



جامعة الفيوم  
Fayoum University



مكتبة الحاسبات والمعلومات

Fayoum University

Faculty of computers & Information

## Fundamentals of Structural programming

Programme(s) on which the course is given: B.Sc degree in Computer Science  
Major or minor element of programmes: Major  
Department offering the programme: Computer Science department  
Department offering the course: Computer Science department  
Academic year / Level: First year – Second term  
Date of specification approval:

### A- Basic Information

**Title:** Fundamentals of Structural programming      **Code:** CSC 150  
**Credit Hours:** ----  
**Lecture:** 3 hrs / week  
**Tutorial:** 0 hrs / week  
**Practical:** 2 hrs / week  
**Total:** 5 hrs / week

### B- Professional Information

#### 1. Overall Aims of Course.

- To illustrate some advanced topics in structured programming using C++ such as structures, enumerations, functions, array, pointers, and files.
- To illustrate techniques in the design and development of medium-sized applications and libraries using C++.
- To master the basics in designing user interfaces with C++.

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

##### a) Knowledge and Understanding:

On completion of this course students will be able to:

- a1- Understanding some important structured programming concepts: structures, enumerations, functions, array, pointers, and files.
- a2- Designing and developing of medium-sized applications and libraries using C++.
- a3- Understanding the details and power of the C++ language.

##### b) Intellectual Skills:

At the end of the course, the student will be able to:

- b1- Identifying problems in various fields and thinking about their solution creatively.
- b2- Describing and clarifying methods to formulate and solve problems.
- b3- Applying different techniques in solving problems.

**c) Professional and Practical Skills:**

At the end of the course, the student will be able to:

- c1- Apply structured programming techniques to solve various problems using the C++ programming language.
- c2- Produce programs which show an understanding of how to pass data between different modules without resorting to global variables.
- c3- Demonstrate skills in using different forms of arrays, pointers and structures to solve problems.
- c4- Design and implement programs that use sequential and random file concepts.
- c5- Differentiate between the different data storage classes used in C programs.
- c6- Apply the concept of structures to solve various problems.

**d) General and Transferable Skills:**

At the end of the course, the student will be able to:

- d1- Working in a group and learning the time management.
- d2- Learning some Internet/Library searching strategies.
- d3- Presenting a short report in a written form using appropriate scientific language.

### 3. Content of Course

Topic	No. of Hrs	Lecture	Tutorial/ Practical
Programming Basics and Flowcharts	5	3	2
Structure	5	3	2
Enumeration	5	3	2
Sheet#1			
Functions	5	3	2
Recursion and Inline Functions	5	3	2
Sheet#2			
Arrays and strings	10	6	4
Sheet#3			
Pointers	5	3	2
Sheet#4			
Streams and Files	10	6	4
Sheet#5			

### 4. Teaching and Learning Methods

- Lectures
- Tutorials
- Computer-lab Sessions
- Practical lab work
- Class discussions
- Internet searches
- Problem-based Learning

## 5. Student Assessment

### a) Assessment Methods

- Assignments and Quizzes
- Midterm written exam
- Oral exam
- Practical exam
- Final written exam

### b) Assessment schedule

Midterm examination	Week 7
Practical examination	Week 13
Oral examination	Week 14
Final examination	Week 15

### c) Weighting of assessments

Assignments and Quizzes	0 %
Mid-Term Examination	8%
Oral Examination	8%
Practical Examination	12%
Final-term Examination	72%
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<b>Total</b>	<b>100 %</b>

## 6. List of References

### a) Course notes:

Handouts and notes prepared by the instructor

### b) Essential Books ( Text Books):

- Object Oriented Programming in C++, Fourth Edition, Robert Lafore, 2002. ISBN No. 0-672-32308-7

### c) Recommended Books:

- *C++: How to Program*, Third Edition, Harvey and Paul Deitel, Prentice-Hall, 2001.
- Standard C++ with Object-Programming, Paul S. Wang, (Second Edition), Brooks/Cole, Thomson Learning; 2000; ISBN: 0-534-37131-0.
- The C++ Programming Language, 3rd Ed., by B. Stroustrup, Addison-Wesley, 1997. ISBN No. 0-201-88954-4.

### d) Web Sites:

<http://www.cplusplus.com/>

## 7. Facilities Required for Teaching and Learning

- Computer lab.
- Whiteboard and Data show device.

- Internet connection.
- Available new edition of text books in library.

**Course coordinator: Dr. Mohammed S. Kayed**

**Head of Department:**

Date: / /