SCHOOL OF MANAGEMENT SCIENCES

VARANASI

(AN AUTONOMOUS COLLEGE)

MASTER OF COMPUTER APPLICATION

(MCA)

(Two Year Course)

PROGRAMME OUTCOMES FOR FIRST SEMESTER COURSES

S. No	Programme Outcomes	MCA101	MCA102	MCA103	MCA104	MCA105	MCA151	MCA152	MCA153
1	Generic and domain Knowledge	✓	✓	✓	✓	✓	✓	✓	✓
2	Problem Analysis		✓		✓	✓	✓	✓	
3	Design/Development of Solution	✓	✓	✓	✓	✓	✓	✓	✓
4	Conduct Investigation of Complex Problem		✓		✓	✓	✓	✓	
5	Modern Tools Usages	✓	✓	✓		✓	✓	✓	✓
6	Ethics	✓	✓	✓			✓		✓
7	Individual & Team Work	✓	✓	✓		✓	✓	✓	✓
8	Communication	✓	✓	✓			✓		✓
9	Project Management		✓				✓		
10	Life Long Learning	✓	✓				✓		

Legend:

MCA101	Emerging Information Technologies
MCA102	Problem Solving using C
MCA103	Principles of Management & Communication
MCA104	Discrete Mathematics
MCA105	Computer Organization
MCA151	Problem Solving using C **Lab**
MCA152	Computer Organization **Lab**
MCA153	Professional Communication **Lab**

PROGRAMME OUTCOMES FOR SECOND SEMESTER COURSES

S. No	Programme Outcomes	MCA201	MCA202	MCA203	MCA204	MCA205	MCA251	MCA252	MCA253
1	Generic and domain Knowledge	✓	✓	✓	✓	✓	✓	✓	✓
2	Problem Analysis	✓	✓	✓	✓	✓	✓	✓	✓
3	Design/Development of Solution	✓	✓	✓	✓	✓	✓	✓	✓
4	Conduct Investigation of Complex Problem	✓	✓	✓	✓	✓	✓	✓	✓
5	Modern Tools Usages		✓		✓		✓	✓	
6	Ethics		✓		✓		✓	✓	
7	Individual & Team Work		✓			✓	✓		✓
8	Communication	✓	✓	✓	✓	✓	✓	✓	✓
9	Project Management		✓	✓	✓	✓	✓	✓	✓
10	Life Long Learning		✓	✓	✓		✓	✓	

Legend:

MCA201	Theory of Automata & Formal Languages
MCA202	Object Oriented Programming
MCA203	Operating Systems
MCA204	Database Management Systems
MCA205	Data Structures using C
MCA251	Object Oriented Programming **Lab**
MCA252	DBMS **Lab**
MCA253	Data Structures using C **Lab**

PROGRAMME OUTCOMES FOR THIRD SEMESTER COURSES

S. No	Programme Outcomes	MCA301	MCA302	MCA303	MCA011	MCA012	MCA013	MCA021	MCA022	MCA023	MCA351	MCA352	MCA352
1	Generic and domain Knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Problem Analysis	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
3	Design/Development of Solution	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Conduct Investigation of Complex Problem	✓	✓					✓			✓	✓	✓
5	Modern Tools Usages		✓	✓	✓	✓	✓	✓		✓		✓	✓
6	Ethics									✓			✓
7	Individual & Team Work		✓			✓				✓		✓	✓
8	Communication	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓
9	Project Management	✓	✓	✓			✓	✓			✓	✓	✓
10	Life Long Learning	✓	✓	✓							✓	✓	✓

Legend:

MCA301	Design & Analysis of Algorithms
MCA302	Web Technologies
MCA303	Computer Networks
MCA011	Cloud Computing
MCA012	Data Warehousing & Data Mining
MCA013	Cryptography & Network Security
MCA021	Big Data
MCA022	Simulation & Modeling
MCA023	Privacy & Security in Online Social Media
MCA351	Algorithms **Lab**
MCA352	Web Technologies **Lab**
MCA353	Mini Project

PROGRAMME OUTCOMES FOR FOURTH SEMESTER COURSES

S. No	Programme Outcomes	MCA401	MCA402	MCA031	MCA032	MCA033	MCA041	MCA042	MCA043	MCA451
1	Generic and domain Knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Problem Analysis	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	Design/Development of Solution	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	Conduct Investigation of Complex Problem				✓	✓	✓	✓		✓
5	Modern Tools Usages	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	Ethics	✓	✓	✓			✓		✓	✓
7	Individual & Team Work		✓							✓
8	Communication	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	Project Management	✓	✓		✓		✓	✓		✓
10	Life Long Learning									✓

