

TROY UNIVERSITY
CS 420
Introduction to Database Systems
COURSE SYLLABUS

Autumn 2024

PRE-REQUISITES:

CS 3323 or CS3330

INSTRUCTOR INFORMATION:

Dinh-Van nguyen, Ph.D

Dept. of Communication Engineering, SEEE, Hanoi University of Science and Technology

Email: van.nguyendinh@hust.edu.vn

INSTRUCTOR EDUCATION:

Ph.D. in Computer Science, 2018, Mines ParisTech University, France

M.S. in Computer Science, 2015, Hanoi University of Science and Technology, Vietnam

B.S., in Computer Science, 2012, Korea Advanced Institute of Science and Technology

CATALOG DESCRIPTION:

The courses introduce to students the fundamental concepts and structures necessary for the design and implementation of a database management system. Students design, load, and query a database using tools such as E-R diagrams and SQL. Techniques such as data normalization and indexing will also be discussed. Hands-on projects will also be included.

STUDENT OUTCOMES:

- Understand concepts of a Database and Database management systems
- Understand concepts and design of Relational model database
- Understand and use data normalization and indexing
- Understand and use high level database model design
- Implement SQL Query and query optimization
- Understand concepts of constraints, foreign keys, trigger
- Demonstrate the ability to design a database for a specific problem
- Demonstrate the ability to use a database management system

Students will demonstrate the above through their performance on the assigned team projects, exams and discussion Black Board exercises.

GRADING

Midterm Exam - 30%

Final Exam - 30%

Team Project - 30%

Participation - 10%

GRADING SCALE:

Grades will be assigned according to the following scale:

A 90 - 100

B	80 - 89
C	70 – 79
D	60 – 69
F	below 60

TEXTBOOK

ABRAHAM SILBERSCHATZ , HENRY F. KORTH, S. SUDARSHAN, S. 2018, *Database system concepts*. 7th McGraw-Hill Education

REFERENCE

Raghu Ramakrishnan and Johannes Gehrke, *Database Management Systems* 3rd edition, 2009, McGraw Hill, ISBN 0-07-246563-8

METHODS OF INSTRUCTION: In-Classroom Lectures, Labs, Tests, Handouts/Homework, Class Participation and Reading assignments.

HONESTY AND PLAGIARISM

*Plagiarism is defined as submitting anything for credit in one course that has already been submitted for credit in another course or copying any part of someone else's intellectual work – their ideas and/or words – published or unpublished, including that of other students, and portraying it as one's own. All students are required to read the material presented at: <http://troy.troy.edu/writingcenter/research.html>

All material submitted for grade must be the student's own work.

Anyone found cheating and/or copying will receive an automatic 0 for that assignment or exam or dismissal from the course. This goes for the person who copies as well as the person who allows their work to be copied. A serious penalty (e.g: one lower letter grade) will be given for cheating and plagiarism and students will be required to retake a course if they get D or worse for that course.

OTHER POLICY

There will be no make up test. A missed test or exam will result in 0 points. Contact me in advance in case of emergency such as illness. An original letter address to me on a letterhead paper from a physician or hospital stating that you could not take the test or exam as scheduled is necessary for me to consider your case.

Student with more than 3 absences will not be allowed to take final exam.

PROJECTS

Students are required to submit their source code file(s) as email attachments prior to the project deadline. In the event you are unable to complete a project or make it work correctly, be sure to email your latest source code to receive partial credit. Students failing to submit projects within the allotted time will receive a project grade of zero and will not be allowed to make late submissions. Exceptions will be made ONLY under extenuating circumstances and

ONLY with prior approval by the instructor. To receive full credit, projects must be submitted on or before the due date.

TENTATIVE SCHEDULE

1	Course Introduction, Fundamental DBMS Concepts and Tools	Chapter 1
2	Relationships, Indexes, and Queries	Chapter 2,3
3-4	Queries and Data Import/Export	Chapter 4
5-6	SQL and Modelling Part 1	Chapter 6
7	SQL and Modelling Part 2	Chapter 6,7
8	Review & Mid-term	
9	SQL and Modelling Part 3	Chapter 7
10	SQL and Modelling Part 4	Chapter 7
11-12	Static Data, Variable Data, More Modelling, and Views	Chapter 7, 10
13-14	Normalisation, and JSON	Chapter 5
15	Final Exam	