

# Rajendra Mane College of Engineering and Technology

## Computer Engineering Department

### Course Outcomes

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Class: SE Computer

Sem:III

Subject	Course Outcomes
<b>AMIII</b>	<ol style="list-style-type: none"><li>1. Understand complex variable theory, application of harmonic conjugate to get orthogonal trajectories and analytic function.</li><li>2. Plot the image of the curve by a complex transformation from z-plane to w-plane.</li><li>3. Expand the periodic function by using Fourier series and complex form of Fourier series.</li><li>4. Understand the concept of Laplace transform and inverse Laplace transform of various functions and its application to solve ordinary differential equations.</li><li>5. Apply the concept of Z- transformation and its inverse of the given sequence.</li><li>6. Apply the concept of Correlation and Regression to the engineering problems.</li></ol>
<b>DM</b>	<ol style="list-style-type: none"><li>1. Understand the notion of mathematical thinking, mathematical proofs and to apply them in problem solving.</li><li>2. Ability to reason logically.</li><li>3. Ability to understand relations, Diagraph and lattice..</li><li>4. Ability to understand use of functions, graphs and their use in programming applications.</li><li>5. Understand use of groups and codes in Encoding-Decoding</li><li>6. Apply discrete structures into other computing problems such as formal specification, verification, artificial intelligence, cryptography, Data Analysis and Data Mining etc.</li></ol>
<b>DLDA</b>	<ol style="list-style-type: none"><li>1. To understand different number systems and their conversions.</li><li>2. To analyze and minimize Boolean expressions.</li><li>3. To design and analyze combinational circuits.</li><li>4. To design and analyze sequential circuits</li></ol>

	<p>5. To understand the basic concepts of VHDL.</p> <p>6. To study basics of TTL and CMOS Logic families.</p>
<b>DS</b>	<p>1. Students will be able to implement various linear and nonlinear data structures.</p> <p>2. Students will be able to handle operations like insertion, deletion, searching and traversing on various data structures.</p> <p>3. Students will be able to select appropriate sorting technique for given problem.</p> <p>4. Students will be able to select appropriate searching technique for given problem.</p> <p>5. Students will be able to apply the learned concepts in various domains like DBMS and Compiler Construction.</p> <p>6. Students will be able to choose appropriate data structure for specified problem domain.</p>
<b>ECCF</b>	<p>1. To understand the use of semiconductor devices in circuits and analyze them.</p> <p>2. To understand importance of oscillators and power amplifiers in communication system.</p> <p>3. To understand basic concepts of operational amplifier and their applications.</p> <p>4. To understand the fundamental concepts of electronic communication</p> <p>5. To apply knowledge of electronic devices and circuits to communication applications.</p> <p>6. To study basic concepts of information theory.</p>
<b>OOPM</b>	<p>1. To apply fundamental programming constructs.</p> <p>2. To illustrate the concept of packages, classes and objects.</p> <p>3. To elaborate the concept of strings, arrays and vectors.</p> <p>4. To implement the concept of inheritance and interfaces.</p> <p>5. To implement the notion of exception handling and multithreading.</p> <p>6. To develop GUI based application.</p>

