Course Syllabus

Code - Course Title	**VBA200 - Machine Learning I: Supervised Learning I**
Course Type	IV. SEMESTER
Laboratory + Practice	3+1
ECTS	**6.0**
Language of Instruction	İngilizce
Course Type	Required Courses
Course Instructor(s)	DR. ÖĞR. ÜYESİ ÖNDER DORAK

Mode of Delivery	Face to face

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1		Supervised learning fundamentals: Mathematical foundations	
Week - 2		Model training and evaluation logic	
Week - 3		Evaluation Metrics: Robust cross-validation strategies	
Week - 4		ROC-AUC curves and Precision-recall trade-offs	
Week - 5		Analyzing confusion matrices	
Week - 6		Model Optimization: Hyperparameter tuning	
Week - 7		Feature selection methods	
Week - 8		Handling class imbalance	
Week - 9		Diagnosing model bias and variance	
Week - 10		Regression Models: Linear regression	
Week - 11		Logistic regression applications	
Week - 12		Classification Algorithms: Decision trees	
Week - 13		Random forests and K-nearest neighbors	
Week - 14		Support vector machines (SVM)	

Learning Outcomes

#	Learning Outcome
1	Calculate and interpret ROC-AUC evaluation metrics
2	Optimize models via hyperparameter tuning

Learning Outcomes

#	Learning Outcome
3	Build and evaluate robust linear and logistic regression models
4	Implement decision trees, random forests, and SVMs

Sustainable Development Goals

No content has been provided.

Course Theme

No content has been provided.

AKTS Workload

Activity	Duration (Hour)	Count	Workload
Teorik Derse Katılım	0	0	0
Sınıf Dışı Çalışma (Ön Hazırlık & Pekiştirme Amaçlı)	0	0	0
Ödevler	0	0	0
Proje - Rapor - Sunum Hazırlama	0	0	0
Ara Sınav Hazırlığı (sınav süresi dahil)	0	0	0
Final Sınavı Hazırlığı (sınav süresi dahil)	0	0	0
Uygulama (Laboratuvar, Müzik/Enstrüman Uygulaması, Atölye/Saha Çalışması vb.)	0	0	0
Staj Uygulaması	0	0	0
		Calculated ECTS	**0**

Assessment Method and Passing Requirements

No content has been provided.