<table>
<tr><th colspan="2">Course Description Form</th></tr>
<tr><td>Course Code and Name</td><td>BDA5101 Big Data Technologies</td></tr>
<tr><td>Course Semester</td><td>Fall/Spring</td></tr>
<tr><td>Catalog Content</td><td>Definition of big data, big data technologies, big data analytics, big data visualization, machine and deep learning, big data models</td></tr>
<tr><td>Textbook</td><td>1. Big Data Technologies and Applications (2016). Borko Furht, Flavio Villanustre
2. Mining of Massive Datasets, Jure Leskovec, Anand Rajaraman, Jeffrey David Ullman, Stanford University, 2011.
3. Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data, EMC Education Services, 2015.</td></tr>
<tr><td>Supplementary Textbooks</td><td>1. Multimodal Analytics for Next-Generation Big Data Technologies and Applications (2019). Seng, K.P., Ang, L.-m., Liew, A.W.-C., Gao, J.</td></tr>
<tr><td>Credit</td><td>8</td></tr>
<tr><td>Prerequisites of the Course (Attendance Requirements)</td><td>There is no prerequisite or co-requisite for this course
80% attendance is required.</td></tr>
<tr><td>Type of the Course</td><td>Obligatory</td></tr>
<tr><td>Instruction Language</td><td>English</td></tr>
<tr><td>Course Objectives</td><td>1. To understand big data concept and big data components
2. To comprehend the technologies used in big data processing, modeling, management, and visualization</td></tr>
<tr><td>Course Learning Outcomes</td><td>At the end of this course, the student will gain theoretical and practical knowledge about big data and technologies, data analytics and data modeling.</td></tr>
<tr><td>Instruction Methods</td><td>This course is carried out only in the form of face to face training.</td></tr>
<tr><td>Weekly Schedule</td><td>1. Introduction to Big Data
2. Big Data Analytics
3. Big Data Analytics
4. Visualizing Big Data
5. Learning Techniques in Big Data Analytics
6. Learning Techniques in Big Data Analytics
7. Big Data Storage and Data Models
8. Big Data Programming Models
9. Programming Platforms for Big Data Analysis
10. Programming Platforms for Big Data Analysis
11. Data Organization and Curatorship of Big Data
12. Linked Data Management
13. Linked Data Management
14. Searching Big Data: Practices and Experiences in Effectively Querying Knowledge Databases</td></tr>
<tr><td>Teaching and Learning Methods

(These are examples. Please fill which activities you use in the course)</td><td>Weekly theoretical course
Reading Activities
Internet browsing, library work
Designing and implementing materials
Report preparing
Preparing a Presentation
Presentations
Preparation of Midterm and Midterm Exam
Final Exam and Preparation for Final Exam</td></tr>
<tr><td>Assessment Criteria</td><td>
<table>
<tr><th></th><th>Numbers</th><th>Total Weighting (%)</th></tr>
<tr><td>Midterm Exams</td><td>1</td><td>30</td></tr>
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	Assignment	4	10
	Application	0	0
	Projects	1	60
	Practice	0	0
	Quiz	0	0
	Percent of In-term Studies (%)		40
	Percentage of Final Exam to Total Score (%)		60
	Attendance	-	-

Workload

Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work Load
Weekly Theoretical Course Hours	14	3	42
Weekly Tutorial Hours	0	0	0
Reading Tasks	14	3	42
Studies	14	2	28
Material Design and Implementation	1	18	18
Report Preparing	5	4	20
Preparing a Presentation	1	8	8
Presentations	1	1	1
Midterm Exam and Preparation for Midterm Exam	1	15	15
Final Exam and Preparation for Final Exam	1	25	25
Other (should be emphasized)	0	0	0
Total Workload			199
Total Workload / 25			7.96
Course Credit (ECTS)			8

Contribution Level Between Course Learning Outcomes and Program Outcomes

No	Program Outcomes	1	2	3	4	5
1	Reaches the expansion of knowledge by conducting scientific research in the field of engineering and evaluation, interpretation and application of information.					X
2	Has extensive and in depth knowledge including the latest techniques, methods applied and their limitations in engineering.					X
3	Completes and applies knowledge by using scientific methods by using limited or missing data and integrates information from different disciplines.				X	
4	Be aware of new and developing practices of the profession, examines and					X

	learns when needed.					
5	Defines and formulates problems related to the field, develops methods to solve them and applies innovative methods in solutions.				X	
6	Develops new and / or original ideas and methods, designs complex systems or processes and develops innovative / alternative solutions in their designs.				X	
7	Designs and applies theoretical, experimental and modeling based researches, examines and solves the complex problems encountered in this process.					X
8	Works effectively in disciplinary and multidisciplinary teams, leads such teams and develops solution approaches in complex situations, works independently and takes responsibility.			X		
9	Communicates oral and written using a foreign language at least at the level of European Language Portfolio C1.		X			
10	Conveys the process and results of the studies in written and oral form in a systematic and clear manner in national and international environments within or outside the field.					X
11	Knows the social, environmental, health, security, legal aspects of engineering applications; project management, and business life applications and be aware of the constraints of these engineering applications.	X				
12	Considers social, scientific and ethical values in the stages of data collection, interpretation and announcement and in all professional activities.		X			

The Course's Lecturer(s) and Contact Information	Computer Engineering Department bmbb@gazi.edu.tr