

## Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IND356	Database Management	5	3	0	0	3	4

Prerequisites	ING231
Admission Requirements	ING231

Language of Instruction	French
Course Type	Elective
Course Level	Bachelor Degree
Objective	<p>Database systems, which form the base of today's information technology applications and their management is very important to comprehend information technology systems. This course as a selective course will help the students to appraise a database management system and how data is defined, updated and managed in the system. In this context the aim of this course is determined as:</p> <ul style="list-style-type: none"><li>• showing the students how database systems are evolved from first computer systems.</li><li>• helping the students to evaluate the advantages and disadvantages of various database systems.</li><li>• helping the students to design a database management system.</li><li>• helping the students to put into practice their designed database management system.</li></ul>
Content	<p>1. week : Explanation of database management system concepts and their comparison to classic file systems.</p> <p>2. week : Explanation of database management system concepts and their comparison to classic file systems.</p> <p>3. week : Database models: relational model</p> <p>4. week : Relational model (relational calculus, relational algebra)</p> <p>5. week : Relational model (relational calculus, relational algebra)</p> <p>6. week : Structured query language: SQL</p> <p>7. week : Structured query language: SQL</p> <p>8. week : Mid term</p> <p>9. week : Physical organization of relational database system</p> <p>10. week : Evaluation of relational operators</p> <p>11. week : Query optimization</p> <p>12. week : Concurrent access and transaction management</p> <p>13. week : Security in database management systems</p> <p>14. week : Recovering from database crashes</p>
References	<ul style="list-style-type: none"><li>• Ramakrishnan and Gehrke, Database Management Systems, McGraw Hill, 2003.</li><li>• Date, C.J., An Introduction to Database Systems, Addison-Wesley, 2004.</li></ul>

## Theory Topics

Week	Weekly Contents
1	Explanation of database management system concepts and their comparison to classic file systems
2	Explanation of database management system concepts and their comparison to classic file systems
3	Database models: relational model
4	Relational model (relational calculus, relational algebra)
5	Relational model (relational calculus, relational algebra)
6	Structured query language: SQL
7	Structured query language: SQL

Week	Weekly Contents
8	Mid term
9	Physical organization of relational database system
10	Evaluation of relational operators
11	Query optimization
12	Concurrent access and transaction management
13	Security in database management systems
14	Recovering from database crashes