



KIET GROUP OF INSTITUTIONS, GHAZIABAD

Department of Information Technology

Course Outcome



Session 2021-22

**Department of Information
Technology**

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KIET GROUP OF INSTITUTIONS, GHAZIABAD

Department of Information Technology

Index

4th Semester		
S No.	Subject Code	Subject Name
1	KOE044	Sensor & Instrumentation
2	KAS401	Technical Communication
3	KCS402	Theory of Automata & Formal Language
4	KCS401	Operating System
5	KIT401	Web Designing
6	KNC402	Python Programming
7	KCS451	Operating Systems Lab
8	KIT451	Web Designing Lab
9	KCS453	Python Programming Lab

6th Semester		
S No.	Subject Code	Subject Name
1	KCS601	Software Engineering
2	KIT601	Data Analytics
3	KCS603	Computer Networks
4	KIT061	Blockchain Architecture Design
5	KOE061	Real Time Systems
6	KNC602	Indian Tradition, Culture and Society
7	KCS651	Software Engineering Lab
8	KIT651	Data Analytics Lab
9	KCS653	Computer Networks Lab

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S No.	Subject Code	Subject Name
1	KHU801	Rural Development
2	KOE081	Cloud Computing
3	KOE097	Big Data
4	KIT851	Project

CO PO and Mapping of CO PO 2nd Year (2020-2024 BATCH)

Session: - 2021-22 Semester:- 4th

S. No.	Subject	Code
1	Sensor & Instrumentation	KOE044
2	Technical Communication	KAS401
3	Theory of Automata & Formal Language	KCS402
4	Operating System	KCS401
5	Web Designing	KIT401
6	Python Programming	KNC402
7	Operating Systems Lab	KCS451
8	Web Designing Lab	KIT451
9	Python Programming Lab	KCS453

Theory

		At the end of course, students will be able to:												Bloom's Taxonomy Knowledge Dimension	
Sensor & Instrumentation (KOE044)	CO1	Apply the use sensors for measurement of displacement, force and pressure.												K3 C, P	
	CO2	Employ commonly used sensors in industry for measurement of temperature, position, accelerometer, vibration sensor, flow and level.												K3 P, M	
	CO3	Demonstrate the use of virtual instrumentation in automation industries.												K2 C, P	
	CO4	Identify and use data acquisition methods.												K3 F, C	
	CO5	Comprehend intelligent instrumentation in industrial automation.												K2 C, P	
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		3	2	2	2	1	-	-	-	-	1	1	1	2	2
CO2		2	3	3	2	1	-	-	-	-	1	1	1	2	2
CO3		2	2	3	3	1	-	-	-	-	1	1	1	2	2
CO4		2	3	3	2	1	-	-	-	-	1	1	1	1	1
CO5		1	3	2	3	1	-	-	-	-	1	1	1	1	1

	At the end of course, students will be able to:													Bloom's Taxonomy Knowledge Dimension
Technical Communica tion (KAS 401)	CO1	Analyze the nature and objectives of Technical Communication relevant for workplace as Engineer.												K4 F, C
	CO2	Utilizing the Technical Writing Skills for the purpose of Technical Communication and its exposure in various dimensions.												K3 C, P
	CO3	Imbibe presentation strategies inputs with confidence in facing diverse audience in required situations at workplace.												K3 C, P, M
	CO4	Estimate the application of Technical Communication to promote their competence for various media like report generation, resume design, GD, and Interview etc												K5 M
	CO5	Evaluate Voice dynamics and select appropriate cues for their own efficacy as fluent and efficient communicators.												K5 C, P
CO \ PO Map ping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2
CO1	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO2	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO3	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO4	-	-	-	-	-	-	-	-	2	3	-	3	-	-
CO5	-	-	-	-	-	-	-	-	2	3	-	3	-	-

