Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
IND363	Engineering Data Analytics	5	3	0	0	4	4

Prerequisites	ING231/ING242
Admission Requirements	ING231/ING242

Language of Instruction	French
Course Type	Elective
Course Level	Bachelor Degree
Objective	The objective of this course is to teach industrial engineering students the fundamentals of data analytics, introduce methods for analyzing large datasets, and equip students with skills to apply data analytics techniques for industrial applications.
Content	1. Week - Introduction to Data Analytics: Definitions and Applications 2. Week - Data Mining and Preprocessing Techniques 3. Week - Statistical Data Analysis 4. Week - Fundamentals of Machine Learning 5. Week - Classification Models 6. Week - Regression Analysis and Prediction Models 7. Week - Clustering and Association Rules 8. Week - Time Series Analysis 9. Week - Midterm Exam 10. Week - Fundamentals and Applications of Deep Learning 11. Week - Natural Language Processing and Text Mining 12. Week - Recommendation Systems and Applications 13. Week - Big Data Technologies and Applications 14. Week - Case Studies in Data Analytics for Industrial Applications
References	"Data Science for Business" - Foster Provost & Tom Fawcett "Python for Data Analysis" - Wes McKinney "Hands-On Machine Learning with Scikit-Learn, Keras, and TensorFlow" - Aurélien Géron "The Art of Data Science" - Roger D. Peng & Elizabeth Matsui "Coursera" platform courses

Theory Topics

Week	Weekly Contents
1	Introduction to Data Analytics: Definitions and Applications
2	Data Mining and Preprocessing Techniques
3	Statistical Data Analysis
4	Fundamentals of Machine Learning
5	Classification Models
6	Regression Analysis and Prediction Models
7	Clustering and Association Rules
8	Time Series Analysis
9	Midterm Exam
10	Fundamentals and Applications of Deep Learning

Week	Weekly Contents
11	Natural Language Processing and Text Mining
12	Recommendation Systems and Applications
13	Big Data Technologies and Applications
14	Case Studies in Data Analytics for Industrial Applications