Course specification

(2202 File organization & Processing)

Faculty:	HICIT- *Higher Institute for Computers & Information Technology*-*El Shorouk Academy*
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	2nd Year – 2nd semester
Date of specification approval	1/8/2022

A- Basic Information

Title: File organization & Processing	*Code:* 2202		
Weekly Hours:			
Lecture : 3	**Exercise: -**	**Practical : 4**	**Total: 7**

B- Professional Information

1- Course Aims:

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:

a. Know the low level aspects of file manipulation which includes: basic file
operations, secondary storage devices and system software

b. Know most important high-level file structures tools such as: indexing, co sequential
processing, B trees, and Hashing.

c. 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,D12**

3- Intended learning outcomes of course (ILOs)

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

a. Knowledge and Under-Standing:

a1. Define different file techniques for storing and retrieving disk data.[A13,A20]
a2. Identify the use of file organization methods to improve file access efficiency.[A2,A13,A20]

b. Intellectual Skills:

b1.Explain clearly and precisely stated solutions for problems.[B2,B4,B8]
b2. Analyze and break down the tasks into understandable and manageable subtasks.[B2,B3]

c- Professional and practical skills

c1.Implement computer software applications and systems.[C1.C7]
c2-Appreciate the features of complex computing software and operate them effectively[C5,C9]

d- General and transferable skills

d1) Join a team to produce reports. [D12]
d2) Cope with a team to find a solution for practical problems and projects. [D5]
d3)Write structural reports. [D12]

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.	7	3	4
SELECTED TOPIC	3	3	-
Course Project	11	3	8

5- Teaching and learning methods

Teaching and learning methods	Used
Active Learning	
Lectures(blending learning – online learning using virtual classroom)	√
Tutorial Exercises (hybrid learning – online learning)	√

Practical Lab(blending learning– online learning)	√
Exercises	√
Discussions.	√
Self – Learning strategy	
Reading material	√
Websites search	√
Research and reporting	√
Self-studies	√
Experimental strategy	
Group work	√
Presentation	√
Problem solving strategy	
Problem solving/problem solving learning based	√
Case study	√
Synchronous E-Learning	
Virtual lab	-
Virtual class	-
Chat Room	-
Video lectures	-
Asynchronous E-Learning	
E-Learning	√

6- Student assessment methods

Methods	Assessment	Used
Electronic Midterm Exam	To assess the knowledge and understanding achieved by the student during the previous weeks. (online on e-learning hub)	√
Pencil-to-Paper 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.	√
Course Project	To allow students work in team, and to evaluate knowledge, understanding, intellectual, and transferable skills. (online on e-learning hub , FTF)	√
Electronic Course Work & Quizzes	To keep the student always in the course, and to evaluate knowledge, understanding, intellectual, and transferable skills.(online on e-learning hub)	√
Practical Exam	to measure the ability of students to design and implement a software program(FTF).	√
participation	To assess the knowledge and understanding achieved by the student during the previous weeks.	√

Assessment Schedule

Assessment	Week #
Participation	3-14
Electronic Mid Term Exam	8
Final Exam	16
Electronic/ hard copy Course Project	3-14
Electronic/ hard copy Course Work &Quizzes	2-14
Practical Exam	15

Assessment Weight

Assessment	Weight %
Participation	5%
Electronic Mid Term Exam	
Final Exam	70%
Electronic / hard copy Course Project	10%
Electronic/ hard copy Course Work &Quizzes	5%
Practical Exam	10%
Total	100

- Course Work &Quizzes:
  - o Short Exams, Assignments, Researches, Reports, Presentations on e-learning hub
  - o Class/Project discussion in a virtual classroom

7- List of references

Essential books (text books)	– Tharp, A. L. (1991, January 16). *File Organization and Processing.* https://doi.org/10.1604/978047160521 8 – Kobel, N. (2016, December 9). *Distributed File Systems: Distributed Computing Architecture.*
Course notes	– https://byjus.com/gate/file-organization-in-dbms-notes/
Recommended books	• Price, M. J. (2020, November 10). *C# 9 and .NET 5: Modern Cross-Platform Development.* • Skeet, J. (2019, March 23). *C# in Depth: Fourth Edition.*

Periodicals,website	**Powerpoint presentations of all course materials** **All labs material** **[https://moodle.sha.edu.eg/course/view.php?id=2253]**

8- Required Facilities

To assess professional and practical skills given the following facilities:

a. Tools & SW (Technologies facilities):

  – **Microsoft visual Studio 2019&. NET framework**
  – **Microsoft TEAMS to create virtual classrooms for lectures, discussions for project**
  – **portal(MOODLE) to make electronic quizzes and electronic midterm exam**
  – **portal(MOODLE) to upload project deliverable and assignment**
  – **academy portal(MOODLE) to upload electronic material**

b. Teaching facilities:

	Lecture	*class*	*Lab*
Whiteboard	used	-	used
Pc/laptop	used	-	used
Data show	used	-	used
Webinars	MS TEAMS	-	MS TEAMS
SocialMedia	Facebook Page for 2rd year	-	Facebook Page for 2rd year
ChatRoom	ChatTeams	-	ChatTeams
Videos	Stream-MOODLE	-	Stream-MOODLE
Website	MOODLE	-	MOODLE

9- Course Matrices

9.1- Course Content/ILO Matrix

Course Contents	a1	a2	b1	b2	c1	c2	d1	d2	d3
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	√	√	√		√	√			
SELECTED TOPIC	√	√	√						
Course Project.							√	√	√

9.2- Learning Method /ILOs Matrix

Learning Methods	Knowledge & understanding		Intellectual skills		Professional & practical skills		General		
	a1	a2	b1	b2	c1	c2	d1	d2	d3
Lectures	X	X	X	X	X	X			
Tutorial Exercises			X	X	X	X			
Reading material	X	X	X	X	X	X			
Websites search	X	X	X	X		X	X	X	X
Research and reporting	X	X					X	X	
Problem solving/problem solving learning based				X	X				
Group work					X	X	X	X	X
Practical Lab			X	X	X	X			
Discussions.			X	X	X	X	X	X	X

9.3 Assessment Methods /ILOs Matrix

Assessment Methods	Knowledge & understanding		Intellectual skills		Professional and practical skills		General		
	a1	a2	b1	b2	c1	c2	d1	d2	d3
Electronic Mid Term Exam	X	X	X	X					
Final Exam	X	X	X	X					
Electronic Course Project	X	X	X	X	X	X	X	X	X
Electronic Course Work &Quizzes	X	X	X	X	X	X	X	X	X
Practical Exam			X	X	X	X			

10- Course ILOs Vs Program ILOs

Course ILOs \ Prog ILOs	Knowledge & understanding			Intellectual skills					Professional and practical skills						General	
	A2	A13	A20	B2	B3	B4	B8	B10	C1	C5	C7	C9	C10	C18	D5	D12
K&U a1		√	√													
a2	√	√	√													
Int. b1				√		√	√									
b2				√	√											
P. &P. c1									√		√					
c2										√		√				
General d1																√
d2															√	
d3																√

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Head of Department: Dr. Ahmed El-Abbassy (   )
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