		At the end of course, students will be able to:												Bloom's Taxonomy Knowledge Dimension	
Theory of Automata & Formal Language (KCS402)	CO1	Acquire a full understanding and applicability of Automata Theory as the basis of all computer science languages design												K1, K2 F, C	
	CO2	Identify different formal language and design the recognizer for regular languages to establish their applicability in real life.												K3 C, P	
	CO3	Ability to analyze & Design grammars for different formal languages												K4 M	
	CO4	Understand the designing of Pushdown Automata and Turing machines												K4, K5 F, P	
	CO5	Determine the decidability and intractability of computational problems												K5, K6 M	
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
	CO1	3	2	2	2	1	-	-	-	-	1	1	1	2	2
	CO2	2	3	3	2	1	-	-	-	-	1	1	1	2	2
	CO3	2	2	3	3	1	-	-	-	-	1	1	1	2	2
	CO4	2	3	3	2	1	-	-	-	-	1	1	1	1	1
	CO5	1	3	2	3	1	-	-	-	-	1	1	1	1	1

At the end of course, students will be able to:														Bloom's Taxonomy Knowledge Dimension
Operating System (KCS 401)	CO1	Illustrate the need, evolution, various categories and design issues of operating systems.												K4 F, C
	CO2	Analyze the problems related to concurrency and the different synchronization mechanism available.												K4 C, P
	CO3	Apply the techniques used to implement processes and threads as well as the different algorithms for process scheduling.												K3 P, M
	CO4	Analyze the various memory management techniques for memory allocation and concept of virtual memory.												K4 P, M
	CO5	Understand the Security issues, I/O management, Disk management and file system structure in operating systems.												K2 C, M
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1 2	PS O1	PSO2
CO1	3	3	3	3	3	1	-	-	-	-	-	2	1	1
CO2	3	3	2	3	2	1	-	-	-	-	-	2	2	1
CO3	3	3	3	3	3	1	-	-	-	-	-	2	2	1
CO4	3	3	2	3	2	1	-	-	-	-	-	2	2	1
CO5	3	2	2	2	2	1	-	-	-	-	-	2	2	2

		At the end of course, students will be able to:											Bloom's Taxonomy Knowledge Dimension		
Web Designing (KIT401)	CO1	Understand principle of Web page design and about types of websites											K3, K4, F, C		
	CO2	Visualize and recognize the basic concept of HTML and application in web designing.											K1, K2 C, P		
	CO3	Recognize and apply the elements of Creating Style Sheet (CSS).											K2, K4 C, P		
	CO4	Understand the basic concept of Java Script and its application.											K2, K3 C, P		
	CO5	Introduce basics concept of Web Hosting and apply the concept of Search Engine Optimization.											K2, K3 F, C		
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS O1	PSO2
CO1		3	2	2	2	3	1	-	-	1	1	1	2	1	1
CO2		3	2	3	1	2	1	-	-	1	1	2	2	1	1
CO3		3	2	3	1	3	1	-	-	1	1	2	2	2	2
CO4		3	2	3	2	3	1	-	-	2	1	2	3	2	3
CO5		3	3	2	2	2	2	-	-	2	1	2	2	2	3

		At the end of course, students will be able to:												Bloom's Taxonomy Knowledge Dimension	
Python Programming (KNC-402)	CO1	Understand and write simple Python programs												K2 C	
	CO2	Develop Python programs with conditionals and loops.												K4,K5 C,P	
	CO3	Design python functions and to use Python data structures — lists, tuples, dictionaries												K4 P	
	CO4	Perform input/output with files in Python and to apply OOPs concepts in python												K4,K5 C,P	
	CO5	Apply searching, sorting and merging in Python												K3 C	
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2
CO1		3	1	2	1	3	-	-	-	-	-	-	1	1	1
CO2		3	2	2	2	3	-	-	-	-	-	-	2	2	2
CO3		3	3	2	2	3	-	-	-	-	-	-	2	2	2
CO4		3	2	2	2	3	-	-	-	-	-	-	2	2	2
CO5		3	2	2	3	3	-	-	-	-	-	-	2	2	2

