Course Syllabus

Code - Course Title	**VBA404 - Modern Forecasting Methods**
Course Type	VIII. SEMESTER
Laboratory + Practice	2+1
ECTS	**5.0**
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		Time Series Analysis: Testing for stationarity	
Week - 2		Analyzing autocorrelation and partial autocorrelation	
Week - 3		Building standard ARIMA models	
Week - 4		Building SARIMA models	
Week - 5		Exponential Smoothing: Applying Holt-Winters methods	
Week - 6		Formulating state space models	
Week - 7		Dynamic linear modeling for time series	
Week - 8		Advanced Forecasting: Leveraging modern algorithms (Prophet)	
Week - 9		Applying deep learning (LSTMs) for time series	
Week - 10		Handling multivariate forecasting problems	
Week - 11		Forecast Evaluation: Calculating error metrics (MAPE, RMSE)	
Week - 12		Performing rigorous backtesting	
Week - 13		Communicating forecast uncertainty	
Week - 14		Communicating confidence intervals visually	

Learning Outcomes

#	Learning Outcome
1	Build robust mathematical ARIMA and SARIMA models
2	Formulate state space models and exponential smoothing

Learning Outcomes

#	Learning Outcome
3	Apply modern forecasting algorithms including deep learning
4	Calculate error metrics and communicate forecast uncertainty

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.