

COURSES OUTCOMES

MCA I YEAR – I SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
PC 101	Discrete Mathematics	<ol style="list-style-type: none">1. For a given logic sentence express it in terms of predicates2. For a given a problem, derive the solution using deductive logic and prove the solution based on logical inference3. For a given a mathematical problem, classify its algebraic structure4. Evaluate Boolean functions and simplify expressions using the properties of Boolean algebra5. Develop the given problem as graph networks and solve with techniques of graph theory.
PC 102	Data Structures using C	<ol style="list-style-type: none">1. Implement linear and non-linear data structure operations using C2. Suggest appropriate linear / non-linear data structure for any given data set.3. Apply hashing concepts for a given problem4. Modify or suggest new data structure for an application5. Appropriately choose the sorting algorithm for an application
PC 103	Object Oriented Programming using Java	<ol style="list-style-type: none">1. Explain OOPs features and concepts2. Write basic Java programs3. Write I/O programs in Java4. Use various built-in Java classes and methods5. Create window based Java programs
PC 104	Computer Architecture	<ol style="list-style-type: none">1. Apply data representation methods2. Write logic diagrams for micro operations3. Write general register organization diagrams4. Analyze computer arithmetic algorithms5. Explain I/O organization
PC 105	Probability & Statistics	<ol style="list-style-type: none">1. Understanding of Linear Algebra will boost the ability to understand and apply various data science algorithms.2. Calculate probabilities by applying probability laws and theoretical results, knowledge of important discrete and continuous distributions, their inter relations with real time applications.3. Understanding the use of sample statistics to estimate unknown parameters.4. Become proficient in learning to interpret outcomes.

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		5. Compute and interpret Correlation Analysis, regression lines and multiple regression analysis with applications.
PC 106	Managerial Economics and Accountancy	<ol style="list-style-type: none"> 1. Apply the fundamental concepts of managerial economics to evaluate business decisions Understand types of Demand and factors related to it. 2. Identify different types of markets and determine price –output under perfect competition 3. Determine working capital requirement and payback 4. Analyze and interpret financial statements through ratios
LCC 151	Data Structures using C Lab	<ol style="list-style-type: none"> 1. Write basic and advanced programs in C 2. Implement functions and recursive functions in C 3. Implement data structures using C 4. Choose appropriate sorting algorithm for an application and implement it in a modularized way
LCC 152	Java Programming Lab	<ol style="list-style-type: none"> 1. Be able to write simple java programs 2. Be able to write multithreaded programs 3. Be able to write I/O programs 4. Be able to write serialization programs 5. Be able to write URL class program
HSC 153	Soft Skills Lab	<ol style="list-style-type: none"> 1. Express conversational skills 2. Specify reading strategies 3. Perform time management 4. Perform stress management 5. Explore career planning

MCA I YEAR – II SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
PC 201	Operating	1. Explain operating systems and Unix OS, illustrate the workings of various OS components.

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	Systems	<ol style="list-style-type: none"> Analyze the process, its states and process scheduling algorithms. Demonstrate paging, demand paging, page replacement and segmentation with illustrations. Elaborate the file access and allocation methods and mass storage structures Describe concrete implementations of Linux system and Windows 7
PC 202	Database Management System	<ol style="list-style-type: none"> Explain the DB concepts and model requirements as ER-model Suggest relational algebra queries from text specification Write SQL queries for the given questions Elaborate indexing and hashing and describe concurrency control concepts Comprehend NoSQL technology
PC 203	Design and Analysis of Algorithms	<ol style="list-style-type: none"> Carry out algorithms time complexity Explain divide and conquer approach Illustrate greedy method Elaborate dynamic programming Explore backtracking
PC 204	Data Engineering with Python	<ol style="list-style-type: none"> Understand the basics of Python Programming Language Handle different types of files and work with text data Use regular expression operations Use relational databases via SQL Use tabular numeric data Use the data structures: data series and frames Use PyPlot for visualization Use Python for basic Machine Learning
PC 205	Machine Learning	<ol style="list-style-type: none"> Solve regression problems Apply dimensionality reduction methods Analyze classification schemes Explore clustering mechanisms Explain evaluation metrics
MGC 206	Operations Research	<ol style="list-style-type: none"> Solve linear problems Apply transportation problems Analyze assignment problems Explore dynamic programming Explain gaming theory