Practical

At the end of course, students will be able to:														Bloom's Taxonomy Knowledge Dimension
Operating System Lab (KCS 451)	CO1	Explore basic commands of operating system and executes various system calls.												K4 / F, C
	CO2	Illustrate and implement the Process Synchronization Problem using semaphore.												K4 / P, M
	CO3	Simulate process scheduling algorithm for process scheduling and deadlock management techniques.												K3 / P, M
	CO4	Demonstrate and implement Memory Management Techniques.												K4 / P, M
	CO5	Explore the implementation of File Storage Allocation Techniques												K4 / P, M
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1 2	PSO 1	PSO2
CO1	3	3	3	3	3	1	-	-	-	-	-	2	1	1
CO2	3	3	2	3	2	1	-	-	-	-	-	2	2	1
CO3	3	3	3	3	3	1	-	-	-	-	-	2	2	1
CO4	3	3	2	3	2	1	-	-	-	-	-	2	2	1
CO5	3	2	2	2	2	1	-	-	-	-	-	2	2	2

	At the end of course, students will be able to:													Bloom's Taxonomy Knowledge Dimension	
Web Designing Lab (KIT451)	CO1	Understand the principle of Web design.													K1, K2, F, C
	CO2	Implement HTML in the workings of the web applications.													K3 P
	CO3	Apply CSS for creating and designing the Web pages.													K3 P
	CO4	Apply and build dynamic web pages using client-side programming JavaScript.													K3 C, P
	CO5	Analyze and develop different types of web pages using HTML, CSS and JavaScript.													K3, K4 C, P
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO2	
CO1	3	3	2	1	1	1	-	-	-	2	3	3	1	1	
CO2	3	2	3	1	2	1	-	-	-	3	2	3	1	2	
CO3	3	2	3	1	2	1	-	-	-	3	2	3	1	2	
CO4	3	2	3	3	3	1	-	-	-	1	2	3	2	2	
CO5	3	3	1	2	2	2	-	-	-	1	2	3	2	2	

		At the end of course, students will be able to:												Bloom's Taxonomy Knowledge Dimension	
Python Programming Lab (KCS-453)	CO1	Understand basic syntax of python implementation												K2 C	
	CO2	Practically apply looping and conditional constructs												K3 C,P	
	CO3	Develop programs related with list data structure.												K4,K5 C,P	
	CO4	Design programs related to tuples, dictionary and set												K4 C	
	CO5	Apply searching, sorting and merging in Python												K3 C,P	
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PS O1	PSO2
CO1		3	1	2	1	3	-	-	-	-	-	-	1	1	1
CO2		3	2	2	2	3	-	-	-	-	-	-	2	2	2
CO3		3	3	2	2	3	-	-	-	-	-	-	2	2	2
CO4		3	2	2	2	3	-	-	-	-	-	-	2	2	2
CO5		3	2	2	3	3	-	-	-	-	-	-	2	2	2

CO PO and Mapping of CO PO 3rd Year (2019-2023 BATCH)

Session:- 2021-22 Semester:- 6th

S. No.	Subject	Code
1	Software Engineering	KCS601
2	Data Analytics	KIT601
3	Computer Networks	KCS603
4	Blockchain Architecture Design	KIT061
5	Real Time Systems	KOE061
6	Indian Tradition, Culture and Society	KNC602
7	SE Lab	KCS651
8	Data Analytics Lab	KIT651
9	Computer Networks Lab	KCS653

Theory

		At the end of course, students will be able to:												Bloom's Taxonomy Knowledge Dimension	
Software Engineering (KCS601)	CO1	Explain various software characteristics and analyze different software Development Models												K1, K2 C, M	
	CO2	Demonstrate the contents of a SRS and apply basic software quality assurance practices to ensure that design, development meet or exceed applicable standards.												K1, K2 F, C	
	CO3	Compare and contrast various methods for software design.												K2, K3 M	
	CO4	Formulate testing strategy for software systems, employ techniques such as unit testing, Test driven development and functional testing.												K3 F, P	
	CO5	Manage software development process independently as well as in teams and make use of Various software management tools for development, maintenance, and analysis.												K5 C, M	
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		1	1	1	-	1	1	1	-	-	1	2	2	1	1
CO2		2	3	3	2	2	1	1	-	-	2	3	3	2	2
CO3		3	3	3	3	1	1	2	-	-	1	1	2	1	1
CO4		3	3	3	3	2	2	2	-	-	1	2	2	2	2
CO5		2	3	2	3	2	2	1	-	-	2	3	2	2	2