<b>Subject</b>	<b>Course Outcomes</b>
<b>AMIV</b>	<ol style="list-style-type: none"><li>1. Students in this course will be able to apply the method of solving complex integration, computing residues &amp; evaluate various contour integrals.</li><li>2. Demonstrate ability to manipulate matrices and compute Eigen values and Eigen vectors.</li><li>3. Apply the concept of probability distribution to the engineering problems.</li><li>4. Apply the concept of sampling theory to the engineering problems.</li><li>5. Use matrix algebra with its specific rules to solve the system of linear equation, using concept of Eigen value and Eigen vector to the engineering problems.</li><li>6. Apply the concept of Linear &amp; Non-Linear Programming Problem to the engineering problems.</li></ol>
<b>AOA</b>	<ol style="list-style-type: none"><li>1. Analyze the running time and space complexity of algorithms.</li><li>2. Describe, apply and analyze the complexity of divide and conquer strategy.</li><li>3. Describe, apply and analyze the complexity of greedy strategy.</li><li>4. Describe, apply and analyze the complexity of dynamic programming strategy.</li><li>5. Explain and apply backtracking, branch and bound and string matching techniques to deal with some hard problems.</li><li>6. Describe the classes P, NP, and NP-Complete and be able to prove that a certain problem is NP-Complete.</li></ol>
<b>CG</b>	<ol style="list-style-type: none"><li>1 Understand the basic concepts of Computer Graphics.</li><li>2 Demonstrate various algorithms for scan conversion and filling of basic objects and their comparative analysis.</li><li>3 Apply geometric transformations, viewing and clipping on graphical objects.</li><li>4 Explore solid model representation techniques and projections.</li><li>5 Understand visible surface detection techniques and illumination models.</li></ol>
<b>COA</b>	<ol style="list-style-type: none"><li>1. To describe basic structure of the computer system.</li><li>2. To demonstrate the arithmetic algorithms for solving ALU operations.</li><li>3. To describe instruction level parallelism and hazards in typical processor pipelines.</li><li>4. To describe superscalar architectures, multi-core architecture and their advantages</li><li>5. To demonstrate the memory mapping techniques.</li><li>6. To Identify various types of buses, interrupts and I/O operations in a computer system</li></ol>

<b>OS</b>	<ol style="list-style-type: none"> <li>1. Understand role of Operating System in terms of process, memory, file and I/O management.</li> <li>2. Apply and analyse the concept of a process, thread, mutual exclusion and deadlock.</li> <li>3. Evaluate performance of process scheduling algorithms and IPC.</li> <li>4. Apply and analyse the concepts of memory management techniques.</li> <li>5. Evaluate the performance of memory allocation and replacement techniques.</li> <li>6. Apply and analyze different techniques of file and I/O management.</li> </ol>
<b>OST</b>	<ol style="list-style-type: none"> <li>1. To understand basic concepts in python and perl.</li> <li>2. To explore contents of files, directories and text processing with python</li> <li>3. To develop program for data structure using built in functions in python.</li> <li>4. To explore django web framework for developing python based web application.</li> <li>5. To understand file handling and database handling using perl.</li> <li>6. To explore basics of two way communication between client and server using python and perl</li> </ol>

Subject	Course Outcomes
<b>MP</b>	<ol style="list-style-type: none"> <li>1. Describe architecture of x86 processors.</li> <li>2. Interpret the instructions of 8086 and write assembly and Mixed language programs.</li> <li>3. Explain the concept of interrupts</li> <li>4. Identify the specifications of peripheral chip</li> <li>5. Design 8086 based system using memory and peripheral chips</li> <li>6. Appraise the architecture of advanced processors</li> </ol>
<b>DBMS</b>	<ol style="list-style-type: none"> <li>1. Understand the fundamentals of a database systems</li> <li>2. Design and draw ER and EER diagram for the real life problem.</li> <li>3. Convert conceptual model to relational model and formulate relational algebra queries.</li> <li>4. Design and querying database using SQL.</li> <li>5. Analyze and apply concepts of normalization to relational database design.</li> <li>6. Understand the concept of transaction, concurrency and recovery.</li> </ol>
<b>CN</b>	<ol style="list-style-type: none"> <li>1. Demonstrate the concepts of data communication at physical layer and compare ISO - OSI model with TCP/IP model.</li> <li>2. Demonstrate the knowledge of networking protocols at data link layer.</li> <li>3. Design the network using IP addressing and subnetting / supernetting schemes.</li> <li>4. Analyze various routing algorithms and protocols at network layer.</li> <li>5. Analyze transport layer protocols and congestion control algorithms.</li> <li>6. Explore protocols at application layer .</li> </ol>
<b>TCS</b>	<ol style="list-style-type: none"> <li>1. Identify the central concepts in theory of computation and differentiate between deterministic and nondeterministic automata, also obtain equivalence of NFA and DFA.</li> <li>2. Infer the equivalence of languages described by finite automata and regular expressions.</li> <li>3. Devise regular, context free grammars while recognizing the strings and tokens.</li> <li>4. Design pushdown automata to recognize the language.</li> <li>5. Develop an understanding of computation through Turing Machine.</li> <li>6. Acquire fundamental understanding of decidability and undecidability.</li> </ol>
<b>MS</b>	<ol style="list-style-type: none"> <li>1. To identify basics of multimedia and multimedia system architecture.</li> <li>2. To understand different multimedia components.</li> <li>3. To explain file formats for different multimedia components.</li> <li>4. To analyze the different compression algorithms.</li> <li>5. To describe various multimedia communication techniques.</li> <li>6. To apply different security techniques in multimedia environment.</li> </ol>

