Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
MİE628		1	3	0	0	3	6

Prerequisites	
Admission Requirements	

Language of Instruction	Turkish
Course Type	Elective
Course Level	Masters Degree
Objective	The aim of this course is to equip students with the analytical skills required to make data-driven decisions in business environments. The course introduces key concepts in data science, including descriptive, predictive, and prescriptive analytics, alongside optimization techniques and big data technologies. By integrating real-world examples, business tools, and ethical considerations, the course aims to build analytical literacy and foster strategic thinking in the age of digital transformation.
Content	Week 1 Review on Data and Business Data and AI Week 2 Introduction to Business Analytics and Data Ethics and Assignments of Semester-Beginning Presentations Week 3 Presentation of Semester-Beginning Assignments – Introduction to Excel and Descriptive Analytics (1) Week 4 Descriptive Analytics and Applications (2) Week 5 Predictive Analytics (1) Week 6 Predictive Analytics and Applications (2): Using AI for predictive Analytics Week 7 Wrap-up for midterm exam and Case Studies Week 8 MIDTERM EXAM (Final Project Topics will be provided) Week 9 Prescriptive Analytics (1) Week 10 Prescriptive Analytics and Applications (2) Week 11 Linear Optimization and Decision Analysis Week 12 Nonlinear Optimization and Decision Analysis Week 13 Big Data Technologies and Analytics /course wrap-up and Case Studies Week 14 Final Project Presentations
References	Camm, J. D., Cochran, J. J., Fry, M. J., & Ohlmann, J. W. (2024). Business analytics: Descriptive, predictive, prescriptive. Cengage Learning. Provost, Foster, and Tom Fawcett. Data Science for Business: What You Need to Know About Data Mining and Data-Analytic Thinking. O'Reilly Media, 2013. Mayer-Schönberger, Viktor, and Kenneth Cukier. Big Data: A Revolution That Will Transform How We Live, Work, and Think. Houghton Mifflin Harcourt, 2013. Readings and case studies will be provided throughout the course. The beginning and end-of-semester assignments are mandatory and must be completed to pass the course.

Theory Topics

Week	Weekly Contents