At the end of course, students will be able to:														Bloom's Taxonomy Knowledge Dimension
Data Analytics (KIT601)	CO1	Discuss various concepts of data analytics pipeline												K1, K2 C
	CO2	Apply classification and regression techniques												K3 C, P
	CO3	Explain and apply mining techniques on streaming data												K2, K3 C, P
	CO4	Compare different clustering and frequent pattern mining algorithms												K4 M
	CO5	Describe the concept of Python programming and implement analytics on Big data using python												K2, K3 C, P
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	3	2	-	-	-	-	2	3	3	3
CO2	3	3	3	3	3	2	-	-	-	-	1	1	2	2
CO3	3	3	3	3	3	2	-	-	-	-	1	1	3	3
CO4	3	3	3	3	3	2	-	-	-	-	1	1	2	2
CO5	3	3	3	3	3	2	-	-	-	-	1	3	3	3

At the end of course, students will be able to:														Bloom's Taxonomy Knowledge Dimension
Computer Networks (KCS 603)	CO1	Understand the fundamental concepts of computer networking and its layered design architecture.												K1, K2 F, C
	CO2	Apply the link layer properties to detect error and to find the solutions for error control and flow control.												K2, K3 C, P
	CO3	Design the subnet addresses to form the LAN and calculate distance among routers in the subnet.												K4, K5 C, P
	CO4	Understand the duties of transport layer, session layer and presentation layer and also focus on network security issues to secure communication towards society.												K1, K2 F, C
	CO5	Understand the features and operations of various application layer protocols such as DNS, HTTP, FTP, e-mail protocols and other applications.												K1, K2 F, C
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	3	3	1	-	1	2	1	3	2	1
CO2	3	3	3	3	3	3	2	-	1	2	1	2	2	2
CO3	3	3	3	2	3	3	2	-	1	2	1	2	2	3
CO4	3	2	2	2	3	2	2	1	1	2	1	2	2	2
CO5	3	2	2	3	3	2	2	1	1	2	1	2	2	2

		At the end of course, students will be able to:											Bloom's Taxonomy Knowledge Dimension		
Blockchain Architecture Design (KIT061)	CO1	Describe the basic understanding of Blockchain architecture along with its primitive.											K1,K2 C		
	CO2	Explain the requirements for basic protocol along with scalability aspects											K2, K3 P		
	CO3	Design and deploy the consensus process using frontend and backend											K2, K3 C, P		
	CO4	Apply Blockchain techniques for different use cases like Finance and Trade/Supply											K3, K4, K5 P, M		
	CO5	Apply Blockchain techniques for different use cases of Government activities											K3, K4, K5 P, M		
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1 2	PSO 1	PSO2
CO1		3	-	-		3	2	2	2	-	-	-	2	-	-
CO2		3	2		2	3	-	-	-	-	-	2	1	-	2
CO3		3	2	2	2	3	2	-	-	-	-	-	3	2	2
CO4		3	3	3	3	3	3	-	2	-	-	2	3	2	3
CO5		3	3	3	3	3	3	2	-	-	-	2	2	2	3

		At the end of course, students will be able to:												
Real Time Systems (KOE061)	CO1	Describe concepts of Real-Time systems and modeling.												K1,K2 F, C
	CO2	Recognize, and apply the characteristics of a real-time system in context with real time scheduling.												K2,K3 C, P
	CO3	Classify and analyze various resource sharing mechanisms and their related protocols.												K2,K4 C, M
	CO4	Interpret the basics of real time communication by the knowledge of real time models and protocols.												K3,K5 F, C
	CO5	Apply the basics of RTOS in interpretation of real time systems.												K3,K5 C, P
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	2	2	2	2	-	-	2	2	2	3	3	3
CO2	3	3	3	3	3	3	-	-	2	2	-	3	3	3
CO3	3	3	3	3	3	3	2	-	2	2	2	3	3	3
CO4	3	3	3	3	3	3	2	-	2	2	-	3	3	3
CO5	3	3	3	3	3	3	2	-	2	2	-	3	3	3

