VAAGDEVI COLLEGE OF ENGINEERING
UGC-Autonomous
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course Outcomes for B.Tech – CSE (R15) for the year 2015-16

| **Course outcome** | **Year/Semester I/I Sem** | **Subject Name (Subject Code) MATHEMATICS-I (A9001)** | **No. of Hours L:4 T:0 P: 0** | **Credits-4** |
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| **After the completion of this course, the students should be able to** | | | | |
| 1 | Identify order and linearity of differential equation for classical problems. | | | |
| 2 | Develop different models for first order and order differential equations manually and technological based methods. | | | |
| 3 | Judge the consequences and geometrical approach to the mean value theorems and engineering applications to mathematical problems. | | | |
| 4 | Formulate, test different geometries using integral form to compute areas and volumes. | | | |
| 5 | Deduce general solution for initial and boundary value problems using Laplace transform technique and developing advanced aspects in Laplace transform, Adopt Laplace transform techniques to solve second order ordinary differential equations | | | |
| **Course Outcome** | **Year / semester I/I Sem** | **Subject Name (Subject Code) APPLIED PHYSICS(A9007)** | **No. of Hours L:4 T:0 P:0** | **Credits-4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Expertise statistical mechanics and quantum mechanics and apply for new innovations. | | | |
| 2 | Develop classical free electron theory of metals and its successes along with its drawbacks. Interpret to calculate number of charge carriers in a semi conductor. | | | |
| 3 | Compare dielectrics and magnetic materials along with their engineering applications. | | | |
| 4 | Compare different types of lasers, their construction and applications in engineering field. | | | |
| 5 | Understand fundamentals of optical fibres and apply their applications. | | | |
| **Course Outcome** | **Year / semester I/I Sem** | **Subject Name (Subject Code) ENGLISH(A9012)** | **No. of Hours L:3 T:0 P:0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Equip the components of different forms of communication skills. | | | |
| 2 | Able to guess meanings of words from context and grasp the effective vocabulary. | | | |
| 3 | Recall the enrichment of comprehension and fluency will be adaptable. | | | |
| 4 | Gain confidence in using language in varied situations | | | |
| 5 | Develop and Communicate by stating main ideas relevantly and coherently in speaking & writing. | | | |
| **Course Outcome** | **Year / semester I/I Sem** | **Subject Name (Subject Code) ENGINEERING GRAPHICS** (A9303) | **No. of Hours L:2 T:0 P:4** | **Credits-4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Understand the development of surfaces. | | | |
| 2 | Indicate the intersection of solids and their Applications. | | | |
| 3 | Associate the isometric and orthographic Projections. | | | |
| 4 | Gain knowledge of intersections of solids and their usage in real time applications. | | | |
| 5 | Apply the applications of the ideas in fabrication of machine parts. | | | |
| **Course Outcome** | **Year / semester I/I Sem** | **Subject Name (Subject Code) PROBLEM SOLVING & COMPUTER PROGRAMMING(A9501)** | **No. of Hours L:4 T:0 P:0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Understand how problems are posed and how they can be analyzed for obtaining solutions. | | | |
| 2 | Learn of sequencing, branching, looping and decision making statements to solve scientific and engineering problems. | | | |

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| 3 | Implement different operations on arrays and Pointers and creating and using of functions to solve problems. | | | |
| 4 | Exercise user defined datatypes such as structures and union. | | | |
| 5 | Design and implement different types of file structures using standard | | | |
| **Course Outcome** | **Year / semester I/I Sem** | **Subject Name (Subject Code) APPLIED PHYSICS LAB(A9008)** | **No. of Hours L:0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Co relate principles with applications of CR, LCR, Circuits. | | | |
| 2 | Enlighten the student about modern equipment like solar cell, optical fibre etc., | | | |
| 3 | Have the exposure to these experiments, and the student can compare the theory and correlate with experiment. | | | |
| 4 | Meliorate the knowledge of Lasers, & Light properties. | | | |
| **Course Outcome** | **Year / semester I/I Sem** | **Subject Name (Subject Code) PROBLEM SOLVING & COMPUTER PROGRAMMING LAB(A9502)** | **No. of Hours L:0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive basic structure of the C Programming ,declaration and usage of variables. | | | |
| 2 | Exercise conditional and iterative statements to solve scientific and engineering problems. | | | |
| 3 | Implement different operations on arrays and creating and using of functions to solve problems. | | | |
| 4 | Exercise pointers, file structures to write C programs | | | |
| **Course Outcome** | **Year / semester I/I Sem** | **Subject Name (Subject Code) INFORMATION TECHNOLOGY** WORKSHOP**(A9503)** | **No. of Hours L:0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Learn Troubleshooting of Hardware and Software | | | |
| 2 | Use of Web browsers to access Internet, Search Engines. | | | |
| 3 | Make use of MS Word, MS Excel, MS Power Point. | | | |
| 4 | Learn LATEX Tools. | | | |
| **Course Outcome** | **Year / semester I/II Sem** | **Subject Name (Subject Code) MATHEMATICS-II(A9002)** | **No. of Hours L:3 T:1 P:0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Find rank of the matrix by solve system of simultaneous linear system equations. | | | |
| 2 | Find Eigen values and Eigen vectors and analyze the properties of matrix. | | | |
| 3 | Find Fourier Series and Fourier Transforms. Apply Fourier Series and Fourier Transforms con interpret in respective engineering fields. | | | |
| 4 | Evaluate physical quantities involving in engineering fields related to vector valued functions. Categorize the basic properties of vector valued functions and able to solve line, surface and volume integration | | | |
| 5 | Apply a range of techniques to find solutions from standard partial differential equations to diverse situations in Physics, Engineering and other Mathematical contents. | | | |
| **Course Outcome** | **Year / semester I/II Sem** | **Subject Name (Subject Code)** Basic Electrical & Electronics Engineering(A9203) | **No. of Hours L:3 T:1 P:0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Learn Basic circuit concepts such as electrical parameters, quantities , laws and network reduction techniques and apply the network theorems with DC excitation in the systems | | | |
| 2 | Analyze the steady state operation of single phase and three phase AC circuits and study the relationship between voltage and current for delta and star connections | | | |
| 3 | Explore the construction, working , control and testing of various DC and AC Machines | | | |