Legend:

MCA401	Artificial Intelligence
MCA402	Software Engineering
MCA031	Block-Chain Architecture
MCA032	Data Science
MCA033	Mobile Computing
MCA041	Internet of Things
MCA042	Data Analytics
MCA043	Machine Learning
MCA451	Project

Course Structure

For

MCA (MASTER OF COMPUTER APPLICATION) – FIRST YEAR

(Effective from Session 2022-23)

FIRST SEMESTER

S. No.	Subject Code	Subject Name	Periods			Sessional	ESE	Total	Credit
			L	T	P				
1.	MCA101	Emerging Information Technologies	4	0	0	50	100	150	4
2.	MCA102	Problem Solving using C	4	0	0	50	100	150	4
3.	MCA103	Principles of Management & Communication	4	0	0	50	100	150	4
4.	MCA104	Discrete Mathematics	4	0	0	50	100	150	4
5.	MCA105	Computer Organization	4	0	0	50	100	150	4
6.	MCA151	Problem Solving using C **Lab**	0	0	4	50	50	100	3
7.	MCA152	Computer Organization **Lab**	0	0	3	50	50	100	2
8.	MCA153	Professional Communication **Lab**	0	0	2	50	50	100	2
Total								**1050**	**27**

L/T/P: Lecture/ Tutorial/ Practical

SECOND SEMESTER

S. No.	Subject Code	Subject Name	Periods			Sessional	ESE	Total	Credit
			L	T	P				
1.	MCA201	Theory of Automata & Formal Languages	4	0	0	50	100	150	4
2.	MCA202	Object Oriented Programming	4	0	0	50	100	150	4
3.	MCA203	Operating Systems	4	0	0	50	100	150	4
4.	MCA204	Database Management System	4	0	0	50	100	150	4
5.	MCA205	Data Structures using C	4	0	0	50	100	150	4
6.	MCA251	Object Oriented Programming **Lab**	0	0	4	50	50	100	3
7.	MCA252	DBMS **Lab**	0	0	4	50	50	100	2
8.	MCA253	Data Structures using C **Lab**	0	0	4	50	50	100	2
Total								**1050**	**27**

L/T/P: Lecture/ Tutorial/ Practical

The student has to clear One NPTEL Course every year from the list provided by college. The list will be provided to the student at the beginning of the academic year.

Course Structure
For
MCA (MASTER OF COMPUTER APPLICATION) – SECOND YEAR
(Effective from Session 2022-23)

THIRD SEMESTER

S. No.	Subject Code	Subject Name	Periods			Sessional	ESE	Total	Credit
			L	T	P				
1.	MCA301	Design & Analysis of Algorithms	4	0	0	50	100	150	4
2.	MCA302	Web Technologies	4	0	0	50	100	150	4
3.	MCA303	Computer Networks	4	0	0	50	100	150	4
4.		Elective – I	4	0	0	50	100	150	4
5.		Elective – II	4	0	0	50	100	150	4
6.	MCA351	Algorithms **Lab**	0	0	3	50	50	100	2
7.	MCA352	Web Technologies **Lab**	0	0	3	50	50	100	2
8.	MCA353	Mini Project*	0	0	4	50	50	100	6
Total								**1050**	**30**

L/T/P: Lecture/ Tutorial/ Practical

*****The Mini Project (6 weeks) conducted during summer break after II semester and will be assessed during III semester. The Course will be carried out at the College under the guidance of a Faculty Members.***

FOURTH SEMESTER

S. No.	Subject Code	Subject Name	Periods			Sessional	ESE	Total	Credit
			L	T	P				
1.	MCA401	Artificial Intelligence	4	0	0	50	100	150	4
2.	MCA402	Software Engineering	4	0	0	50	100	150	4
3.		Elective – III	4	0	0	50	100	150	4
4.		Elective – IV	4	0	0	50	100	150	4
5.	MCA451	Project	0	0	0	200	400	600	15
Total								**1200**	**31**

L/T/P: Lecture/ Tutorial/ Practical

Elective List

Elective – I		***Elective – II***	
MCA011	Cloud Computing	*MCA021*	Big Data
MCA012	Data Warehousing & Data Mining	*MCA022*	Data Analytics
MCA013	Cryptography & Network Security	*MCA023*	Privacy & Security in Online Social Media
Elective – III		***Elective – IV***	
MCA031	Block-Chain Architecture	*MCA041*	Internet of Things
MCA032	Data Science	*MCA042*	Modeling & Simulation
MCA033	Mobile Computing	*MCA043*	Machine Learning