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LCC 251	Operating Systems Lab	<ol style="list-style-type: none"> 1. Be able to execute shell commands and write shell scripts 2. Be able to write programs on CPU scheduling 3. Be able to create memory management algorithms 4. Be able to execute programs to demonstrate synchronization problems 5. Be able to implement file allocation methods and be able to create disk scheduling algorithms
LCC 252	Data Engg. With Python Lab	<ol style="list-style-type: none"> 1. Demonstrate various data types in python and develop programs using files, exception handling, functions, classes in Python. 2. Examine the process for importing and exporting the data. 3. Apply appropriate data collection and pre-processing methods. 4. Identify different data analysis Techniques suitable for a given applications 5. Demonstrate data visualization techniques for Data Analysis.
LCC 253	Database Management Systems Lab	<ol style="list-style-type: none"> 1. Write SQL queries 2. Write stored procedures 3. Write triggers 4. Use file locking and table locking facilities 5. Create small full-fledged database application
SIP 321	Summer Internship/ Mini Project	<ol style="list-style-type: none"> 1. Demonstrate the ability to integrate and apply theoretical knowledge and skills developed in various courses to real-world situations in a business organization 2. Demonstrate the ability to integrate and apply theoretical knowledge and skills developed in various courses to real-world situations in a business organization 3. Exhibit the ability to effectively work in a professional environment and demonstrate work ethic and commitment in a work-based environment 4. Demonstrate the ability to successfully complete internship assignments. 5. Reflect on personal and professional development needs and set strategic goals for advancing along an intended career path 6. Communicate effectively in a professional environment in both English and regional language, orally and in writing.

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PC 301	Software Engineering	<ol style="list-style-type: none"> 1. Apply software processes to solve software problem 2. Create SRS document and software architecture 3. Perform software planning in terms of staffing and scheduling 4. Create test cases and procedures 5. Re-engineer the developed software
PC 302	Computer Networks	<ol style="list-style-type: none"> 1. Elaborate the network model 2. Explain transmission media and functions of datalink layer 3. Create routing tables based on DVR and LSR 4. Describe TCP and UDP protocols 5. Explain application layer protocols
PC 303	Artificial Intelligence	<ol style="list-style-type: none"> 1. Identify problems that are amenable to solution by AI method 2. Understand and analyze working of an AI technique 3. Formalize a given problem in the language/framework of different AI methods
PC 304	Web Technologies	<ol style="list-style-type: none"> 1. Write HTML and DHTML programs 2. Create programs on event models 3. Implement java script programs 4. Write VB script programs 5. Create ASP programs
PEC 311	Software Quality and Testing	<ol style="list-style-type: none"> 1. Explain the essentials of software quality 2. Elaborate the methods to integrate software quality activities in the project 3. Describe the software quality metrics 4. Discuss building software testing strategy 5. Perform testing various artifacts of a software project
PEC 312	Distributed Systems	<ol style="list-style-type: none"> 1. Explain the architecture, processes and communication of distributed system 2. Elaborate the naming and synchronization strategies 3. Describe the fault tolerance and distributed object based system 4. Discuss the distributed file system and distributed web based system 5. Explain distributed coordination based system and map reduce
PEC 313	Internet of Things	<ol style="list-style-type: none"> 1. Understand the various applications of IoT and other enabling technologies.

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		<ol style="list-style-type: none"> 2. Comprehend various protocols and communication technologies used in IoT 3. Design simple IoT systems with requisite hardware and C programming software 4. Understand the relevance of cloud computing and data analytics to IoT 5. Comprehend the business model of IoT from developing a prototype to launching a product.
PEC 323	Image Processing	<ol style="list-style-type: none"> 1. Learn image processing fundamentals 2. Learn image transforms 3. Learn image enhancement 4. Learn image restoration and feature extraction 5. Learn image reconstruction
PEC 321	Network Security	<ol style="list-style-type: none"> 1. Explain the fundamentals of network security 2. Elaborate the concepts secret and public key cryptography 3. Elucidate the hash functions digital signatures 4. Describe the digital signatures and smart cards 5. Explain the applications of network security
PEC 421	Cyber Security	<ol style="list-style-type: none"> 1. Explain the policies and security evolution 2. Describe cyber security objectives and guidance 3. Discuss policy catalog and issues 4. Elaborate cyber management and infrastructure issues 5. Elucidate the case studies on cyber security
PEC 314	Information Retrieval System	<ol style="list-style-type: none"> 1. Explain IR strategies 2. Elucidate basic retrieval utilities 3. Discuss cross language IR 4. Describe efficiency aspects 5. Elaborate distributed IR
PEC 324	Natural Language Processing	<ol style="list-style-type: none"> 1. Explain elementary probability and information theory 2. Discuss the linguistic essentials 3. Describe statistical inference and word sense disambiguation 4. Elaborate evaluation measures and markov models 5. Elucidate probabilistic context free grammars
LCC 351	Computer Networks Lab	<ol style="list-style-type: none"> 1. Execute basic commands of networks 2. Implement socket program implementation 3. Execute connection oriented socket programs

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		<ol style="list-style-type: none"> 4. Implement connection less socket programs 5. Execute DNS implementation
LCC 352	Software Engineering Lab	<ol style="list-style-type: none"> 1. Apply use case diagram 2. Apply class and object diagram 3. Apply sequence and collaboration diagrams 4. Apply state-chart and activity diagrams 5. Apply component and deployment diagrams
LCC 353	Web Technologies Lab	<ol style="list-style-type: none"> 1. Write HTML and DHTML programs 2. Create programs on event models 3. Implement java script programs 4. Write VB script programs 5. Create ASP programs
SIP 321	Summer Internship	<ol style="list-style-type: none"> 1. Communicate a practical understanding of how a technology actually operates 2. Demonstrate the ability to integrate and apply theoretical knowledge and skills developed in various courses to real-world situations in a business organization 3. Exhibit the ability to effectively work in a professional environment and demonstrate work ethic and commitment in a work-based environment 4. Demonstrate the ability to successfully complete internship assignments. 5. Reflect on personal and professional development needs and set strategic goals for advancing along an intended career path 6. Communicate effectively in a professional environment in both English and regional language, orally and in writing.

