BIG DATA

1	Course Title:	BIG DATA	
2	Course Code:	IYS4213	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	4	
6	Semester:	7	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:		
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Doç. Dr. MELİH ENGİN	
15	Course Lecturers:	Doç.Dr. Melih ENGİN	
16	Contact information of the Course Coordinator:	Doç.Dr. Melih ENGİN 0224 294 26 95 melihengin@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	This course covers analytical data generation, storage, management, transfer, in-depth analysis of incoming big data, covering the use of existing technologies, tools, architectures and systems in Big Data. Data processing solutions in high performance networks that provide a coverage area. It examines the bigdata applications emerging in various fields and tests the widely used big data applications, including application and development. It will also focus on data mining and machine learning algorithms to analyze big data.	
19	Contribution of the Course to Professional Development:	To be able to design the systems necessary for an enterprise and to produce solutions for the needs of iders.	
20	Learning Outcomes:		
		1	"Theory" and "practice" are taken in a balanced way to teach the student to understand, use and practice analysis of big data analysis and management. The course is designed to provide the student with an understanding of the issues and problems involved in large on-line warehouse systems, it plans to provide a basis for the solutions of today's practical techniques, knowledge and research approaches of tomorrow to meet the needs of such a system.
		2	They will learn big data concepts, terminology, data analytics features, big data types such as 5V-structural-non-structural-metadata.
		3	Understands analysis techniques such as qualitative - quantitative data mining, statistical analysis, A / B testing, correlation, regression analysis.
		4	They will be able to master storage concepts such as clustering, distributed file systems, relational database systems, NoSQL, in-memory storage and big data processing concepts such as parallel, distributed, and mass data processing.

	5	They comprehend parallel processing and other design patterns such as Cloudera virtual machine, HDFS (Hadoop Distributed File System), YARN (Yet Another Resource Negotiator and Hue) in processing big data.
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21	Course Content:

Course Content:

Week	Theoretical	Practice
1	Introduction to Big Data: Covers concepts, terminology, features, and big Data types such as 5V, structured, unstructured, semi-structured and metadata. It covers business and research motivations.	
2	Storage and Analysis in Big Data: It covers storage concepts such as clusters, distributed file systems, RDBMS, NoSQL, sharding, memory storage, as well as big data processing concepts such as parallel, distributed, mass data processing and Hadoop.	
3	Big Data Analysis Techniques: It covers analysis and visual data analysis.	
4	MapReduce Framework and Hadoop: Covers for big data processing. Cloudera virtual machine. HDFS, YARN and Hue.	
5	Java: We will examine the Hadoop MapReduce Java API.	
6	Hadoop. SQL queries on stored data.	
7	the MapReduce framework and RDD Spark. Flume and Kafka training	
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9	Standardized stack use for processing fast	
10	MLLib with Spark, Machine Learning: We will review learning algorithms to make predictions on data.	
11	Visualization in Big Data Clusters: We will see a graphical analysis of the content and properties of big data.	
12	Advanced topics and applications in big data.	
13	Advanced topics and applications in big data.	
14	exercise week.	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	0	0.00	0.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm Exams	1	60.00	60.00
Others	0	0.00	0.00
Final Exams	1	75.00	75.00
Total Work Load			177.00
Total work load/30 hr			5.90
ECTS Credit of the Course			6.00

22	Textbooks, References and/or Other Materials:	1. Big Data Fundamentals: Concepts, Drivers & Techniques (1st ed.). Thomas Erl, Wajid Khattak, and Paul Buhler. Prentice Hall Press, Upper Saddle River, NJ, USA. 2016. 2. Big Data, Principles and Best Practices of Scalable Realtime Data Systems, Nathan Marz and James Warren, Manning Publications 2015. 3. Hadoop: The Definitive Guide, Tom White, O'Reilly, 2015.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		Measurement and evaluation are performed according to the Rules & Regulations of Bursa Uludağ University on Undergraduate Education.

24 ECTS / WORK LOAD TABLE

25 CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS

	PQ1	**PQ2**	**PQ3**	**PQ4**	**PQ5**	**PQ6**	**PQ7**	**PQ8**	**PQ9**	**PQ10**	**PQ11**	**PQ12**	**PQ13**	**PQ14**	**PQ15**	**PQ16**
ÖK1	0	3	3	3	3	3	2	2	1	0	1	0	0	0	0	0
ÖK2	0	3	3	3	3	3	2	2	1	0	1	0	0	0	0	0
ÖK3	0	3	3	3	3	3	2	2	1	0	1	0	0	0	0	0
ÖK4	0	3	3	3	3	3	2	2	1	0	1	0	0	0	0	0
ÖK5	0	3	3	3	3	3	2	2	1	0	1	0	0	0	0	0

LO: Learning Objectives PQ: Program Qualifications

Contribution Level:	**1 very low**	**2 low**	**3 Medium**	**4 High**	**5 Very High**