A- Basic Information

    Title: **Structured**   **Code: M1312**
    Programming 1
    Credit Hours: 4   **Total: 4 hr.**

    Lecture: 3   **Tutorial: -**   **Practical: 2   Other: -**

B- Professional Information

    1 – Overall Aims of Course

    The students learn the study of programming language features and programming paradigms. Intellectual tools needed to design, evaluate, choose, and make effective use of programming languages. Covers the major concepts that form the backbone of almost all languages: syntax, abstraction mechanisms, modularity, type systems, naming, data types, control, run-time environments, and semantics. Examples of procedural, functional, logical, and object-oriented programming. Classic and current programming languages and environments. Case studies of advanced languages.

    2 – Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:
The student should be able to
a1- Demonstrate programming language features
a2- Explain the meaning of primitive data types
a3- Use procedural and object-oriented programming using C++

b- Intellectual Skills
b1-Develop tools needed to design, evaluate, choose, and make effective use of programming languages
b2-Apply appropriate major concepts covered in most programming languages.

c- Professional and Practical Skills
c1- Apply concept and methods for gaining programming skills
c2- Implement program design and flowcharting
c3- Design programs for some basic problems defined within the context of the course.
c3- Choose and Apply debugging techniques.

d- General and Transferable Skills
d1- Work in a team effectively by working within a group in programming projects.
d2- Exhibit appropriate debugging techniques for programs.
d3- Design and implement programs for specific problems.

3- Contents

Topics	No. of hours	Lecture	Tutorial/Practical
Introduction to programming	4	1	1
Data Types, declarations and variables	8	2	2
Assignments and Input	8	2	2

Selection statements and relational expressions	**8**	**2**	**2**
Repetition statements: • **For loops** • **While loops** • **do while loops**	**12**	**3**	**3**
Functions: using parameter lists and return value	**8**	**2**	**2**
Using library, String and Math, IO functions	**8**	**2**	**2**

4– Teaching and learning methods

    4.1- Lectures

    4.2- Working on hand in assignments

    4.3- Attending practical classes

5- Student assessment methods

    5.1 Mid term written exam   to assess understanding competencies

    5.2 Mid term practical Exam   to assess programming skills

    5.3 Oral Exam   to assess attendance and interesting.

    5.4 Semester hand in assignments   to assess understanding professionalism.

    5.5 Final lab exam   to assess a whole lab skills

    5.6 Final term written Exam   to assess comprehension.

Assessment schedule

    Assessment 1   Mid term + practical   Week 7

    Assessment 2   semester activities   Week 5 and 8

    Assessment 3   Final term oral exam + lab   Week 13

    Assessment 4   final term written exam   Week 14

Weighting of assessments

Mid-Term Examination
20%
Semester Work (homework assignments + lab + oral tests)
20 %
Other types of assessment
00%
   Final-term written Examination
60%
   Total
                       100%

Any formative only assessments
6- List of references
   6.1- Course notes
      Collected and prepared notes that covers the main topics in the course content
   6.2- Essential books (text books)
   Elementary textbooks under the title: *A First Book of C++;* **Third Edition by Gary J. Bronson; Published by Thomson/Course Technology**
   6.3- Recommended books:
   6.4- Periodicals, Web sites, … etc
      Non.
7- Facilities required for teaching and learning
   Lecture: PC's - packages for ready-made scientific programs. - Data Show
   Lab: Advanced lab contains all the network tools, instrumentation, and packages.

Names of professors/lecturers contributing to the design and delivery of the course
i Dr. Mohamed Amin
ii. Dr. Passent El-Kafrawy
Course coordinator: Dr. Mohamed Amin
Head of Department: Prof. Mohamed A. Ramadan

Date: / /