

## Course Specifications

Programme(s) on which the course is given **B.Sc. of Pure  
Mathematics and  
Computer  
Physics and Computer science** **Science,**

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

### A- Basic Information

Title: Introduction to Computer Programming Code: M139

Credit Hours: 3

Total: 3 hr.

Lecture: 2 Tutorial: - Practical: 2 Other: -

### B- Professional Information

#### 1 – Overall Aims of Course

The students learn Problem solving methodology, basics of data representation and computer organization, procedural and object-oriented programming in a modern language including control structures, functions and parameter passing, one and two dimensional arrays, numerical error and basic numerical methods. Examples taken from various disciplines. Programming projects required. Intellectual property issues discussed.

#### 2 – Intended Learning Outcomes of Course (ILOs)

##### a- Knowledge and Understanding:

The student should be able to

a1- solve problems with the computer

- a2- abstract real problems using abstract data types
- a3- learn the basics of data representation and control structures
- a4- use functions with parameters and return values.

**b- Intellectual Skills**

- b1- use flow charts to represent problems
- b2- know the basic structure of good programming
- b3- Introducing the study of algorithms from a more formal perspective, i.e., investigating how algorithms are discovered, identifying several fundamental algorithmic structures, developing elementary techniques for representing algorithms and introducing the subjects of algorithm efficiency and correctness.

**c- Professional and Practical Skills**

- c1- basics of data representation
- c2- basics of C statements
- c3- basics of programming fundamentals

**d- General and Transferable Skills**

- d1- the use of data representations either primitive or structured
- d2- construct flowcharting to design before writing any program
- d3- Investigating these paradigms and languages as well as considering issues in grammar and language translation.

**3- Contents**

Topics	No. of hours	Lecture	Tutorial/Practical
Introduction to the field of computer science as an academic	3	1	1

<b>discipline. The history and components (hardware and software) of computers, and issues involving the social context of computing will be examined throughout the semester</b>			
<b>Introduction to Problem solving through top-down design and stepwise refinement, as well as analysis of their efficiency and limitations</b>	<b>3</b>	<b>1</b>	<b>1</b>
<b>Basics of flowcharting</b>	<b>6</b>	<b>2</b>	<b>2</b>
<b>Basics of data representation</b>	<b>6</b>	<b>2</b>	<b>2</b>
<b>Logic expressions and operators</b>	<b>6</b>	<b>2</b>	<b>2</b>
<b>Control structures: selection</b>	<b>6</b>	<b>2</b>	<b>2</b>
<b>Control structures: repetition</b>	<b>6</b>	<b>2</b>	<b>2</b>
<b>Functions and parameter passing</b>	<b>6</b>	<b>2</b>	<b>2</b>

#### **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**

<b>Assessment 1</b>	<b>Mid term + practical</b>	<b>Week 7</b>
<b>Assessment 2</b>	<b>semester activities</b>	<b>Week 5 and 8</b>
<b>Assessment 3</b>	<b>Final term oral exam + lab</b>	<b>Week 13</b>
<b>Assessment 4</b>	<b>final term written exam</b>	<b>Week 14</b>

**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: *Introduction to Computer Programming***

**6.3- Recommended books: C++ programming**

**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.**

**Course coordinator: Dr .Mohammed Amin \_ Dr .Hani M  
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**Head of Department: Prof. Mohammed A . Ramadan**

**Date: / /**