File Organization

Course Code:

CSE 341

Course Period:

Autumn

Course Type:

Core

Credits:

3

Theoric:

2

Practice:

0

Laboratory Hour:

2

ECTS:

5

Prerequisite Courses:

Data Structures [1]
Course Language:

English

Course Objectives:

The aim of this course is to provide students with knowledge and abilities to understand and implement file structures and a basing understanding of databases

Course Content:

The course is on structure, organization and processing of files and database management systems. The topics include fundamental file organization concepts, physical characteristics of storage media, sequential and direct file organizations, file sorting methods, tree index structures and their maintenance, hashing techniques for static and expandable files, introduction to database management systems (basic concepts, architecture, and components), overview of data models, relational algebra and query languages and query processing techniques.

Course Methodology:

Teaching Methods: 1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study

Course Evaluation Methods:

Assessment Methods: A: Testing, B: Experiment, C: Homework, D: Project

Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
1) Adequate knowledge in programming language concepts; ability to use theoretical and applied information to understand and implement various types of file structures and their corresponding algorithms.	1	1,2,3	A, C

Teaching Methods:	1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study
Assessment Methods:	A: Testing, B: Experiment, C: Homework, D: Project

COURSE CONTENT

Week	Topics	Study Materials
1	Introduction & Physical Storage Media	Textbook
2	File Management & Sequential Files	Textbook
3	Direct Files & Hashing – I	Textbook
4	Direct Files & Hashing – II	Textbook
5	Indexed Sequential File Organization	Textbook
6	Bits of Information	Textbook
7	Midterm I	Textbook
8	Binary Tree Structures: BST, AVL and IPR Trees	Textbook

9	B-Trees and Derivatives	Textbook
10	Tries & Patricia Trees	Textbook
11	Sorting & Merging I	Textbook
12	Sorting & Merging II	Textbook
13	Introduction to Databases	Textbook
14	Entity-Relationship Model-Review	Textbook

RECOMMENDED SOURCES

Textbook	Tharp, A. L., File Organization and Processing, John Wiley & Sons, 1988
Additional Resources	Salzberg, B., File Structures: An Analytical Approach, Prentice Hall, 1988 Folk, M. J., Zoellick, B., Riccardi, G., File Structures: An Object-Oriented Approach with C++, 3rd Edition, Addison-Wesley, 1998 Silberschatz, A., Korth, H. F., Sudarshan, S. Database System Concepts, 4th Edition, McGraw Hill, 2001 (Parts 1, 2, and 4) Ramakrishnan, R., Gehrke, J., Database Management Systems, 3rd Edition, McGraw Hill, 2003 (parts I and III)

MATERIAL SHARING

Documents
Assignments
Exams

ASSESSMENT

IN-TERM STUDIES	**NUMBER**	**PERCENTAGE**
Mid-terms	1	50
Assignment	3	17
Lab Work	14	33
Total		**100**
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		40

CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE	60
Total	**100**

COURSE'S CONTRIBUTION TO PROGRAM

No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.					**X**
2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.					
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.					
4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.					
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.					
6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.					
7	Ability to communicate effectively both orally and in writing; knowledge of a minimum of one foreign language.					
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.					
9	Awareness of professional and ethical responsibility.					
10	Information about business life practices such as project management, risk management, and change management; awareness of entrepreneurship, innovation, and sustainable development.					
11	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety; awareness of the legal consequences of engineering solutions.					

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam weeks: 12x Total course hours)	13	4	52
Hours for off-the-classroom study (Pre-study, practice)	14	4	56
Midterm examination	1	2	2
Homework	3	5	15
Final examination	1	3	3
Total Work Load			128
Total Work Load / 25 (h)			5.12
ECTS Credit of the Course			5