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| 4 | Gain knowledge on basic electronic devices such as P-N junction Diode, rectifiers and filter with their V-I characteristics. | | | |
| 5 | Acquire extended knowledge on next generation of electronic devices such transistors, zener diode and SCR devices. | | | |
| **Course Outcome** | **Year / semester I/II Sem** | **Subject Name (Subject Code)** ENGINEERING CHEMISTRY(A9011) | **No. of Hours L:3 T:0 P:0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Design polymeric engineering materials. | | | |
| 2 | Construct batteries and Classify different electronics and electrical like cells , electrodes, etc., help them to construct different electrical/ electronic parts. | | | |
| 3 | Examine which types of impurities are present in water, specification of drinking water. | | | |
| 4 | Apply phase rule and absorption to construct the materials by analyzing their compositions. | | | |
| 5 | Explain the corrosion behavior of metals/ activity of metals. | | | |
| **Course Outcome** | **Year / semester I/II Sem** | **Subject Name (Subject Code)** DATA STRUCTURES THROUGH C++(A9506) | **No. of Hours L:4 T:0 P:0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Compare the structured programming and object oriented programming language. | | | |
| 2 | Apply basic knowledge to handle operations like insertions, deletions, searching, and traversing mechanisms in linear data structures. | | | |
| 3 | Ability to have knowledge on trees, balanced trees, graphs and developing C++ code for non- linear data structures. | | | |
| 4 | Implement searching and sorting techniques for various problems. | | | |
| 5 | Illustrate the Text processing algorithm on real time problems. | | | |
| **Course Outcome** | **Year / semester I/II Sem** | **Subject Name (Subject Code)** ENGLISH LANGUAGE COMMUNICATION SKILLS LAB(A9013) | **No. of Hours L:0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Capable in Better Understanding of nuances of language through audio-visual experience and group activities. | | | |
| 2 | Develop Neutralization of accent for intelligibility. | | | |
| 3 | Capable to Speak out with clarity and confidence thereby enhances the employability skills of the students by acquiring knowledge and techniques. | | | |
| 4 | Extends to speak fluent English, through advanced vocabulary to improve quality in speaking. | | | |
| **Course Outcome** | **Year / semester I/II Sem** | **Subject Name (Subject Code)** BASIC ELECTRICAL & ELECTRONICS ENGINEERING LAB(A9204) | **No. of Hours L:0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Learn to simplify complex electric and electronic circuits by applying the KVL and KCL laws. | | | |
| 2 | Identify the optimal loading on the system. | | | |
| 3 | Analyze the performance of DC machines | | | |
| 4 | Identify and analyze the performance and operation of semi conducting devices | | | |
| **Course Outcome** | **Year / semester I/II Sem** | **Subject Name (Subject Code)** ENGINEERING WORKSHOP(A9306) | **No. of Hours L:0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Know the usage of various tools and their application in carpentry, tin smithy. | | | |
| 2 | Make lap joint and dove tail joint in carpentry. | | | |
| 3 | Prepare scoop, funnel and tray like items in tin smithy. | | | |
| **Course Outcome** | **Year / semester I/II Sem** | **Subject Name (Subject Code)** DATA STRUCTURES THROUGH C++ LAB | **No. of Hours L:0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |

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| 1 | Design and implement Object Oriented Programming concepts. |
| 2 | Select the appropriate Data Structure for given problem. |
| 3 | Explain operations like searching, insertion, deletion and traversing mechanism on various Data Structures. |
| 4 | Build practical knowledge on the applications of Linear and Non-Linear Data Structure. |

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| **Course Outcome** | **Year / semester** **II/I Sem** | **Subject Name (Subject Code)** MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE (A9510) | **No. of Hours** **L:4 T: 0 P: 0** | **Credits:4** |

**After the completion of this course, the students should be able to**

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| 1 | Evaluate the notions of propositions, predicate formulae, Rules of inference. |
| 2 | Illustrate and describe various types of Relations and Functions. |
| 3 | Apply knowledge of Mathematics, Combinations & Permutations, Binomial Multinomial theorems, Pigeon hole principles. |
| 4 | Develop to solve the recurrence relations by using various methods. |
| 5 | Perceive the basic concepts of graph theory and apply for real time examples. |

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| **Course Outcome** | **Year / semester** **II/I Sem** | **Subject Name (Subject Code)** DIGITAL LOGIC DESIGN & MICRO PROCESSORS (A9450) | **No. of Hours** **L: 3 T:0 P: 0** | **Credits:3** |

**After the completion of this course, the students should be able to**

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| 1 | Understand the basic concepts of different Number systems and basic theorems using in Boolean algebra. |
| 2 | Design the logic circuits using basic logic gates by reducing the Boolean expressions with the help of Karnaugh Map. |
| 3 | Analyze various types of combinational and sequential circuits. |
| 4 | Understand the internal organization of popular 8086microprocessors. |
| 5 | Learn the design of microprocessors – based systems. |

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| **Course Outcome** | **Year / semester** **II/I Sem** | **Subject Name (Subject Code)** DATABASE MANAGEMENT SYSTEMS (A9511) | **No. of Hours** **L: 4 T: 0 P: 0** | **Credits:4** |

**After the completion of this course, the students should be able to**

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| 1 | Perceive the fundamental concepts of database management. |
| 2 | Analyze database models & Entity Relationship models and to draw the E-R diagram for the given case study. |
| 3 | Apply relational Database Theory, and be able to write relational algebra expressions for queries. |
| 4 | Apply Normalization Process to construct the database. Explain Basic Issues of transaction processing |
| 5 | Compare the basic Database storage structures and access techniques: File Organization indexing methods including B- Tree and Hashing. |

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| **Course Outcome** | **Year / semester** **II/I Sem** | **Subject Name (Subject Code)** OBJECT ORIENTED PROGRAMMING THROUGH JAVA (A9512) | **No. of Hours** **L:4 T: 0 P: 0** | **Credits:4** |

**After the completion of this course, the students should be able to**

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| 1 | Describe the concepts of Java Programming language |
| 2 | Demonstrate the concepts of Polymorphism and Inheritance |
| 3 | Develop robust applications using Exception handling. |
| 4 | Develop multithreaded applications with synchronization. |
| 5 | Design GUI based applications and Applets for web applications. |