Practical

		At the end of course, students will be able to:												Bloom's Taxonomy Knowledge Dimension	
Computer Networks Lab (KCS653)	CO1	Understand the fundamental concepts of computer networking, network topologies and network connecting devices.												K1, K2 C, F	
	CO2	Learning about UTP cabling and design simple computer network LAN.												K3, K4 F, C, P	
	CO3	Learn the basic network commands and use techniques, skills, and modern networking tools necessary for engineering practice												K3, K4, K5 C, P	
	CO4	Formulate problems and their solutions, think creatively and communicate effectively.												K4, K5, K6 F, C, P	
	CO5	Describe how rapid progress of computer network technology can impact on the society and continue to advance personal knowledge and understanding.												K3, K4 F, C	
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		3	2	2	2	2	3	3	2	3	3	3	2	2	1
CO2		3	2	3	2	2	2	3	2	2	2	3	3	2	1
CO3		3	2	3	2	3	2	2	2	2	2	2	3	2	1
CO4		2	2	3	2	3	2	2	2	3	3	2	2	2	2
CO5		3	2	2	2	2	3	2	2	3	2	2	2	2	3

		At the end of course, students will be able to:												Bloom's Taxonomy Knowledge Dimension	
Software Engineering Lab (KCS651)	CO1	Identify ambiguities, inconsistencies and incompleteness from a requirements specification and state functional and non-functional requirement												K2, K4 C	
	CO2	Identify different actors and use cases from a given problem statement and draw use case diagram to associate use cases with different types of relationship												K3, K5 C, P	
	CO3	Draw a class diagram after identifying classes and association among them												K4, K5 C, P	
	CO4	Graphically represent various UML diagrams, and associations among them and identify the logical sequence of activities undergoing in a system, and represent them pictorially												K4, K5 C, P	
	CO5	Use modern engineering tools for specification, design, implementation, and testing												K3, K4 C, M	
CO \ PO Mapping		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		3	3	3	2	3	2	2	-	1	-	1	3	1	1
CO2		3	3	3	3	3	2	2	-	1	-	1	3	1	1
CO3		3	3	3	3	3	2	2	-	1	-	1	2	1	1
CO4		3	3	3	3	3	2	2	-	1	-	1	1	2	2
CO5		3	3	3	3	3	2	2	-	1	-	1	2	3	3

	At the end of course, students will be able to:													Bloom's Taxonomy Knowledge Dimension
Data Analytics Lab (KIT651)	CO1	Implement numerical and statistical analysis on various data sources.												K2, K4 F, P
	CO2	Apply data preprocessing and dimensionality reduction methods on raw data.												K3, K5 C, P
	CO3	Implement linear regression technique on numeric data for prediction.												K3, K4 C, P
	CO4	Execute clustering and association rule mining algorithms on different datasets												K4, K5 P
	CO5	Implement and evaluate the performance of KNN algorithms on different datasets.												K3, K4 P, M
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	3	3	3	3	2	-	-	-	-	2	3	3	3
CO2	3	3	3	3	3	2	-	-	-	-	1	1	2	2
CO3	3	3	3	3	3	2	-	-	-	-	1	1	3	3
CO4	3	3	3	3	3	2	-	-	-	-	1	1	2	2
CO5	3	3	3	3	3	2	-	-	-	-	1	3	3	3

