



25 YEARS ANNIVERSARY
SOICT

HA NOI UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY



HA NOI UNIVERSITY OF SCIENCE AND TECHNOLOGY
SCHOOL OF INFORMATION AND COMMUNICATION TECHNOLOGY

Database (IT3090E)

About the course

- Course name: Database
- Volume (for the lectures/exercises)
 - 15 x 3 x 45 minutes in total
 - 3 x 45 mn each week, on Wednesdays 9h20-11h45
- Lecturer (for the lectures/exercises)
 - Muriel VISANI, Associate Professor
 - Contact: murielv@soict.hust.edu.vn
 - Department of Information Systems, SOICT, HUST
 - La Rochelle University, France
- Teaching Assistant (for the lectures/exercises)
 - Trinh Thu Hai (Mrs)
- Lecturers in charge of the practicals:
 - Several lecturers, including Dr Nguyen Thi Oanh

About the lecturer

- Associate Professor VISANI (me)
 - PhD in 2005
 - Associate Professor at La Rochelle University (France) since 2006
 - Accreditation to Direct Research (“Habilitation”: <https://www.insa-lyon.fr/en/accreditation-supervise-research>), in 2014
 - Sent from La Rochelle University to Bach Khoa for at least 3 years
- Teaching specialties:
 - Databases, decision support systems, data science, machine learning, computer vision
- Research specialty
 - Machine Learning applied mainly to Image Analysis, possibly with user interaction
- Please, call me Prof. Visani!

La Rochelle, France



La Rochelle University

- French public university, created in 1993
 - Provides 60 degrees in 4 faculties
 - Roughly 9,000 students, among which 10% foreigners
 - 466 lecturers / Ass. Prof. / Prof
 - Many student / researcher exchanges with Asia
 - In particular South-East Asia: Vietnam, Malaysia, Cambodia
 - 20+ conventions signed with Asian universities
 - In Computer Science / ICT:
 - 2 joint Master degrees with Hanoi universities
 - Vietnam National University (Trường Đại học Quốc gia Hà Nội)
 - University of Science and Technology of Hanoi (Trường Đại học Khoa học và Công nghệ Hà Nội)

Outcomes of this course

- Understand the different concepts related to
 - Databases, database management systems (DBMS) and data models with a focus on relational data model
 - Database query languages and in particular SQL
- Practical skills for
 - using relational DBMS
 - Designing databases
 - database technologies
 - storage organization
 - data integrity and concurrent accesses
 - indexing
 - query optimization
- The course also provides teamwork, problem-solving and practice skills

Contents

- ❑ Chapter 1: Introduction
- ❑ Chapter 2: Relational databases
- ❑ Chapter 3: Relational algebra
- ❑ Chapter 4: Structured Query Language (SQL)
- ❑ Chapter 5: Database Design
- ❑ Chapter 6: Indexing
- ❑ Chapter 7: Query processing and optimization
- ❑ Chapter 8: Constraints, rules and triggers
- ❑ Chapter 9: Security
- ❑ *(Optional) Chapter 10: Transactions: concurrency and recovery*

Evaluation

- **To be specified precisely later...**
 - Depends partly on the COVID situation
 - But, some general rules:
 - The exercises / practicals will be graded
 - My main focus when grading you will be to check if you understood the concepts and are able to apply them in real-life problems
 - I will not check if you are able to learn by heart the lectures' contents...
 - I am not an English teacher, so I won't give you a bad grade because of English issues, BUT I need to be able to evaluate if you understood, or not.
 - If you are aware that your English is not so great, do not hesitate to use drawing / schemes to illustrate what you understood
 - More generally, whatever you can do to show that you understood is welcome!
 - The attendance will also count as a part of the final grade
 - If you cannot attend one lecture for some good reason (health, attendance to some competition, family issue...), just send me an email with a justificative paper, if possible before the course
 - Please use my SoICT email: murielv@soict.hust.edu.vn

Some educational recommendations

- Attend classes (online on MS TEAMS) as scheduled
- **Turn off your cell phone**
- Read the references I'll give you
- **NO PLAGIARISM**
- Do not hesitate to
 - Ask questions **at any point during the lecture**
 - Even if it's only because of difficulties with English
 - Discuss with me
 - Don't hesitate to send e-mails in order to take appointments, if needed

Reference books

- C. J. Date, A. Kannan and S. Swamynathan, An Introduction to Database Systems, Pearson Education, Eighth Edition, 2009.
- Abraham Silberschatz, Henry F. Korth and S. Sudarshan, Database System Concepts, McGraw-Hill Education (Asia), Fifth Edition, 2006.
- Shio Kumar Singh, Database Systems Concepts, Designs and Application, Pearson Education, Second Edition, 2011.
- Peter Rob and Carlos Coronel, Database Systems Design, Implementation and Management, Thomson Learning-Course Technology, Seventh Edition, 2007.
- Patrick O'Neil and Elizabeth O'Neil, Database Principles, Programming and Performance, Harcourt Asia Pte. Ltd., First Edition, 2001.

Questions