MCA II YEAR – IV SEMESTER

COURSE CODE	COURSE NAME	COURSE OUTCOMES
PC 411	Block Chain Technologies	<ol style="list-style-type: none"> 1. Learn the basics of hash functions 2. Learn the importance of digital signature 3. Understand the structure of a blockchain. 4. Learn different ways of storing Bitcoin keys, security measures.

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		5. Learn how Bitcoin relies on mining.
PC 412	Big Data Analytics	<ol style="list-style-type: none"> 1. Learn how to handle big data 2. Learn hadoop ecosystem 3. Learn mapreduce and hbase fundamentals 4. Learn database concepts related to big data 5. Learn NoSQL fundamentals
PEC 413	Cloud Computing	<ol style="list-style-type: none"> 1. Elaborate the cloud computing services and resource virtualization 2. Explain the scaling, planning and file system and storage 3. Describe the database technology and security issues 4. Elucidate portability issues and programming model case study 5. Discuss the enterprise architecture and its related information
PEC 414	Deep Learning	<ol style="list-style-type: none"> 1. Learn deep learning basics and optimization algorithms 2. Understand deep learning computation, CNNs and modern CNNs 3. Study recurrent neural networks and its modern versions 4. Learn computer vision 5. Comprehend GANs
PE 624 CS	Distributed Databases Systems	<ol style="list-style-type: none"> 1. Get familiar with the currently available models, technologies for and approaches to building distributed database systems and services; 2. Have developed practical skills in the use of these models and approaches to be able to select and apply the appropriate methods for a particular case; 3. Be aware of the current research directions in the field and their possible outcomes; 4. Be able to carry out research on a relevant topic, identify primary references, analyze them, and come up with meaningful conclusions 5. Be able to apply learned skills to solving practical database related tasks
PEC 422	Digital Forensics	<ol style="list-style-type: none"> 1. Know how to apply forensic analysis tools to recover important evidence for identifying computer crime. 2. To be well-trained as next-generation computer crime investigators.

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		<ol style="list-style-type: none"> 3. Learn data acquisition 4. Learn processing crimes 5. Learn forensics tools
PEC 423	Optimization Techniques	<ol style="list-style-type: none"> 1. Learn the optimization basics 2. Learn optimization using calculus 3. Learn dynamic programming and its applications 4. Learn integer programming 5. Learn advanced optimization techniques
PEC 424	Enterprise Architecture	<ol style="list-style-type: none"> 1. Learn the fundamentals of EA 2. Study the business architecture 3. Understand the organizational structure of EA 4. Comprehend enterprise engineering 5. Gain insights into cloud computing opportunities for EA
OE 431	Professional Ethics	<ol style="list-style-type: none"> 1. Explain the developments of legal profession in India 2. Describe the seven lamps of advocacy 3. Elaborate disciplinary proceedings 4. Elucidate the accountancy for lawyers 5. Discuss insights into safety and risk
OE 432	Constitution of India	<ol style="list-style-type: none"> 1. Explain the basics of the constitution 2. Elucidate the structure of the union government 3. Elaborate the state government structure 4. Describe the local administration 5. Discuss the election commission
OE 433	Disaster Management	<ol style="list-style-type: none"> 1. Acquainted with basic information on various types of disasters 2. Knowing the precautions and awareness regarding various disasters 3. Decide first action to be taken under various disasters 4. Familiarised with organisation in India which are dealing with disasters 5. Able to select IT tools to help in disaster management
OE 434	Organization Behaviour	<ol style="list-style-type: none"> 1. Explain management process and functions 2. Discuss decision making and negotiations 3. Describe psychological contract 4. Elaborate models of organization behaviour

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		5. Elucidate the organization design
OE 435	Intellectual Property and Cyber Law	<ol style="list-style-type: none"> 1. Explain the fundamentals of intellectual property 2. Elaborate the basics of international instruments of IPR 3. Describe the laws concerning copyright in India 4. Discuss the IP in trademarks 5. Explain the concept of patent
OE 436	Environmental Science	<ol style="list-style-type: none"> 1. Explain the scope and importance of environmental studies 2. Elaborate the environment and natural resources 3. Describe the environmental pollution 4. Discuss the regional and sectoral issues concerning environment 5. Explain the social issues and the environment