MCA101: Emerging Information Technologies			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Emerging Technologies.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of Information Technology to analyze various protocols	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of IoT and Build effective solutions for network related issues.	L -5 L –6	Evaluating Creating

MCA102: Problem Solving Using C			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course**	**Cognitive**	**Blooms Taxonomy**
CO 1	Understand the concept of programming, flowchart and algorithms	L –1 L –2	Remembering Understanding
CO 2	Identify the control constructs in C Language	L – 3 L - 4	Identifying Analyzing
CO 3	Build application by implementing string, pointer & structure.	L -5 L –6	Evaluating Creating

MCA103: Principles of Management & Communication			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Describe primary features, processes and principles of management and exhibit adequate verbal and non-verbal communication skills	L –1 L –2	Remembering Understanding
CO 2	Identify and Annalise functions of management in terms of planning, decision making and organizing.	L – 3 L - 4	Identifying Analyzing
CO 3	Illustrate key factors of leadership skill in directing and controlling business resources and processes.	L -5 L –6	Evaluating Creating

MCA104: Discrete Mathematics			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the mathematical and logical notation to define and formally reason about basic discrete structures such as Sets, Relations and Functions, Recurrence	L –1 L –2	Remembering Understanding
CO 2	Identify mathematical arguments using logical connectives and quantifiers to check the validity of an argument through truth tables and propositional and predicate logic	L – 3 L - 4	Identifying Analyzing
CO 3	Identify and prove properties of Algebraic Structures like Groups, Rings and Fields	L -5 L –6	Evaluating Creating

MCA105 : Computer Organization			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Computer Organization.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of computer organization to analyze various instructions.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Memory and Build effective solutions for computers.	L -5 L –6	Evaluating Creating

MCA151: Problem Solving Using C Lab			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Understand the concept of programming, flowchart and algorithms	L –1 L –2	Remembering Understanding
CO 2	Identify the control constructs in C Language	L – 3 L - 4	Identifying Analyzing
CO 3	Build application by implementing string, pointer & structure.	L - 5 L – 6	Evaluating Creating

MCA152: Computer Organization Lab			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Computer Organization.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of computer organization to analyze various instructions.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Memory and Build effective solutions for computers.	L -5 L –6	Evaluating Creating

MCA153: Professional Communication Lab			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO1	Develop the ability to work as a team member as an integral activity in the workplace and show confidence and clarity in public speaking projects; be schooled in preparation and research skills for oral presentations.	L –1 L –2	Remembering Understanding
CO2	Increase confidence in their ability to read, comprehend, organize, and retain written information. Improve reading fluency.	L – 3 L - 4	Identifying Analyzing
CO3	Write coherent speech outlines that demonstrate their ability to use organizational formats with a specific purpose; Deliver effective speeches that are consistent with and appropriate for the audience and purpose.	L -5 L –6	Evaluating Creating

MCA201: Theory of Automata & Formal Languages			
Course Objective: To teach the students basic concepts of computational theory			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Automata Theory.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of automata theory to analyze various type of languages.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Chomsky hierarchy and Build effective solutions for machines..	L -5 L –6	Evaluating Creating

MCA202 : Object Oriented Programming			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Demonstrate the concepts related to object oriented programming.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of object and class to analyze various functions.	L – 3 L - 4	Identifying Analyzing
CO 3	Build a GUI application with exception handling	L -5 L –6	Evaluating Creating

MCA203 : Operating Systems			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Operating System.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of operating system to analyze memory management.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Scheduling and Build effective solutions for Disk Scheduling.	L -5 L –6	Evaluating Creating

MCA204 : Database Management Systems			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**

CO 1	Develop and Relate the concepts related to Data Base.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of data base management system to analyze data management.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Normalization and Build effective solutions for transaction processing.	L -5 L –6	Evaluating Creating

MCA205: Data Structures Using C			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Construct and Relate the concepts related to Data Structure.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of data structure to analyze different terminology.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Searching technique and Build effective solutions for Sorting algorithm.	L -5 L –6	Evaluating Creating

MCA251:Object Oriented Programming Lab			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Understand the significance and key features of object oriented programming, Principle and Programming structure.	L –1 L –2	Remembering Understanding
CO 2	Analyze and Identify Packages, inheritance and interface.	L – 3 L - 4	Identifying Analyzing
CO 3	Build a GUI application with exception handling	L -5 L –6	Evaluating Creating

MCA252: Database Management System Lab	
Course Outcome (CO)	**Bloom's Knowledge Level (KL)**
At the end of course , the student will be able to	

COs	Course Outcomes	Cognitive Levels	Blooms Taxonomy
CO 1	Find and Relate the concepts related to Data Base.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of data base management system to analyze data management.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Normalization and Build effective solutions for transaction processing.	L -5 L –6	Evaluating Creating