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| Course Outcome | Year / semester II/I Sem | Subject Name (Subject Code) COMPUTER ORGANIZATION & ARCHITECTURE (A9513) | No. of Hours L: 3 T: 1 P: 0 | Credits:3 |
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| **After the completion of this course, the students should be able to** | | | | |
| 1 | **Perceive** basics Computer types,buses, registers | | | |
| 2 | Understand basic design of Computer, addressing modes, Micro Program Example. | | | |
| 3 | Perceive control unit operations and arithmetic Operations | | | |
| 4 | Understand various Peripheral devices operations. | | | |
| 5 | Design memory organization that use banks for different word size operations. | | | |

| Course Outcome | Year / semester II/I Sem | Subject Name (Subject Code) DIGITAL LOGIC DESIGN & MICRO PROCESSOR LAB ( A9452) | No. of Hours L: 0 T:0 P: 3 | Credits:2 |
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| **After the completion of this course, the students should be able to** | | | | |
| 1 | Demonstrate various types of logic gates (AND, OR, NOT, NAND, NOR, XOR, XNOR) and flip flops. | | | |
| 2 | Analyze and design various types of combinational and sequential circuits. | | | |
| 3 | Develop microprocessor based programs for Arithmetic and Logical Operations | | | |
| 4 | Develop microprocessor based programs for various problems. | | | |

| Course Outcome | Year /semester II/I Sem | Subject Name (Subject Code) DATABASE MANAGEMENT SYSTEMS LAB(A9514) | No. of Hours L: 0 T:0 P: 3 | Credits:2 |
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| 1 | Design database schema for given Application. | | | |
| 2 | Transform ER Model to Relational Model. | | | |
| 3 | Apply the normalization techniques for development of application software to realistic problems. | | | |
| 4 | Construct SQL queries to retrieve information from databases. | | | |

| Course Outcome | Year /semester II/I Sem | Subject Name (Subject Code) OBJECT ORIENTED PROGRAMMING THROUGH JAVA LAB (A9515) | No. of Hours L: 0 T:0 P: 3 | Credits:2 |
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| **After the completion of this course, the students should be able to** | | | | |
| 1 | Develop applications for a range of problems using objecT:oriented programming techniques | | | |
| 2 | Design and develop applications with multithreading and implement exception handling. | | | |
| 3 | Develop applications using Console I/O and File I/O | | | |
| 4 | Design simple Graphical User Interface applications | | | |

| Course Outcome | Year / semester II/I Sem | Subject Name (Subject Code) ENVIRONMENTAL STUDIES (A9014) | No. of Hours L: 2 T:0 P: 0 | Credits:0 |
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| **After the completion of this course, the students should be able to** | | | | |
| 1 | Recall previously learned ecosystem and find how the biodiversity changes went in the environment. | | | |
| 2 | Demonstrate outlines of types of pollutions and explain in related to day to day life. | | | |
| 3 | Organize important seminars on natural resources. | | | |
| 4 | Apply models of food chains and energy flow models to solve the identified parameters. | | | |
| 5 | Classify the types of pollutants and distinguish the functions of sustainable development | | | |

| Course Outcome | Year / semester II/II Sem | Subject Name (Subject Code) STATISTICAL METHODS FOR ENGINEERS (A9016) | No. of Hours L: 3 T:0 P: 0 | Credits:3 |
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| **After the completion of this course, the students should be able to** | | | | |
| 1 | Summarize the importance of probability and statistics. Apply the concept of probability application in real life | | | |
| 2 | Utilize the Probability Distributions in realistic situations. | | | |
| 3 | Construct a Linear Regression lines and estimate the values of variables | | | |
| 4 | Choose the appropriate Testing of Hypothesis. | | | |

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| 5 | Solve the queuing models to analyze the real world problems | | | |
| **Course Outcome** | **Year / semester II/II Sem** | **Subject Name (Subject Code)** DESIGN AND ANALYSIS OF ALGORITHMS (A9516) | **No. of Hours L: 3 T:1 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Expose student's to few known methods of solution processes, build new solution algorithms, analyze the asymptotic performance of algorithms and to write rigorous correctness proofs for algorithms. | | | |
| 2 | Identify appropriate data structures and algorithm design methods for specified classes of applications; | | | |
| 3 | Perceive how the choice of data structures and algorithm design methods would impact the performance of programs and how to compare them. | | | |
| 4 | Design methods such as the greedy method, divide and conquer, dynamic programming, backtracking and branch and bound | | | |
| 5 | Perceive methods to deal with logarithmic type, polynomial type and non-polynomial type of classes of problems and Synthesis of efficient algorithms in common engineering design situations would be discussed. | | | |
| **Course Outcome** | **Year / semester II/II Sem** | **Subject Name (Subject Code)** FORMAL LANGUAGES AND AUTOMATA THEORY (A9517) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Explain basic concepts in formal language theory, grammars, automata theory(DFA&NFA), computability theory, and complexity theory. | | | |
| 2 | Know the production rules of regular expressions and grammars, including contexT:free and contexT:sensitive grammars. | | | |
| 3 | Construct a pushdown automata and context free, regular, normal form grammars to design computer languages | | | |
| 4 | Evaluate solution for various problems using a theoretical computer (Turing machine) for a computer language. | | | |
| 5 | Explain the relationship among language classes and grammars with the help of Chomsky Hierarchy, and Distinguish between decidability and undecidability. | | | |
| **Course Outcome** | **Year / semester II/II Sem** | **Subject Name (Subject Code)** OPERATING SYSTEMS (A9518) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Compare various Operating Systems architectures, IO structures, Network Structure | | | |
| 2 | Analyze the virtual memory ,paging and memory allocation techniques for various applications. | | | |
| 3 | Apply Deadlock prevention and Deadlock Detection algorithms and Perceive the working of an operating system as a File manager, I/O manager, Process manager. | | | |
| 4 | Understand the overview of Disk Storage Structure. | | | |
| 5 | Analyze assess access controls to protect files. | | | |
| **Course Outcome** | **Year / semester II/II Sem** | **Subject Name (Subject Code)** ADVANCED JAVA TOOLS(A9519) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | How to develop and run enterprise software and large scale multi-tiered scalable reliable and secure network applications**.** | | | |
| 2 | **D**emonstrate distributed applications. | | | |
| 3 | Make use of these technologies to build dynamically generated web pages. | | | |
| 4 | Explain integrated development environment to create debug and run enterprise level applications | | | |
| 5 | Designing applications using pre-built struts framework.. | | | |
| **Course Outcome** | **Year / semester** | **Subject Name (Subject Code)** ADVANCED JAVA TOOLS LAB (A9520) | **No. of Hours L: 0 T:0 P: 3** | **Credits:2** |