Subject	Course Outcomes
<b>SE</b>	<ol style="list-style-type: none"><li>1. Understand and demonstrate basic knowledge in software engineering.</li><li>2. Identify requirements, analyze and prepare models.</li><li>3. Plan, schedule and track the progress of the projects.</li><li>4. Design &amp; develop the software projects.</li><li>5. Identify risks, manage the change to assure quality in software projects.</li><li>6. Apply testing principles on software project and understand the maintenance concepts.</li></ol>
<b>SPCC</b>	<ol style="list-style-type: none"><li>1. Identify the relevance of different system programs.</li><li>2. Describe the various data structures and passes of assembler design.</li><li>3. Identify the need for different features and designing of macros.</li><li>4. Distinguish different loaders and linkers and their contribution in developing efficient user applications.</li><li>5. Construct different parsers for given context free grammars.</li><li>6. Justify the need synthesis phase to produce object code optimized in terms of high execution speed and less memory usage</li></ol>
<b>DWM</b>	<ol style="list-style-type: none"><li>1. Understand Data Warehouse fundamentals, Data Mining Principles</li><li>2. Design data warehouse with dimensional modelling and apply OLAP operations.</li><li>3. Identify appropriate data mining algorithms to solve real world problems</li><li>4. Compare and evaluate different data mining techniques like classification, prediction, clustering and association rule mining</li><li>5. Describe complex data types with respect to spatial and web mining.</li><li>6. Benefit the user experiences towards research and innovation.</li></ol>
<b>CSS</b>	<ol style="list-style-type: none"><li>1. Understand system security goals and concepts, classical encryption techniques and acquire fundamental knowledge on the concepts of modular arithmetic and number theory.</li><li>2. Understand, compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication</li><li>3. Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes.</li><li>4. Apply different digital signature algorithms to achieve authentication and design secure applications.</li><li>5. Understand network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPSec, and PGP.</li><li>6. Analyze and apply system security concept to recognize malicious code.</li></ol>
<b>ML</b>	<ol style="list-style-type: none"><li>1. Gain knowledge about basic concepts of Machine Learning</li><li>2. Identify machine learning techniques suitable for a given problem</li><li>3. Solve the problems using various machine learning techniques</li><li>4. Apply Dimensionality reduction techniques.</li><li>5. Design application using machine learning techniques</li></ol>

