

## Course specification

(2202 File organization & Processing)

**Faculty:** HICIT- Higher Institute for Computers & Information Technology

**Programme(s) on which the course is given:** Under graduate program in Computer Science

**Major or minor element of programme:** Compulsory

**Department offering the programme:** Department of Computer Science

**Department offering the course:** Department of Computer Science

**Year / Class:** 2<sup>nd</sup> Year – 2<sup>nd</sup> semester

**Date of specification approval:** 22/2/2016

### A- Basic Information

**Title:** File organization & Processing

**Code:** 2202

**Weekly Hours:**

**Lecture :** 3

**Exercise:-**

**Practical:** 4

**Total:** 7

### B- Professional Information

#### 1- Course Objectives:

The objective of this course is to teach ways of efficiently organizing and manipulating data in secondary storage. After completing this course, the student should be able to:

- Know the low level aspects of file manipulation which includes: basic file operations, secondary storage devices and system software
- Know most important high-level file structures tools such as: indexing, co sequential processing, B trees, and Hashing.
- Apply these concepts in the design of C++/ C# programs for solving various file management problems.

#### 2- Program ILOs Covered by Course

##### Program Intended Learning Outcomes

Knowledge and understanding	Intellectual Skills	Professional and practical skills	General and Transferable skills
a2, a13, a20	b2, b3, b4, b8,	c1, c5, c7, c9, c10, c18	d5

#### 3 - Intended learning outcomes of course (ILOs)

After completing this course, the student should be able to:

##### a: Knowledge and Understanding

- Understand different file techniques for storing and retrieving disk data.
- study the use of file organization methods to improve file access efficiency.

##### b: Intellectual skills

- Explain clearly and precisely stated solutions for problems.

b2. Analyze and break down the tasks into understandable and manageable subtasks.

### c: Professional and practical skills

c1. Analyze, design write, and test computer software applications and systems.

c2- Appreciate the features of complex computing software and operate them effectively

### d: General and transferable skills

d1) Join a team to produce reports.

d2) Cope with a team to find a solution for practical problems and projects.

d3) Write structural reports.

## 4- Contents

Topic	Hours	Lec.	Exc/Lab
Introduction to file management.	7	3	4
Fundamental file structure concepts	7	3	4
Secondary storage devices	7	3	4
Managing files of records	11	3	8
Organizing files for performance.	7	3	4
Indexing.	14	6	8
Co-sequential processing and external sorting.	10	6	4
Tree-structured file systems	7	3	4
Hashing.	10	6	4
Course Project	11	3	8

## 5- Teaching and learning methods

5.1 Lectures

5.2 Tutorial Exercises

5.3 Practical Lab

5.4 Discussions.

## 6 -Student assessment methods

6.1 Midterm Exam: To assess the knowledge and understanding achieved by the student during the previous weeks.

6.2 Final Exam: To evaluate what the student gain at the end of the course, and to assess: the knowledge and understanding, general skills, and intellectual skills.

6.3 Course Project: To allow students work in team, and to evaluate knowledge, understanding, intellectual, and transferable skills.

6.4 Course Work & Quizzes: To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.

6.5 Practical Exam: to measure the ability of students to design and implement a software program.

## Assessment Schedule

Assessment	Week #
Mid Term Exam	8
Final Exam	16
Course Project	3-14

<b>Course Work &amp; Quizzes</b>	<b>2-14</b>
<b>Practical Exam</b>	<b>15</b>

## Assessment Weight

<b>Assessment</b>	<b>Weight %</b>
<b>Mid Term Exam</b>	<b>5%</b>
<b>Final Exam</b>	<b>70%</b>
<b>Course Project</b>	<b>10%</b>
<b>Course Work &amp; Quizzes</b>	<b>5%</b>
<b>Practical Exam</b>	<b>10%</b>
<b>Total</b>	<b>100</b>

Course Work & Quizzes: (Short Exams, Assignments, Researches, Reports, Presentations, Class/Project discussion)

## 7 -List of references

### 7.1 Text Books:

- File structures: theory and practice by Panos E. Livadas Prentice Hall, 1990
- FileStructures: An Object-Oriented Approach with C++, by Michael J. Folk, Bill Zoellick, Greg Riccardi

### 7.2 Internet Locations, Periodicals & Magazines:

- [www.site.uottawa.ca/~lucia/courses/2131-02/](http://www.site.uottawa.ca/~lucia/courses/2131-02/).
- [www.ceng.metu.edu.tr/~nihan/ceng302/](http://www.ceng.metu.edu.tr/~nihan/ceng302/).

## 8- Required Facilities

### 8.1 LABS equipped with student PCs + Server

#### 8.2 Tools/Software

- Visual Studio.NET &.NET framework

## 9-Course Matrices

### 9.1-Course Content/ILO Matrix

<b>Course Contents</b>	<b>a1</b>	<b>a2</b>	<b>b1</b>	<b>b2</b>	<b>c1</b>	<b>c2</b>	<b>d1</b>	<b>d2</b>	<b>d3</b>
Introduction to file management.	√		√						
Fundamental file structure concepts	√		√						
Secondary storage devices	√		√						
Managing files of records	√	√	√	√	√	√			
Organizing files for performance.	√	√	√	√	√	√			
Indexing.	√		√	√	√	√			
Co-sequential processing and external sorting.	√	√	√	√	√	√			
Tree-structured file systems	√	√	√	√	√	√			
Hashing	√	√	√		√	√			
Course Project.							√	√	√

### 9.2-Learning Method /ILOs Matrix

<b>Learning Methods</b>	<b>a1</b>	<b>a2</b>	<b>b1</b>	<b>b2</b>	<b>c1</b>	<b>c2</b>	<b>d1</b>	<b>d2</b>	<b>d3</b>
Lectures	√	√	√	√	√	√			

Tutorial Exercises			√	√	√	√			
Practical Lab			√	√	√	√			
Discussions.			√	√	√	√	√	√	√

### 9.3-Assessment Methods /ILOs Matrix

Assessment Methods	a1	a2	b1	b2	b3	c1	c2	d1	d2	d3
Mid Term Exam	√	√	√	√	√	√	√			
Final Exam	√	√	√	√	√	√	√			
Course Project	√	√	√	√	√	√	√	√	√	√
Course Work &Quizzes	√	√	√	√	√	√	√	√	√	√
Practical Exam	√	√	√	√	√	√	√			

**Course Coordinator:** Dr. Fahima Maghraby ( )

**Head of Department:** Dr. Farouk Shabaan ( )

**Date:** 22/2/2016