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| | **II/II Sem** | | | |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | How to connect a java program with the mysql database. | | | |
| 2 | Extend student's knowledge and practice in analysis and design of computer networks by focusing on computer programming. | | | |
| 3 | Develop web pages using advanced server side programming through Servlets and JSP. | | | |
| 4 | Demonstrate their ability to use different tools on complex projects | | | |
| **Course Outcome** | **Year / semester II/II Sem** | **Subject Name (Subject Code)** OPERATING SYSTEMS LAB **(**A9521) | **No. of Hours L: 0 T:0 P: 3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Apply CPU scheduling algorithms, Page replacement algorithms. | | | |
| 2 | Explain Bankers Algorithm for Dead Lock Avoidance & Dead Lock Prevention | | | |
| 3 | Describe the concepts of paging and segmentation. | | | |
| 4 | Make use of Linux commands | | | |
| **Course Outcome** | **Year / semester II/II Sem** | **Subject Name (Subject Code)** WEB TECHNOLOGIES LAB—I **(**A9522**)** | **No. of Hours L: 0 T:0 P: 3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Define working knowledge of Internet and World Wide Web. | | | |
| 2 | Demonstrate the implementation process using HTML, DHTML, JavaScripts and XML. | | | |
| 3 | Build Static and Dynamic Web Pages using HTML, DHTML, JavaScripts, and XML. | | | |
| 4 | Design and Develop a fully functional Web Page. | | | |
| **Course Outcome** | **Year / semester II/II Sem** | **Subject Name (Subject Code)** GENDER SENSITIZATION **(**A9019**)** | **No. of Hours L: 2 T:0 P: 0** | **Credits:0** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Define the need and importance of women empowerment. | | | |
| 2 | Extend the levels of understanding and classification of gender disparities. | | | |
| 3 | Identify the need of equal distribution of work in all the sector irrespective of gender. | | | |
| 4 | Construct the emergency needs of saving girl child. | | | |
| 5 | Improves thinking levels to find solution to the missing women and bring realization in the society. | | | |
| **Course Outcome** | **Year / semester III/I Sem** | **Subject Name (Subject Code)** DATA COMMUNICATIONS & COMPUTER NETWORKS(A9523) | **No. of Hours L: 3 T:1 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Illustrate basic computer network technology. | | | |
| 2 | Identify the different types of network topologies and protocols. | | | |
| 3 | Categorize the hardware and software commonly used in data communications and networking. | | | |
| 4 | Interpret Design and Evaluate subnet masks and addresses to fulfill networking requirements. | | | |
| 5 | Analyze the features and Operations of TCP/UDP, FTP, HTTP, SMTP,SNMP etc. | | | |
| **Course Outcome** | **Year / semester III/I Sem** | **Subject Name (Subject Code)** COMPILER DESIGN (A9524) | **No. of Hours L: 4 T: 0 P:0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | **A**pply the knowledge of modern phases of compiler and its features | | | |
| 2 | Identify the similarities and differences among various parsing techniques . | | | |
| 3 | Explain semantic analysis in the context of the compilation process. | | | |
| 4 | Design a symbol table format for the language defined by a grammar | | | |
| 5 | Analyze the code generation algorithms | | | |
| **Course Outcome** | **Year / semester III/I Sem** | **Subject Name (Subject Code)** SOFTWARE ENGINEERING (A9525) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |

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| **After the completion of this course, the students should be able to** | | | | |
| 1 | Define Software Engineering and listing core principles of software engineering and analyse various process models | | | |
| 2 | Explain personal software process and team software process. | | | |
| 3 | Differentiate the techniques of Verification and Validation in the process of software development. | | | |
| 4 | Apply the testing strategies for various programming codes. | | | |
| 5 | Develop a Software Quality Assurance Plan for a Software Development | | | |
| **Course Outcome** | **Year / semester III/I Sem** | **Subject Name (Subject Code)** DATA WAREHOUSING AND DATA MINING (A9526) | **No. of Hours L: 3 T:1 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Introduce data mining concepts and develops understanding of data mining application. | | | |
| 2 | Develop an understanding of data warehouse, designing and using data in data warehouse using various operations. | | | |
| 3 | Develop an outlook of Association rule mining, association rule mining methods and their application on some sample data sets, evaluate these methods based on need. | | | |
| 4 | Develop an understanding of classification and prediction, classification methods and their application on some sample data sets, evaluate these methods based on need. | | | |
| 5 | Develop conceptual understanding of clustering, various clustering methods and their application on some sample data sets, evaluate these methods based on need. | | | |
| **Course Outcome** | **Year / semester III/I Sem** | **Subject Name (Subject Code)** OBJECT ORIENTED ANALYSIS AND DESIGN (A9559) | **No. of Hours L: 3 T:1 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive of the principles of modeling and importance of modeling in design works. | | | |
| 2 | Perceive basic Structural concepts in modeling. | | | |
| 3 | Identify the difference between structural and behavioral concepts in modeling and their importance. | | | |
| 4 | Implement the visualized views of different systems with modeling-CASE STUDY. | | | |
| 5 | Identify design requirements by creating design model | | | |
| **Course Outcome** | **Year / semester III/I Sem** | **Subject Name (Subject Code)** INTELLECTUAL PROPERTY RIGHTS (OPEN ELECTIVE-I ) (A9626) | **No. of Hours L: 3 T:0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive the basics of types of intellectual property rights. | | | |
| 2 | Compare and contrast the different forms of intellectual property protection in terms of their key differences and similarities. | | | |
| 3 | Learn the basics of copyrights. | | | |
| 4 | Assess and critique some basic theoretical justifications for each form of intellectual property protection. | | | |
| 5 | Analyze the basic concepts of trade marks and law of patents. | | | |
| **Course Outcome** | **Year / semester III/I Sem** | **Subject Name (Subject Code)** DISASTER MANAGEMENT (OPEN ELECTIVE-I )(A9121) | **No. of Hours L: 3 T:0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive the various types of disaster. | | | |
| 2 | Interpret the various types of Hazards and Vulnerability. | | | |
| 3 | Perceive different approaches of disaster risk reduction. | | | |
| 4 | Describe the disaster management and safety plan. | | | |
| 5 | Discuss the various disaster risks in India. | | | |
| **Course Outcome** | **Year / semester III/I Sem** | **Subject Name (Subject Code)** MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS(OPEN ELECTIVE-I ) (A9621) | **No. of Hours L: 3 T:0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |

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| 1 | Understand the nature, scope and importance of Managerial Economics. |
| 2 | Know what is demand, analyze demand and how elasticity of demand is used for pricing decisions and to evaluate methods for forecasting demand. |
| 3 | Know how production function is carried out to achieve least cost combination of Inputs and how to analyze cost. |
| 4 | Understand the characteristics of different kinds of markets and outline different form of business organization and analyze how capital budgeting techniques are used for investment decisions. |
| 5 | Know how to prepare final accounts and how to interpret them, analyze and interpret financial statements using ratio analysis. |

| Course Outcome | Year / semester III/I Sem | Subject Name (Subject Code) HUMAN VALUES AND PROFESSIONAL ETHICS(OPEN ELECTIVE-I ) (A9022) | No. of Hours L: 3 T:0 P: 0 | Credits:3 |
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**After the completion of this course, the students should be able to**

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| 1 | Perceive the importance of ethics and values in life and society. |
| 2 | Develop moral responsibility and mould them as best professionals. |
| 3 | Create ethical vision and achieve harmony in life. |
| 4 | Provide a critical perspective on the socialization of men and women. |
| 5 | Perceive the important issues related to gender in contemporary India. |

| Course Outcome | Year / semester III/I Sem | Subject Name (Subject Code) COMPUTER NETWORKS AND COMPILER DESIGN LAB (A9528) | No. of Hours L: 0 T:0 P: 3 | Credits:2 |
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**After the completion of this course, the students should be able to**

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| 1 | Create any topology using network devices and build a device for sharing on network. |
| 2 | Explain the major software and hardware technologies used on computer networks. |
| 3 | Demonstrate a working process of lexical analysis, parsing and other compiler design aspects. |
| 4 | Interpret the working of lex and yacc compiler for debugging of programs. |

| Course Outcome | Year / semester III/I Sem | Subject Name (Subject Code) CASE TOOLS AND DATA MINING LAB (A9529) | No. of Hours L: 0 T:0 P: 3 | Credits:2 |
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**After the completion of this course, the students should be able to**

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| 1 | Develop a design of data warehouse and implement OLAP operations. |
| 2 | Explore WEKA for data mining algorithms and Text mining techniques. |
| 3 | Identify, analyze, and model structural and behavioral concepts of the system. |
| 4 | Develop; explore the conceptual model into various scenarios and applications. |
| 5 | Apply the concepts of architectural design for deploying the code for software |

| Course Outcome | Year / semester III/II Sem | Subject Name (Subject Code) NETWORK PROGRAMMING (A9530) | No. of Hours L: 4 T:1 P: 0 | Credits:4 |
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**After the completion of this course, the students should be able to**

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| 1 | Demonstrate advanced knowledge of OSI layers, TCP & UDP concepts, Networking. |
| 2 | Summarize the TCP socket functions and Byte Ordering. |
| 3 | Make use of TCP client server applications and analyze I/O Multiplexing and socket options. |
| 4 | Define about the Elementary UDP sockets and Address conversions. |
| 5 | Explain inter process communication consisting of pipes, FIFOs, Semaphores, Message Queues and Remote Procedure Calls |

| Course Outcome | Year / semester III/II Sem | Subject Name (Subject Code) SOFTWARE TESTING METHODOLOGY (A9531) | No. of Hours L: 4 T:1 P: 0 | Credits:4 |
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**After the completion of this course, the students should be able to**

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| 1 | List a range of different software testing techniques and strategies and be able to apply specific (automated) unit testing method to the projects. | | | |
| 2 | Distinguish characteristics of structural testing methods. | | | |
| 3 | Demonstrate the Domain testing and Interface Testing | | | |
| 4 | Perceive software testing topics, such as logic based testing methods, KV charts, challenges, and solutions. | | | |
| 5 | Distinguish good & bad state graphs. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** MOBILE COMPUTING (A9532) | **No. of Hours L: 4 T: 1 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive algorithm/protocols, environments and communication systems in mobile computing. | | | |
| 2 | Analyze any new technical issue related to this new paradigm and come up with a solution(s). | | | |
| 3 | Develop new ad hoc network applications and/or algorithms/protocols. | | | |
| 4 | Perceive & develop any existing or new protocol related to mobile environment. | | | |
| 5 | Identify the database issues and understand data delivery mechanism. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** ADVANCED DBMS(CSE ELECTIVES-I ) (A9533) | **No. of Hours L: 3 T: 0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Define Database Languages, Models along with Client Server Architecture. | | | |
| 2 | Explain principles of Database Recovery protocols. | | | |
| 3 | Construct EER model for real world problems. | | | |
| 4 | Determine various database security issues. | | | |
| 5 | Adapt with advanced Data models and its applications. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** DESIGN PATTERNS(CSE ELECTIVES-I ) (A9534) | **No. of Hours L: 3 T: 0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Identify the appropriate design patterns to solve object oriented design problems. | | | |
| 2 | Identify and implement appropriate solutions to recurring programming problems by consulting technical documentation and specifications, including design pattern catalogs and existing source code | | | |
| 3 | Develop design solutions using creational patterns. | | | |
| 4 | Apply structural patterns to solve design problems. | | | |
| 5 | Summarize the advantages and disadvantages of using design pattern variants | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** EMBEDDED SYSTEMS (CSE ELECTIVES-I ) (A9535) | **No. of Hours L: 3 T: 0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Know the fundamentals and hardware components of Embedded Systems. | | | |
| 2 | Perceive the microprocessor components and Interrupt basics. | | | |
| 3 | Know Operating System services and Debugging Techniques. | | | |
| 4 | Explain the purpose of embedded systems and compare microprocessors with microcontrollers. | | | |
| 5 | Design and implement debug multithreaded application software that operate under real time constraints on embedded computer systems. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** PRINCIPLES OF PROGRAMMING LANGUAGES (CSE ELECTIVES-I ) (A9627) | **No. of Hours L: 3 T: 0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Analyze syntax-related concepts including context-free grammars, parse trees, recursive descent parsing, printing, and interpretation. | | | |
| 2 | Perceive the semantic issues associated with function implementations. | | | |
| 3 | Perceive the concepts of Abstraction and Encapsulation constructs of classes,interfaces, packages of various Language Examples. | | | |