**CO PO and Mapping of CO PO 4th Year
(2018-2022 BATCH)**

Session:- 2021-22 Semester:- 8th

S. No.	Subject	Code
1	Rural Development	KHU801
2	Cloud Computing	KOE081
3	Big Data	KOE097
4	Project	KIT851

Theory

Rural Development (KHU-801)	At the end of course, students will be able to:													Bloom's Taxonomy Knowledge Dimension	
	CO1	Understand the definitions, concepts and components of Rural Development													K2, K4 C
	CO2	Distinguish among importance, structure, significance and resources of Indian rural economy													K4 C, P
	CO3	Apply learning of area development programs and see their impact.													K3 C, P
	CO4	Apply knowledge of rural entrepreneurship.													K3 C, P
	CO5	Evaluate different methods for human resource planning.													K5/C, P
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	1	1	1	1	1	2	2	3	2	1	2	1	1	1	
CO2	1	1	1	1	1	2	2	3	2	1	2	1	1	1	
CO3	1	1	1	1	1	2	2	3	3	1	2	1	1	1	
CO4	1	1	1	1	1	2	2	3	3	1	2	1	1	1	
CO5	1	1	1	1	1	2	2	3	3	1	3	1	1	1	

Cloud Computing (KOE-081)	At the end of course, students will be able to:													Bloom's Taxonomy Knowledge Dimension	
	CO1	Understand basic concepts and evolution of Cloud Computing.													K1, K2 F, C
	CO2	Understand the importance of different Cloud enabling technologies and apply their application in the real world.													K2, K3 C, P
	CO3	Understand and analyze multi layered cloud architecture design along with their applications and challenges.													K2, K4 C, P
	CO4	Understand and Apply Resource management and analyze security systems in the cloud.													K3, K4 C, P, M
	CO5	Analyze and Evaluate the components of open stack, Google Cloud platform, Hadoop, Virtual Box and Amazon web Service.													K4, K5/C, P, M
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	3	3	1	1	2	2	2	1	2	1	3	2	2	3	
CO2	3	3	3	2	2	2	1	2	1	2	2	3	2	2	
CO3	3	3	2	2	2	2	2	1	2	1	2	1	2	1	
CO4	3	3	2	2	3	3	2	1	1	2	1	2	1	2	
CO5	3	3	3	3	3	2	2	1	2	1	2	1	2	1	

Big Data (KOE-097)	At the end of course, students will be able to:													Bloom's Taxonomy Knowledge Dimension	
	CO1	Understand the Big Data concept and related terminologies like security, characteristics, analytics, tools & techniques.													K1, K2 C
	CO2	Understand Hadoop Ecosystem and apply MapReduce programming on Hadoop framework.													K2, K3 C, P
	CO3	Understand and apply Hadoop setup with JAVA interfaces.													K2, K3 C, P
	CO4	Understand and apply resource management, NoSQL database and OOP programming on Hadoop Ecosystem using YARN, MongoDB, Spark and SCALA.													K2, K3, K4 C, P, M
	CO5	Understand and apply data processing and monitoring using Pig, Hive and HBase on Hadoop Ecosystem.													K3, K4, K5 C, P, M
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	3	3	3	3	3	1	-	1	2	-	2	3	3	3	
CO2	3	3	3	3	3	1	-	1	2	-	2	3	3	3	
CO3	3	3	3	3	3	1	-	1	2	-	2	3	3	3	
CO4	3	3	3	3	3	1	-	1	2	-	2	3	3	3	
CO5	3	3	3	3	3	1	-	1	2	-	2	3	3	3	

Practical

Project (KIT851)	At the end of course, students will be able to:													Bloom's Taxonomy Knowledge Dimension	
	CO1	Select and summarize all aspects of the real-life problem through survey.													K1, K2 C
	CO2	Apply acquired knowledge to develop working model and plan different phases for its execution.													K3 C, P
	CO3	Analyze outcome of each phase using various tools, techniques, and coding practices.													K4 C, P
	CO4	Justify/defend opinions, validity of ideas or quality of work based on a set of criteria.													K5 C, P
	CO5	Test the working model and modify related phase accordingly. Finally integrate all phases													K6 C, P
CO \ PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	
CO1	3	3	3	3	3	2	1	1	3	3	3	3	1	1	
CO2	3	3	3	3	2	2	1	1	3	2	3	3	2	2	
CO3	3	3	3	3	2	2	1	1	3	2	3	3	2	3	
CO4	3	3	3	3	2	2	1	1	3	2	2	3	2	3	
CO5	3	3	3	3	2	2	1	1	3	2	1	2	2	3	