Subject	Course Outcomes
<b>DSIP</b>	<ol style="list-style-type: none"> <li>1. Apply the concept of DT Signal and DT Systems.</li> <li>2. Classify and analyze discrete time signals and systems</li> <li>3. Implement Digital Signal Transform techniques DFT and FFT.</li> <li>4. Use the enhancement techniques for digital Image Processing</li> <li>5. Differentiate between the advantages and disadvantages of different edge detection techniques</li> <li>6. Develop small projects of 1-D and 2-D Digital Signal Processing.</li> </ol>
<b>MCC</b>	<ol style="list-style-type: none"> <li>1. To identify basic concepts and principles in mobile communication &amp; computing, cellular architecture.</li> <li>2. To describe the components and functioning of mobile networking.</li> <li>3. To classify variety of security techniques in mobile network.</li> <li>4. To apply the concepts of WLAN for local as well as remote applications.</li> <li>5. To describe and apply the concepts of mobility management</li> <li>6. To describe Long Term Evolution (LTE) architecture and its interfaces.</li> </ol>
<b>AISC</b>	<ol style="list-style-type: none"> <li>1 Identify the various characteristics of Artificial Intelligence and Soft Computing techniques.</li> <li>2 Choose an appropriate problem solving method for an agent to find a sequence of actions to reach the goal state.</li> <li>3 Analyse the strength and weakness of AI approaches to knowledge representation, reasoning and planning.</li> <li>4 Construct supervised and unsupervised ANN for real world applications.</li> <li>5 Design fuzzy controller system.</li> <li>6 Apply Hybrid approach for expert system design.</li> </ol>
<b>ASSDF</b>	<ol style="list-style-type: none"> <li>1. Understand cyber attacks and apply access control policies and control mechanisms.</li> <li>2. Identify malicious code and targeted malicious code.</li> <li>3. Detect and counter threats to web applications.</li> <li>4. Understand the vulnerabilities of Wi-Fi networks and explore different measures to secure wireless protocols, WLAN and VPN networks.</li> <li>5. Understand the ethical and legal issues associated with cyber crimes and be able to mitigate impact of crimes with suitable policies.</li> <li>6. Use different forensic tools to acquire and duplicate data from compromised systems and analyse the same.</li> </ol>
<b>BDA</b>	<ol style="list-style-type: none"> <li>1. Understand the key issues in big data management and its associated applications for business decisions and strategy.</li> <li>1. Develop problem solving and critical thinking skills in fundamental enabling techniques like Hadoop, Mapreduce and NoSQL in big data analytics.</li> <li>2. Collect, manage, store, query and analyze various forms of Big Data.</li> <li>3. Interpret business models and scientific computing paradigms, and apply software tools for big data analytics.</li> <li>4. Adapt adequate perspectives of big data analytics in various applications like recommender systems, social media applications etc.</li> </ol>

**Class: BE Computer**

**Sem:VIII**

<b>Subject</b>	<b>Course Outcomes</b>
<b>HMI</b>	<ol style="list-style-type: none"><li>1. Identify User Interface (UI) design principles.</li><li>2. Analysis of effective user friendly interfaces.</li><li>3. Apply Interactive Design process in real world applications.</li><li>4. Evaluate UI design and justify.</li><li>5. Create application for social and technical task.</li></ol>
<b>HPC</b>	<ol style="list-style-type: none"><li>1. Memorize parallel processing approaches</li><li>2. Describe different parallel processing platforms involved in achieving High Performance Computing.</li><li>3. Discuss different design issues in parallel programming</li><li>4. Develop efficient and high performance parallel programming</li><li>5. Learn parallel programming using message passing paradigm using open source APIs.</li></ol>
<b>NLP</b>	<ol style="list-style-type: none"><li>1. Have a broad understanding of the field of natural language processing.</li><li>2. Have a sense of the capabilities and limitations of current natural language technologies,</li><li>3. Be able to model linguistic phenomena with formal grammars.</li><li>4. Be able to Design, implement and test algorithms for NLP problems</li><li>5. Understand the mathematical and linguistic foundations underlying approaches to the various areas in NLP</li><li>6. Be able to apply NLP techniques to design real world NLP applications such as machine translation, text categorization, text summarization, information extraction...etc.</li></ol>
<b>AWN</b>	<ol style="list-style-type: none"><li>1. Identify the characteristics and features of Adhoc Networks.</li><li>2. Understand the concepts &amp; be able to design MAC protocols for Ad Hoc networks</li><li>3. Implement protocols / Carry out simulation of routing protocols of Adhoc Networks</li><li>4. Interpret the flow control in transport layer of Ad Hoc Networks</li><li>5. Analyze security principles for routing of Ad Hoc Networks</li><li>6. Utilize the concepts of Adhoc Networks in VANETs</li></ol>
<b>CCL</b>	<ol style="list-style-type: none"><li>1. Adapt different types of virtualization and increase resource utilization.</li><li>2. Build a private cloud using open source technologies.</li><li>3. Analyze security issues on cloud.</li><li>4. Develop real world web applications and deploy on commercial cloud.</li><li>5. Demonstrate various service models.</li></ol>