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| 4 | Perceive the implementation of object-oriented languages. | | | |
| 5 | Compare the Functional Programming Languages and Logic Programming Languages | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** AIR POLLUTION CONTROL (INTER DEPARTMENT ELECTIVE )( A9122) | **No. of Hours L: 3 T:0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive Air pollution Concepts. | | | |
| 2 | Analyze the Effects of air pollution on the environment. | | | |
| 3 | Identify the significance of meteorological factors in pollutant dispersion and to predict the pollutant concentration. | | | |
| 4 | Apply plume dispersion modelling and assess the concentrations. | | | |
| 5 | Perceive Air quality monitoring devices. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** BIOMEDICAL INSTRUMENTATION (INTER DEPARTMENT ELECTIVE) (A9426) | **No. of Hours L: 3 T:0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Understand the functions of bio amplifiers, characteristics of medical instruments and bio signals. | | | |
| 2 | Discuss the various internal, external Bio electrodes and relations between electrical and mechanical activities of heart. | | | |
| 3 | Compare various concepts of Cardiac Instrumentation and gain the knowledge about it. | | | |
| 4 | Analyze the Therapeutic Equipment and their operation. | | | |
| 5 | Acquires knowledge about neuro-muscular Instrumentation like ECG EMG and EEG. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** DIGITAL IMAGE PROCESSING (INTER DEPARTMENT ELECTIVE) (A9433) | **No. of Hours L: 3 T:0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Gain the knowledge of digital image fundamentals and image transforms. | | | |
| 2 | Discuss the analysis of image enhancement in spatial and frequency domain. | | | |
| 3 | Understand the different methods to restore an image. | | | |
| 4 | Inspect different image segmentation techniques and understand morphological image processing. | | | |
| 5 | Analyze the different image compression techniques. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** MANAGEMENT SCIENCE (INTER DEPARTMENT ELECTIVE) (A9622) | **No. of Hours L: 3 T:0 P:0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Outline the fundamentals of management and contributions to management. | | | |
| 2 | Define the social Responsibilities of an organization towards stakeholders and build the suitable organization structure and to identify factors influencing plant location and layout decisions. | | | |
| 3 | Know importance of materials management, evaluate quality of products using SQC techniques and Identify the basic concepts of marketing mix and Human Resource concepts. | | | |
| 4 | Know how PERT and CPM different and to construct network by proper planning organizing an managing the efforts to accomplish a successful project. | | | |
| 5 | Appraise all contemporary management practices and analyze how these contemporary management practices one applicable in modern business and service organizations. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** TECHNICAL COMMUNICATIONS SKILLS LAB (A9024) | **No. of Hours L: 0 T:0 P: 3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Develop effective and appropriate vocabulary to get focussed in the new patterns of learning.. | | | |

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| 2 | Infer flair for writing and felicity in written expression. | | | |
| 3 | Enhance job prospects with basic facts and concepts on the new patterns. | | | |
| 4 | Formulate effective speaking abilities to improve quality in their speaking by evaluating and recalling the skills concerned. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** NETWORK PROGRAMMING LAB (A9536) | **No. of Hours L: 0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Elaborate basic UNIX commands, shell scripts and AWK scripts. | | | |
| 2 | Organize and manipulate files and directories. | | | |
| 3 | **M**odel TCP and UDP client server applications and outline the I/O multiplexing concepts of Select and Poll functions. | | | |
| 4 | Design inter process communication consisting of pipes, FIFOs, Semaphores and message Queues and develop RPC applications. | | | |
| **Course Outcome** | **Year / semester III/II Sem** | **Subject Name (Subject Code)** SOFTWARE TESTING LAB (A9537) | **No. of Hours L: 0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Apply the knowledge of testings for real time projects. | | | |
| 2 | Perceive and apply different testing tools. | | | |
| 3 | Test the database stored in MYSQL. | | | |
| 4 | Write the testcases for conditional and iterative statements. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** NETWORK SECURITY & CRYPTOGRAPHY (A9538) | **No. of Hours L: 3 T:1 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Identifies various types of vulnerabilities, attacks, mechanisms and security services. | | | |
| 2 | Compare and contrast symmetric and asymmetric encryption algorithms. | | | |
| 3 | Implementation of message authentication, hashing algorithms and able to understand kerberos. | | | |
| 4 | Explore the attacks and controls associated with IP, transport level, web and E-mail security. | | | |
| 5 | Develop intrusion detection system, solutions for wireless networks and designing of various types of firewalls. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** WEB SERVICES (A9539) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Implement Web service client and server with interoperable systems like core distributed computing, J2EE, SOA, WSDL, UDDI and EBXML | | | |
| 2 | Perceive and analyze the principles of SOAP. | | | |
| 3 | Perceive the implement Web Services life cycle, Anatomy of WSDL definition document. | | | |
| 4 | How to utilize the semantics of web services. Working with UDDI, programming with UDDI, UDDI data structures. | | | |
| 5 | Explore interoperability between different frameworks. Design web based applications that use web services | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** CLOUD COMPUTING (CSE ELECTIVE-II) (A9540) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive the main concepts, key technologies of virtualization | | | |
| 2 | Describe the architecture and infrastructure of cloud computing with all services of cloud and deployment models | | | |
| 3 | Analyze the issues of cloud computing like cloud security. Explain the core issues of cloud computing such as security and privacy | | | |
| 4 | Identify problems; analyze various cloud computing solutions using python. Write comprehensive case | | | |

