

Content

| Course Code | Course Name | Semester | Theory | Practice | Lab | Credit | ECTS |
|-------------|---|----------|--------|----------|-----|--------|------|
| INF483 | Knowledge Discovery and Introduction to Data Mining | 8 | 3 | 0 | 0 | 3 | 4 |

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| Prerequisites | IND211/INF256/INF257/INF211 |
| Admission Requirements | IND211/INF256/INF257/INF211 |

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| Language of Instruction | French |
| Course Type | Elective |
| Course Level | Bachelor Degree |
| Objective | This course aims at giving a general perspective and the ability of creating applications about data mining which is an important task of advanced computer science to the students. The real-world problems related to association rule mining, clustering and classification will be analyzed and possible solutions to those problems will be examined. Hence, the students will be able to propose practical solution to the data analysis problems. |
| Content | Fundamentals of Data Mining Data Preprocessing 1 - Cleaning, normalization, binning Data Preprocessing 2 - standardization, discretization, reduction Association Rule Mining 1 - Apriori Algorithms Association Rule Mining 2 - FP-Growth Algorithm, other algorithms Classification 1- Fundamentals, Decision Tree Classification 2- Bayesian Classification Classification 3- Neural Networks Midterm Clustering 1 - Fundamentals, Distance, Partitioning Algorithms Clustering 2 -Hierarchical Algorithms Clustering 3 - Grille and Density based Algorithms Advanced Topics in Data Mining 1 - Sequential Pattern Mining Advanced Topics in Data Mining 2 - Text mining |
| References | 1. PDQ Statistics, Geoffrey R. Norman, David L. Streiner, 2003 2. The Art of R Programming, A tour of Statistical Software Design, Norman Matloff, 2011 3. Data Mining Concepts and Techniques, Jiawei Han, Micheline Kamber, 2006 4. Introduction to Data Mining , Pang-Ning Tan, Michael Steinbach, Vipin Kumar 2006 5. Software for Data Analysis: Programming with R (Statistics and Computing), John M. Chambers, 2008 6. Data Mining with R: Learning with Case Studies (Chapman & Hall/CRC Data Mining and Knowledge Discovery Series), Luis Torgo, 2011 |

Theory Topics

| Week | Weekly Contents |
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