MCA253: Data Structures Using C Lab			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Data Structure.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of data structure to analyze different terminology.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Searching technique and Build effective solutions for Sorting algorithm.	L -5 L –6	Evaluating Creating

MCA301: Design & Analysis of Algorithms			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to:			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Algorithm.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of algorithm to analyze different terminology.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of greedy and dynamic technique and Build effective solutions for NP problem.	L -5 L –6	Evaluating Creating
MCA302: Web Technology			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to:			

COs	Course Outcomes	Cognitive Levels	Blooms Taxonomy
CO 1	Understand HTML and CSS to develop web application and memorize the insights of internet programming to implement complete application over the web.	L –1 L –2	Remembering Understanding
CO 2	Analyze and Identify the role of JavaScript in web applications.	L – 3 L - 4	Identifying Analyzing
CO3	Build and Justify a web based data driven application using PHP-MYSQLi with MVC architecture	L -5 L –6	Evaluating Creating

MCA303: Computer Networks			
Course Outcome (CO)		Bloom's Knowledge Level (KL)	
At the end of course, the student will be able to:			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Computer Network	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of Computer Network to analyze various protocols	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of layer design and Build effective solutions for network related issues.	L -5 L –6	Evaluating Creating

MCA011: Cloud Computing			
Course Outcome (CO)		Bloom's Knowledge Level (KL)	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Understand the concepts of Cloud Computing.	L –1 L –2	Remembering Understanding
CO 2	Compare the architecture to compute, storage cloud, service and models analyze the application in cloud computing.	L – 3 L - 4	Identifying Analyzing
CO 3	Develop the execution path and enabling technologies that help in the development of cloud and Evaluating the core issues of cloud computing such as resource management and security.	L -5 L –6	Evaluating Creating

MCA012: Data Warehousing & Data Mining			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO1	Demonstrate basic knowledge of Data Warehouse and its components. Understand the process of designing a Data Warehouse and the concept involved with its planning and implementation.	L –1 L –2	Remembering Understanding
CO2	Identify various concept of Client-Server Computing & Parallel Processing for Data Warehousing. Analyze the warehousing strategy, warehouse management and support processes	L – 3 L - 4	Identifying Analyzing
CO3	Justify the process of Data Mining also Justify features of various data mining techniques. Build a data warehouse model using OLAP function and tools to demonstrate tuning and testing of a Data Warehouse.	L -5 L –6	Evaluating Creating

MCA013: Cryptography & Network Security			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Understand various security attacks and their protection mechanism and analyze different types of Key Distributions	L –1 L – 2	Remembering Understanding
CO 2	Identify and analyze various encryption algorithms.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Security layer and Build effective solutions for Security related issues.	L -5 L –6	Evaluating Creating

MCA021: Big Data Analytics			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO1	Understand knowledge of Big Data Analytics concepts and its applications in business.	L –1 L –2	Remembering Understanding
CO2	Compare and analyzing functions, components of Map Reduce Framework and HDFS.	L – 3 L - 4	Identifying Analyzing
CO3	Develop queries in NoSQL environment Justify process of developing applications using HBASE, Hive, Pig etc.	L -5 L –6	Evaluating Creating

MCA022: Data Analytics			
Course Objective: To teach the students techniques of Data analytics.			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Describe the life cycle phases of Data Analytics through discovery, planning and building	L –1 L –2	Remembering Understanding
CO 2	Identifying & Analyzing Machine Learning techniques for Data Analytics.	L – 3 L - 4	Identifying Analyzing
CO 3	Implement various Data Stream, and also Justify he Python tool for developing and evaluating real-time application	L -5 L –6	Evaluating Creating

SMCA023: Privacy and Security in Online Social Media			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to:			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Social Media.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of Security to analyze different privacy technique.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Privacy technique in social Media and Build effective solutions for security problem.	L -5 L –6	Evaluating Creating

MCA351: Algorithms Lab			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Algorithm.	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of algorithm to analyze different terminology.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of greedy and dynamic technique and Build effective solutions for NP problem.	L -5 L –6	Evaluating Creating

MCA352: Web Technology Lab

Course Outcome (CO)	Bloom's Knowledge Level (KL)
At the end of course, the student will be able to understand	

COs	Course Outcomes	Cognitive Levels	Blooms Taxonomy
CO 1	Understand HTML and CSS to develop web application and memorize the insights of internet programming to implement complete application over the web.	L –1 L –2	Remembering Understanding
CO 2	Analyze and Identify the role of JavaScript in web applications.	L – 3 L - 4	Identifying Analyzing
CO 3	Build and Justify a web based data driven application using PHP-MYSQLi with MVC architecture	L -5 L –6	Evaluating Creating