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| | studies by analyzing different cloud computing solutions | | | |
| 5 | Perceive the virtualization and cloud computing concepts. Develop scalable applications using AWS. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** INFORMATION SYSTEMS AND AUDITING (CSE ELECTIVE-II) (A9541) | **No. of Hours L: 4 T: 0 P:0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Recognize the propensity of errors and remedies in processes involving Information Technology. | | | |
| 2 | A consummate knowledge of risks and controls in IT operations in Industry. | | | |
| 3 | Apply the information systems auditing methodology. Identify and manage the security controls. | | | |
| 4 | Provide protective IT security guidelines for various types of Industries. Analyze the current issues in auditing | | | |
| 5 | The necessary wherewithal to become an IS Auditor and/or Security specialist eventually. Evaluate asset safeguarding and data integrity, system effectiveness and system efficiency. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** DISTRIBUTED DATABASES(CSE ELECTIVE-II) (A9542) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive the basics of distributed databases, types of fragmentation. Compare and contrast distributed and centralized databases. | | | |
| 2 | Evaluate the queries using different optimization strategies. | | | |
| 3 | How database implementation is affected by different levels of data and process distribution. | | | |
| 4 | Implement the concurrency control techniques on multi database systems. Apply learned skills to solving practical database related tasks. | | | |
| 5 | Perceive the Query processor architecture and its execution. Develop applications using CORBA Technology | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** ARTIFICIAL INTELLIGENCE (CSE ELECTIVE-II)( A9543) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Remember various AI concepts like the AI technique, level of model, there underlying assumptions etc | | | |
| 2 | Perceive the concepts of AI search techniques. Solve various problems by applying search methods. | | | |
| 3 | Apply knowledge Representation techniques. Analyze different structures of representation | | | |
| 4 | Evaluate AI search techniques. Analyze different Planning Techniques | | | |
| 5 | Create Expert systems. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** MULTIMEDIA & RICH INTERNET APPLICATIONS (CSE ELECTIVE-II)( A9562) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Develop dynamic and creative graphic solutions for multimedia productions. | | | |
| 2 | Develop techniques for interactive authoring, v. | | | |
| 3 | Use advanced scripting skills necessary for implementing highly interactive, rich internet applications using multimedia technologies and authoring tools. | | | |
| 4 | Perceive the fundamental concepts in video and digital audio. Compare different rich internet applications. | | | |
| 5 | Develop, Analyze, Design industry-wide software artistic visual style and layout design as well as the editing and integration of graphic images, animation, video, and audio files.. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** SCRIPTING LANGUAGES (CSE ELECTIVE-II) (A9563) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive of scripting and the contributions of scripting languages. Write simple scripts to automate system administration. | | | |
| 2 | Learn basics of PHP and advanced programming of PHP. Perceive of Perl especially evaluates the object oriented concepts. | | | |

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| 3 | Expose to create advanced applications on web applications. Analyze the basics of TCL and apply the logic on TCL concepts. | | | |
| 4 | Expose to basic applications python, create its modules and Web applications. | | | |
| 5 | Develop simple applications by various tools | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** SOFT COMPUTING (CSE ELECTIVE-III) (A9544) | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Learn basics of artificial neural network and soft computing techniques. | | | |
| 2 | Perceive various supervised learning networks and training algorithms of various Associative memory networks | | | |
| 3 | Perceive the algorithms for pattern association unsupervised learning networks, Special networks. | | | |
| 4 | Apply functional mappings in fuzzy sets. Interpret the Scope of Membership functions and perceive defuzzification methods and discussions on concepts of fuzzy sets | | | |
| 5 | Analyze and comprehends the concepts and applications of genetic algorithms, various soft computing techniques for problem solving | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** BUSINESS INTELLIGENCE AND BIG DATA (CSE ELECTIVE-III) (A9545) | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Explain the foundations, definitions, and capabilities of DSS, data analytics and BI. | | | |
| 2 | List the definitions, concepts, and architectures of data warehousing. | | | |
| 3 | Demonstrate the impact of business reporting, information visualization, and dashboards. Outline the definitions, concepts, and enabling technologies of big data analytics. | | | |
| 4 | Explain data mining, neural networks, support vector machines, text analytics, text mining, sentiment analysis, web mining, web analytics, social analytics, social network analysis. | | | |
| 5 | Apply big data technologies in business intelligence using geospatial data, location-based analytics, social networking, Web 2.0, reality mining, and cloud computing. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** SOFTWARE PROJECT MANAGEMENT(CSE ELECTIVE-III) (A9546) | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Gain knowledge of software economics, phases in the life cycle of software development, project organization, and project control and process instrumentation. | | | |
| 2 | Summarize software economics, software development life cycle, artifacts of the process, workflows, checkpoints, project organization and responsibilities, project control and process instrumentation. | | | |
| 3 | Choose the right software development approach. Compare various project organizations and responsibilities. | | | |
| 4 | Analyze the major and minor milestones, artifacts and metrics for management and technical perspective. | | | |
| 5 | Design software product using conventional and modern principles of software project management. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** COMPUTER GRAPHICS(CSE ELECTIVE-III) (A9547) | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Get overview on applications areas of Computer Graphics, Graphic devices and Monitors. | | | |
| 2 | Learn about basic tools for constructing pictures with straight lines, methods for performing geometric transformations i.e 2-Dimensional, curves, filled area, celNo. of Hours L:array patterns, and text. | | | |
| 3 | Learn about various surface functions such as quadrics, polygon surfaces, super quadrics, splines or blobby objects and 3-Dimensions transformations in computer graphics. | | | |
| 4 | Describe the importance of viewing. Learn major considerations in the generation of realistic graphic displays, detecting visible surfaces in a 3-Dimension scene and designing animation sequences. | | | |
| 5 | Discuss the applications of computer Graphics. Analyze the fundamentals of animations | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** DISTRIBUTED SYSTEMS(CSE ELECTIVE-III) (A9560) | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |

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| **After the completion of this course, the students should be able to** | | | | |
| 1 | Demonstrate knowledge of the basic elements and concepts related to distributed system technologies. | | | |
| 2 | Apply important methods in distributed systems to support scalability and fault tolerance. Design and Evaluate sample distributed systems. | | | |
| 3 | Examine state-of-the-art distributed systems, such as Google File System. | | | |
| 4 | Explain various architectures used to design distributed systems, such as clienT:server and peer-to-peer. | | | |
| 5 | Learn basics of CORBA, RMI. Implement Digital signatures on projects. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** DATABASE SECURITY (A9561) | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Compare and contrast various database security models. | | | |
| 2 | Implement the security techniques for distributed database systems. Implement Digital signatures on projects. | | | |
| 3 | Define, develop and analyze an interesting database security related research project. | | | |
| 4 | Design flaws and programming bugs in databases and the associated programs and systems. | | | |
| 5 | Prevent unauthorized data observation, unauthorized data modification and ensure the data confidential | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** NANO TECHNOLOGY (OPEN ELECTIVE-II) (A9330) | **No. of Hours L: 3 T: 0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive the fundamentals of Nanotechnology | | | |
| 2 | Know the different classes of nano materials | | | |
| 3 | Impart basic knowledge on various synthesis and characterization techniques involved in Nanotechnology | | | |
| 4 | Make the learner familiarize with nanotechnology potentialities. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** ENTREPRENEURSHIP DEVELOPMENT (OPEN ELECTIVE-II) (A9624) | **No. of Hours L: 3 T: 0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Define the nature and Qualities of Entrepreneur and relate to types of ownership. | | | |
| 2 | What are risk Reduction, market scope and Imitation strategies. | | | |
| 3 | Explain the legal regulations system and IPRs and summarize the source of finance from different institutions. | | | |
| 4 | Identify the needs of business ethics and develop the principles. | | | |
| 5 | Evaluate the issues of corporate governance and interpret the guidelines. Elaborate the concept of social responsibility and improve professional ethics | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** TELECOMMUNICATIONS & SWITCHING NETWORKS (OPEN ELECTIVE-II ) (A9624) | **No. of Hours L: 3 T: 0 P: 0** | **Credits:3** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive the main concepts of telecommunicating network design. | | | |
| 2 | Relate adequate knowledge about telecommunication network | | | |
| 3 | Analyze and evaluate fundamental telecommunication traffic models. | | | |
| 4 | Conclude themselves through the evolution of switching systems from manual and electromechanical systems to stored-program-controlled digital systems. | | | |
| 5 | Apply the knowledge of basic modern signaling system. Examine the concept of packet switching | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** INDUSTRY ORIENTED MINI PROJECT (A9548) | **No. of Hours L: 0 T:0 P:0** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive, plan and execute a mini project as an individual or in a team in development of mini project | | | |

