Course Outcome

Session 2021-2022

Even Semester

Department of Information Technology

13 KM STONE,GHAZIABAD-MEERUTROAD,GHAZIABAD–201206

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Index

4th Semester

SNo.	SubjectCode	SubjectName
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

SNo.	SubjectCode	SubjectName
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

8th Semester

SNo.	SubjectCode	SubjectName
1	KHU801	Rural Development
2	KOE081	Cloud Computing
3	KOE097	Big Data
4	KIT851	Project

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COandMapping ofCO-PO2ndYear

(2020-2024BATCH)

Session: -2021-22Semester:-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 &Instrumen tation(KOE 044)	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 Communication (KAS401)	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 Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	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	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' Taxonomy| Knowledge Dimension
Operating System (KCS401)	CO1	Illustrate the need, evolution, various categories and design issues of operating systems.	K2,K3 |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.	K5 |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,K3 |C,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	-	-	-	-	-	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' 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 Cascading 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 SEO	K2,K3|F, C

CO\PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2	3	2	1	1	1	-	-	-	1	1	2	1	1
CO2	3	1	3	1	2	1	-	-	-	1	1	2	1	1
CO3	3	1	3	1	2	1	-	-	-	1	1	2	2	1
CO4	2	1	3	3	3	1	-	-	-	1	1	3	2	2
CO5	1	3	1	2	2	2	-	-	-	1	2	2	2	2

		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	To 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 (KCS451)	CO1	Implement the basic command of OS and will execute the various system calls.	K4/F,C
	CO2	Implement the process synchronization problem using semaphore.	K4/P,M
	CO3	Implement CPU scheduling algorithm for process scheduling and deadlock management techniques.	K3/P,M
	CO4	Implement memory management techniques.	K4/P,M
	CO5	Implement file storage allocation techniques.	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	-	-	-	1	-	3	1	1
CO2	3	3	2	3	2	2	-	-	-	1	-	3	2	1
CO3	3	3	3	3	3	1	-	-	-	1	-	3	2	2
CO4	3	3	2	3	2	3	-	-	-	1	-	3	2	2
CO5	3	2	2	2	2	3	-	-	-	1	-	3	2	3

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
WebDesigning Lab(KIT451)	CO1	Understand the principle of Web design concepts.	K1, K2/F,C
	CO2	Implement of 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 developing 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	2	3	2	1	1	1	-	-	-	-	1	2	1	1
CO2	3	1	3	1	2	1	-	-	-	1	1	2	1	1
CO3	3	1	3	1	2	1	-	-	-	1	1	2	2	1
CO4	2	1	3	3	3	1	-	-	-	1	1	3	2	2
CO5	1	3	1	2	2	2	-	-	-	1	2	2	2	2

		At the end of course, students will be able to:													Bloom's Taxonomy| Knowledge Dimension
	CO1	Understand basic syntax of python implementation													K2|C
Python Programming Lab(KCS-453)	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	PSO1	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 3rdYear

(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 (KCS603)	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 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/FC
	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, K3C,P
	CO4	ApplyBlockchaintechniquesfordifferentusecaseslikeFinanceandTrade/Supply	K3,K4, K5 |P,M
	CO5	Apply Blockchain techniques for different use cases like Finance and Trade/Supply	K3, K4, K5 | P,M

CO\PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	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:	Bloom's Taxonomy| Knowledge Dimension
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	2		3	3	3
CO5	3	3	3	3	3	3	2	2	2	2		3	3	3

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Indian Tradition, Culture and Society (KNC602)	CO1	Identify and understand the roots and details of Society State and Polity in India.	K1,K2|F,C
	CO2	Understand the importance of Indian Literature , Culture , Tradition ,Practices and to apply in the present system.	K2,K3 |F,M
	CO3	Analyse Indian Religion, Philosophy, Practices and in shadow of Pre-Vedic and Vedic Religion, Buddhism, Jainism, Six System Indian Philosophy and to apply in the present system.	K3,K4 |C, M
	CO4	Analyse the Science, Management, and Indian Knowledge System and to apply in the present system.	K3,K4 F, P,M
	CO5	Evaluate the Indian Architect, Engineering and Architecture in Ancient India, Indian's Cultural Contribution to the World and to create an environment in Arts and Cultural for the present system.	K5,K6|F, P,M

CO\PO Mapping	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1		2	2	1	2	2	2	2	2	1		2	2	
CO2	2	1	2		2	2	2	2	2	1	2	3	1	1
CO3	1	1	2	-		2	2	2	1	2		2		1
CO4	2	2	2	-	-	2	2	2	2	2	2	2	1	2
CO5	2	1	2	2	2	3	2	2	2	2	1	2	1	2

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	Able to 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(KIT 651)	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 algorithm 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 4thYear

(2018-2022BATCH)

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

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Cloud Computing (KOE-081)	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 multilayered 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

		At the end of course, students will be able to:	Bloom's Taxonomy| Knowledge Dimension
Big Data(KOE -097)	CO1	Understand the Big Data concept and related terminologies like security, characteristics, analytics, tools &techniques.	K1,K2|C
	CO2	Understand Hadoop Ecosystem and apply Map Reduce 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	3	3
CO2	3	3	3	3	2	2	1	1	3	2	3	3	3	3
CO3	3	3	3	3	2	2	1	1	3	2	3	3	3	3
CO4	3	3	3	3	2	2	1	1	3	2	2	3	3	3
CO5	3	3	3	3	2	2	1	1	3	2	1	2	3	3