



University: *Fayoum University*  
 Faculty: *Computers and Information*  
 Department: *Computer Science*

### Course Specification

1- Basic Information			
<b>Code:</b> INF 271	<b>Course Title:</b> File Organization	<b>Year/Level:</b> Second year – Second term	
<b>Programme:</b> B.Sc degree in Computer Science	<b>Number of units:</b>	<b>Lecture:</b>	3 hrs/ week
		<b>Tutorial:</b>	2 hrs/ week
		<b>Practical:</b>	0 hrs/ week

<b>2- Aims of Course:</b>	The graduates have to develop a clear understanding of the basic concepts of File structure. The fundamental ideas can be introduced with reference to mechanical systems which are easy to visualize. The graduates have to know the nature of Files and Disk organization with emphasis on organizing data on files to enhance the access speed and minimize the number of disk access.
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3- Intended Learning Outcomes	
<b>A- Knowledge and Understanding:</b>	<p>A2. List the Fundamental topics in Computer Science and Information systems related to software engineering principles, computer organization and architecture.</p> <p>A7. Demonstrate essential facts, concepts, principles and theories relating to computing <b>and information</b> and computer applications as appropriate to the program of study</p> <p>A9. Identify programming fundamentals and languages, algorithms analysis, and data structures</p> <p>On completing course, students should be able to</p> <p>a.1 Recognize issues affecting access speed on secondary storage (Disk &amp; Tape).</p> <p>a.2 Describe differences between various field and record representations.</p> <p>a.3 Describe file organization issues and possible means of addressing them.</p>
<b>B- Intellectual Skills:</b>	<p>B11. Evaluate a range of innovative design patterns and solutions to solve a computer science problem containing a range of commercial and industrial constraints.</p> <p>B12. Define the standard methodologies for solving information systems problems.</p>

	<p>B13. Define the main differences between computer-based and information systems concepts such as : mechanisms, methods and technologies.</p> <p>B.14 Identify the substituted solutions for the commercial, time, and industrial problems that faces information systems applications</p> <p>On completing course, students should be able to:</p> <p>b.1 Infer the best way to represent data in a file given the data characteristics.</p> <p>b.2 Refine proposed solutions given the problem at hand.</p> <p>b.3 Create an appropriate design for a given storage problem</p> <p>b.4 Describe possible methods by which files can be sorted, searched and indexed</p>
<p><b>C- Professional and Practical Skills:</b></p>	<p>C8. Deploy appropriate tools for the construction and documentation of computer-based systems that are used to solve practical problems</p> <p>C9. Deploy different modeling techniques to model and analyze real life computing problems.</p> <p>On completing course, students should be able to:</p> <p>c.1 Calculate storage requirements and access times.</p> <p>c.2 Use sequential as well as direct file access to store and retrieve disk data.</p> <p>c.3 Build primary and secondary indices for a given file.</p> <p>c.4 Apply indexes and hashing techniques to improve retrieval</p>

<p><b>4-Course Content:</b></p>	<ol style="list-style-type: none"> <li>1. Introduction To File Management</li> <li>2. Fundamental File Processing Operations</li> <li>3. Secondary Storage, Physical Storage Devices: Disks, Tapes and CD-ROM.</li> <li>4. Fundamental file structure.</li> <li>5. Managing Files of Records.</li> <li>6. Organizing file for performance (File Compression- Reclaiming Space n Files- Internal Sorting- Binary Searching- Keysorting).</li> <li>7. Indexing.</li> <li>8. Consequential Processing And External Sorting</li> <li>9. Multilevel Indexing And B Trees</li> <li>10. Indexed Sequential Files And B+trees.</li> <li>11. Hashing and Extendible Hashing.</li> </ol>
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<p><b>5- Teaching and Learning Methods:</b></p>	<p>1. Lectures</p>
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	<ol style="list-style-type: none"> <li>2. Tutorials</li> <li>3. Class discussions</li> <li>4. Internet searches</li> <li>5. Data Show and Slides</li> </ol>
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<b>6- Teaching and Learning Methods for handicapped students :</b>	-
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<b>7- Student Assessment</b>
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<b>A- Assessment Methods:</b>	<ol style="list-style-type: none"> <li>1. Assignments and Quizzes</li> <li>2. Midterm written exam</li> <li>3. Practical exam</li> <li>4. Final written exam</li> </ol>
<b>B- Assessment schedule:</b>	Midterm Examination: Week 7 Practical Examination: Week 13 Oral Examination: Week 14 Final Examination: Week 15
<b>C- Weighting of assessments:</b>	Assignments and Quizzes: 10 % Mid-Term Examination: 10% Practical Examination: 15% Final-term Examination: 65%

<b>8- Books and References</b>
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<b>A- Notes:</b>	-
<b>B- Essential Books (Text Books):</b>	<ul style="list-style-type: none"> <li>▪ File Structures (An Object Oriented Approach with C++) (Michael J. Folk, Bill Zoellick, Greg riccardi). 3rd edition (2008)</li> </ul>
<b>C- Recommended Books:</b>	-
<b>D- Periodicals, Web sites, ... etc</b>	-

**Course Professor: Hala Abdel Hameed    Department Head: Amira Edress**

**Course Content Intended Learning Outcomes Matrix****Course Title:** File Organization**Course Code:** INF 271

Course Content	Week	Knowledge & Understanding			Intellectual Skills				Professional & Practical Skills			
		a1	a2	a3	b1	b2	b3	b4	c1	c2	c3	c4
1. Introduction To File Management	1	x	x	x	x				x			
2. Fundamental File Processing Operations	2	x	x	x	x		x		x			
3. Secondary Storage, Physical Storage Devices: Disks, Tapes and CD-ROM.	3	x	x	x	x				x	x		
4. Fundamental file structure.	4	x	x	x			x		x	x		
5. Managing Files of Records.	5	x	x		x				x			
6. Organizing file for performance (File Compression- Reclaiming Space n Files- Internal Sorting- Binary Searching- Keysorting).	6				x	x	x	x	x	x		
7. Indexing.	7					x		x			x	
8. Consequential Processing And External Sorting	8							x			x	
9. Multilevel Indexing And B Trees	9					x		x			x	x
10. Indexed Sequential Files And B+trees.	10							x			x	x
11. Hashing and Extendible Hashing.	11					x		x				x

Course coordinator: .....Hala Abdel Hameed...

Head of Department: Dr. Amira Edress