MCA353: Mini Project	
Course Outcome (CO)	**Bloom's Knowledge Level (KL)**
At the end of course , the student will be able to understand	

COs	Course Outcomes	Cognitive Levels	Blooms Taxonomy
CO 1	Find and Relate the concepts related to software	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of technical languages to analyze various programme	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of software and Build effective solutions for real time technical problem.	L -5 L –6	Evaluating Creating

MCA401: Artificial Intelligence	
Course Outcome (CO)	**Bloom's Knowledge Level (KL)**
At the end of course, the student will be able to understand	

COs	Course Outcomes	Cognitive Levels	Blooms Taxonomy
CO 1	Understand the concepts of AI & its application, and also define the meaning of intelligence and study various intelligent agents.	L –1 L –2	Remembering Understanding
CO 2	Analyze and Identify AI searching algorithms in different problem domains. Furthermore, Understand the basic concepts of Machine Learning to analyze and implement widely used learning methods and algorithms.	L – 3 L - 4	Identifying Analyzing
CO 3	Evaluating the Machine Learning techniques like classification and clustering methods for various application, and also understand the concept of pattern recognition	L -5 L –6	Evaluating Creating

MCA402: Software Engineering			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Remember various software characteristics and understand different software Development Models.	L –1 L –2	Remembering Understanding
CO 2	Identify various methods for software design. Formulate testing strategy for software systems, Analyze different testing techniques, Test driven development and functional testing.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify Software Costing and Manage software development process independently as well as in teams and make use of various software management tools for development, maintenance and analysis.	L -5 L –6	Evaluating Creating

MCA031: Block-Chain Technology			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO1	Study and understand basic concepts of block-chain architecture.	L –1 L –2	Remembering Understanding
CO2	Analyze various requirements for consensus protocols and Identify and Justify the consensus process.	L – 3 L - 4	Identifying Analyzing
CO3	Justify the concepts of Hyper ledger fabric and Analyze and Justify various use cases in financial software and supply chain.	L -5 L –6	Evaluating Creating

MCA032: Data Sciences			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Gain understanding of basics of Data Science & Analytics	L –1 L –2	Remembering Understanding

CO 2	Analyze the concepts of data mining & clustering and Identify them using SQL/ MySQL and Understand and Build Solutions to business problems through Microsoft Excel	L – 3 L - 4	Identifying Analyzing
CO 3	Justify different techniques for data management and Identify data visualization to the real world data	L -5 L –6	Evaluating Creating

SMCA033: Mobile Computing			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Understand the fundamentals of mobile computing, wireless networking, various data management issues in mobile computing	L –1 L –2	Remembering Understanding
CO 2	Study and analyze wireless networking protocols, applications and environment.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify various routing protocols used in mobile computing.	L -5 L –6	Evaluating Creating

MCA041: Internet of Things			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course, the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Understand basic concepts, principles, challenges in IoT, hardware devices and sensors used for IoT	L –1 L –2	Remembering Understanding
CO 2	Analyze network communication aspects and protocols used in IoT. Identify IoT for developing real life applications using Ardunio programming.	L – 3 L - 4	Identifying Analyzing
CO 3	To develop IoT infrastructure for popular applications	L -5 L –6	Evaluating Creating

MCA042 : Modelling & Simulation			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to Modelling.	L –1	Remembering

		L –2	Understanding
CO 2	Identify the knowledge of simulation to analyze different concept.	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of Simulation technique and Build effective solutions for Modelling .	L -5 L –6	Evaluating Creating

SMCA043: Machine Learning			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able:			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO1	Study and understand basic concepts of Machine Learning.	L –1 L –2	Remembering Understanding
CO2	Analyze various requirements for Learning and Identify and Justify the Learning process.	L – 3 L - 4	Identifying Analyzing
CO3	Justify the concepts of deep learning and Analyze and Justify in type of learning.	L -5 L –6	Evaluating Creating

MCA451: Project			
Course Outcome (CO)		**Bloom's Knowledge Level (KL)**	
At the end of course , the student will be able to understand			
COs	**Course Outcomes**	**Cognitive Levels**	**Blooms Taxonomy**
CO 1	Find and Relate the concepts related to software	L –1 L –2	Remembering Understanding
CO 2	Identify the knowledge of technical languages to analyze various programme	L – 3 L - 4	Identifying Analyzing
CO 3	Justify the effectiveness of software and Build effective solutions for real time technical problem.	L -5 L –6	Evaluating Creating