Course Syllabus

Code - Course Title	**BVA227 - Cloud Computing for Big Data**
Course Type	III. SEMESTER
Laboratory + Practice	2+1
ECTS	**3.0**
Language of Instruction	Türkçe
Course Type	Area Elective Courses
Course Instructor(s)	ÖĞR. GÖR. AHMET MÜCAHİD ARVASİ

Mode of Delivery	Face to face
Prerequisites	There are no prerequisites or corequisites for this course.

Course Syllabus

Weeks	Learning Outcomes	Topics	Teaching Methods
Week - 1		Introduction to Cloud Computing: Service Models (IaaS, PaaS, SaaS) and Deployment Models (Public, Private, Hybrid)	
Week - 2		Cloud Infrastructure and Overview of Leading Platforms: AWS, Microsoft Azure, and GCP	
Week - 3		Big Data Storage in the Cloud: Object Storage (S3, Blob, GCS), NoSQL Databases, and Data Lakes	
Week - 4		Big Data Processing Frameworks 1: Hadoop Ecosystem and HDFS (Hadoop Distributed File System) Architecture in the Cloud	
Week - 5		Big Data Processing Frameworks 2: Distributed Data Processing Logic, MapReduce, and Transition to Apache Spark	
Week - 6		Apache Spark Architecture and Cloud Integration: Amazon EMR, Azure HDInsight, and Databricks	
Week - 7		Cloud Data Warehouses: Amazon Redshift, Google BigQuery, and Snowflake Applications	
Week - 8		Midterm Exam	
Week - 9		Streaming Data Processing and Serverless Computing: AWS Lambda, Kinesis, and Kafka	
Week - 10		Data Analytics and Interactive Visualization in the Cloud: Athena, QuickSight, and PowerBI Integrations	
Week - 11		Scaling Machine Learning in the Cloud: Using SageMaker and Azure ML with Big Datasets	
Week - 12		Cloud Security and Privacy: Identity and Access Management (IAM), Data Encryption, and Network Security	
Week - 13		Cost Management (FinOps), Performance Optimization, and Auto-Scaling	
Week - 14		Real-World Case Studies: Sectoral Big Data/Cloud Architecture Solutions and Project Presentations	

Learning Outcomes

#	Learning Outcome
1	Upon successful completion of this course, students will gain the competence to grasp cloud computing infrastructures, service (IaaS, PaaS, SaaS), and deployment models to design big data storage and management solutions on leading platforms like AWS, Azure, and GCP; they will be able to execute cloud-based distributed data processing workflows using the Hadoop ecosystem and frameworks like Apache Spark; develop big data analytics and machine learning applications with serverless computing and cloud data warehouses; and establish scalable cloud architectures that ensure cost and performance optimization by analyzing data privacy, identity management, and cloud security principles through real-world case studies.

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.