Course Syllabus

Code - Course Title	**VBA302 - Machine Learning III: Deep Learning**
Course Type	VI. 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		Neural Networks: Multi-layer perceptrons architecture	
Week - 2		Selecting activation functions	
Week - 3		Forward and backpropagation mechanics	
Week - 4		Gradient descent optimization	
Week - 5		Computer Vision: Designing CNNs	
Week - 6		Performing image classification	
Week - 7		Object detection algorithms and Transfer learning	
Week - 8		Sequence Models: Recurrent neural networks (RNNs)	
Week - 9		Long short-term memory (LSTM) networks	
Week - 10		Understanding Transformers and attention mechanisms	
Week - 11		Generative Models: Introduction to GANs	
Week - 12		Autoencoders implementations	
Week - 13		Deploying models using PyTorch/TensorFlow (Part 1)	
Week - 14		Deploying models using PyTorch/TensorFlow (Part 2)	

Learning Outcomes

#	Learning Outcome
1	Understand forward and backpropagation optimization
2	Design Convolutional Neural Networks for image classification

Learning Outcomes

#	Learning Outcome
3	Build Recurrent Neural Networks and Transformer models
4	Deploy generative deep learning models using modern frameworks

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.