

## Content

| Course Code | Course Name                      | Semester | Theory | Practice | Lab | Credit | ECTS |
|-------------|----------------------------------|----------|--------|----------|-----|--------|------|
| INF324      | Database Design and Applications | 5        | 2      | 0        | 2   | 3      | 5    |

|                        |  |
|------------------------|--|
| Prerequisites          |  |
| Admission Requirements |  |

|                         |   |
|-------------------------|---|
| Language of Instruction | French  |
| Course Type             | Compulsory  |
| Course Level            | Bachelor Degree   |
| Objective               | <p>The objective of this course is to present an overview of the principles and the current techniques in relational databases subject. The course focuses on the modeling of data and the desing of a database in the context of DBMS SQL Server 2008</p> <p>Another secondary objective of the course is the development of student autonomy in the use of database management system. This is a reflection of the reality of the labor market data and student are encouraged to respond positively to seeing the opportunity to enhance their knowledge of the DBMS.</p>  |
| Content                 | <p>Introduction, properties and classification of DBMS, fundamental concepts</p> <p>Entity-relationship model: entity, association and attribute</p> <p>Relational model, normalization of a relationship</p> <p>Functional dependencies and normal forms</p> <p>Integrity constraints</p> <p>Relational Algebra</p> <p>Query Language: SQL</p> <p>SQL -- Simple Queries</p> <p>SQL -- Aggregate and complex queries</p> <p>Query Optimisation</p> <p>Indexing</p> <p>Triggers and Stored Procedures</p> <p>Transaction Management</p> <p>Isolation Levels</p>  |
| References              | <p>? Audibert, L. Bases de données : de la modélisation au SQL : conception des bases de données - modèle relationnel et algèbre relationnelle -langage SQL - programmation SQL, Ellipses, 2009</p> <p>? Elmasri,R&amp; Navathe, S. , Conception et architecture des bases de données, Pearson Education, 2004</p> <p>? Chauhan, C. (2015). PostgreSQL Cookbook. Packt Publishing Ltd. (<a href="http://kutuphane.gsu.edu.tr/tr">http://kutuphane.gsu.edu.tr/tr</a>)</p> <p>? Obe, R. O., &amp; Hsu, L. S. (2017). PostgreSQL: Up and Running: a Practical Guide to the Advanced Open Source Database. " O'Reilly Media, Inc.". (<a href="http://kutuphane.gsu.edu.tr/tr">http://kutuphane.gsu.edu.tr/tr</a>)</p> <p>? <a href="https://www.postgresql.org/">https://www.postgresql.org/</a></p> <p>? Gardarin, G., Bases de données, Eyrolles, 2003.</p> <p>? Date, C.J., An Introduction to Database Systems, Addison-Wesley, 2000.</p> <p>? Ünal Yarımağan, Veritabanı Sistemleri, Akademi Yayınları, 2000.</p> <p>? Yaşar Gözüdeli, SQL Server 2019 &amp; Veritabanı Programlama, Seçkin Yayıncılık, 2019</p> |

## Theory Topics

| Week | Weekly Contents   |
|------|---|
| 1    | Introduction, properties and classification of DBMS, fundamental concepts |
| 2    | Entity-relationship model: entity, association and attribute              |
| 3    | Relational model, normalization of a relationship                         |
| 4    | Functional dependencies and normal forms                                  |

| Week | Weekly Contents                      |
|------|--------------------------------------|
| 5    | Integrity constraints                |
| 6    | Relational Algebra                   |
| 7    | Query Language: SQL                  |
| 8    | SQL -- Simple Queries                |
| 9    | SQL -- Aggregate and complex queries |
| 10   | Query Optimisation                   |
| 11   | Indexing                             |
| 12   | Triggers and Stored Procedures       |
| 13   | Transaction Management               |
| 14   | Isolation Levels                     |