ADVANCE DATABASES

GENERAL INFORMATION

Course Title	In English: Advance Databases In Vietnamese: Cơ sở dữ liệu nâng cao		
Course Code	*ICT3.006*	**Credit points (ECTS)**	3
Requirement **Prerequisites**	Required Basic Databases Basic Programming		
Time Commitment	Lecture	20 hrs	
	Exercises	0 hrs	
	Practical/Labwork	10 hrs	
	Total	30 hrs	

DESCRIPTION

Course Objectives	CO1	Understand the basic knowledge of modern database and information systems
Course learning outcomes (CLO)	CLO1	Know how to model data using the entity-relationship model
	CLO2	Be able to model data using a relational model
	CLO3	Be able to manipulate relational data using relational algebra and calculus
	CLO4	Understand and be able to use the basic SQL constructs
	CLO5	Be able to identify functional dependencies in relational databases
	CLO6	Know several database design algorithms and be able to use them
	CLO7	Know how to create and manage XML database
	CLO8	Understand the relationships among disk organization, file structures, and hashing
	CLO9	Know several indexing structures for files and be able to use them
	CLO10	Know several algorithms for processing queries and be able to use them

	CLO11	Understand the basic concepts behind transaction processing
	CLO12	Know how to manipulate concurrency control
	CLO13	Understand the concepts behind parallel and distributed databases.
Course Description	The goal of the course is to introduce students to modern database and information systems as well as research issues in the field. Topics and systems covered may include object-relational, object-oriented, active, semi-structured and streaming databases. Also discussed will be recent advances in database systems such as advanced query processing, distributed databases, data warehousing, on-line analytical processing, distributed information integration, XML query engines, web and semi-structured data management. Students will have to solve some small written and programming assignments that will help them to understand and digest the covered material.	
Textbooks	[1] Abraham Silberschatz, Henry F. Korth and S. Sudarshan, Database System Concepts, 6th edition, McGraw-Hill, 2010 [2] Raghu Ramakrishnan and Johannes Gehrke, Database Management Systems, McGraw-Hill, 2003	

ASSESSMENT/EVALUATION

	% kết quả/Percentage	Loại hình/Type
Attendance/Attitude	10%	
Assignment	0%	
Mid-term exam	30%	
Project / Presentation	10%	
Final exam	50%	

MAIN CONTENTS

No.	Contents	Hours			Resources
		Lect.	Exr.	Prc.	

1	Relational database	2		1	
2	Formal Relational Query Languages, SQL	2		1	
3	Database design	2		1	
4	Object-based databases	2		1	
5	XML database	2		1	
6	Data storage and querying	2		1	
7	Transaction management	2		1	
8	Data analysis and mining	3		1	
9	System architecture: parallel and distributed databases	3		2	

Reference Literature:
[1]. Jiawei Han and Micheline Kamber, Data Mining: Concepts and Techniques, Morgan Kaufmann Publishers, 2000.
[2]. YannisManolopoulos, YannisTheodoridis and Vassilis J. Tsotras, Advanced Database Indexing, Kluwer Academic Publishers, 1999