Course Syllabus

Code - Course Title	**VBA102 - Linear Algebra for Data Science**
Course Type	II. SEMESTER
Laboratory + Practice	3+0
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		Matrix Algebra: Vectors and Matrices	
Week - 2		Determinants and Operations	
Week - 3		Solving systems of linear equations	
Week - 4		Vector Spaces: Linear independence	
Week - 5		Linear transformation, Basis, and Dimension	
Week - 6		Advanced Decompositions: Eigenvalues	
Week - 7		Eigenvectors	
Week - 8		Singular value decomposition	
Week - 9		Optimization: Gradient descent method	
Week - 10		Cost function and Objective function	
Week - 11		Newton’s method	
Week - 12		Lagrange multipliers	
Week - 13		Applications: Data representation and Dimensionality Reduction	
Week - 14		Applications: Machine learning frameworks	

Learning Outcomes

#	Learning Outcome
1	Solve systems of linear equations using matrices
2	Analyze vector spaces and linear transformations

Learning Outcomes

#	Learning Outcome
3	Compute eigenvalues and singular value decomposition
4	Apply gradient descent for function optimization

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.