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| 2 | Prepare a technical report based on the Mini project. | | | |
| 3 | Develop effective communication skills for presentation of mini project related activities | | | |
| 4 | Demonstrate technical seminar based on the Mini Project work carried out. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** NETWORK SECURITY & CRYPTOGRAPHY LAB (A9549) | **No. of Hours L: 0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Implement the cipher techniques. | | | |
| 2 | Apply the mathematical foundation required for various cryptographic algorithms. | | | |
| 3 | Develop the various security algorithms. | | | |
| 4 | Use different open source tools for network security and analysis. | | | |
| **Course Outcome** | **Year / semester IV/I Sem** | **Subject Name (Subject Code)** WEB TECHNOLOGIES LAB-II (A9550) | **No. of Hours L: 0 T:0 P:3** | **Credits:2** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Define various web technologies concepts such as PHP, Java Servlets and JSP. | | | |
| 2 | Describe syntax and semantics of PHP, Servlet, JSP programming. | | | |
| 3 | Experiment with static and dynamic web applications. | | | |
| 4 | Evaluate client server web applications and Design a fully functional web application using PHP, Java Servlets, JSP and MySQL database. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) INTERNET OF THINGS (A9551)** | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Interpret the vision of IOT from a global context. | | | |
| 2 | Perceive building blocks of Internet of Things and its characteristics. | | | |
| 3 | Learn the basic concepts of Python. Implement the python programming using Raspberry. | | | |
| 4 | Perceive the application areas of IOT. Realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks | | | |
| 5 | Determine the Market perspective of IOT. Develop Python web applications and cloud servers for IOT. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) INTERNET TECHNOLOGIES ( CSE Elective-IV) (A9552)** | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Explain the syntax and semantics of C# and ASP.NET using Visual Studio .NET platform. | | | |
| 2 | Illustrate the use of arrays, parameters mechanisms, properties, generics, and collections in C#. | | | |
| 3 | Explain concept of custom interfaces by designing C# applications. | | | |
| 4 | Examine the available builT:in interfaces in building complex applications. | | | |
| 5 | Compose queries to query in-memory data and define own operator behavior. Develop stand alone and graphical user interface applications on .NET. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) SERVICE ORIENTED ARCHITECTURE ( CSE Elective-IV)(A9553)** | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Define SOAP Message Structure, SOAP Encoding, and Encoding of different data types. | | | |
| 2 | Perceive the implement Web Services life cycle, Anatomy of WSDL definition document. | | | |
| 3 | Describe WSDL bindings and tools. Working with UDDI, programming with UDDI, UDDI data structures | | | |
| 4 | Apply Publishing, searching and deleting information in a UDDI Registry | | | |
| 5 | Develop an Understanding about Service Oriented Analysis, Service Oriented Design, WS-BPEL language basics. Perceive the overview of WS-Coordination. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) INFORMATION RETRIEVAL SYSTEMS ( CSE Elective-IV) (A9554)** | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Define Vector space model. Perceive various similarity coefficient and measures | | | |

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| 2 | Develop an Understanding on Relevance feedback, Regression Analysis, Thesauri. | | | |
| 3 | Perceive the applications of clustering. Apply various Retrieval Utilities for Information Retrieval | | | |
| 4 | Develop an Understanding about Signature files, Duplicate document detection. | | | |
| 5 | Apply IR principles to locate relevant information large collection of data. Analyze the model of distributed retrieval web search. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) COMPUTER FORENSICS (CSE Elective-IV) (A9555)** | **No. of Hours L: 4 T:0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Understand the definition of computer forensics fundamentals. | | | |
| 2 | Describe the types of computer forensics technology. Analyze various computer forensics systems | | | |
| 3 | Illustrate the methods for data recovery, evidence collection and data seizure. | | | |
| 4 | Summarize duplication and preservation of digital evidence. Evaluate the effectiveness of available digital forensics tools | | | |
| 5 | Employ fundamental computer theory in the context of computer forensics practices. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) MACHINE LEARNING (CSE ELECTIVE-IV) (A9563)** | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Explain the theory underlying machine learning. | | | |
| 2 | Learn beyond binary classification. | | | |
| 3 | Recognize and implement various genetic algorithms. | | | |
| 4 | Construct algorithms to learn tree, to learn linear, non-linear models and rule-based models | | | |
| 5 | Implement Probabilistic models. Learn basics of reinforcement learning. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) ADHOC AND SENSOR NETWORKS (CSE ELECTIVE-IV) (A9564)** | **No. of Hours L: 4 T: 0 P: 0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Perceive the concept of mobile computing. Estimate the MAC protocols for GSM and wireless LANs | | | |
| 2 | Demonstrate new ad hoc network applications and algorithms or protocols. | | | |
| 3 | Compare the different operating Systems like Palm OS, Windows CE, Symbian OS, Linux for Mobile devices. | | | |
| 4 | Explain the basic concepts of WIRELESS networks and challenges of adhoc and sensor networks | | | |
| 5 | Classify the design issues and different categories of MAC protocols. Discuss the sensor characteristics, wsn layer protocols and QoS related performance measurements | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) SEMINAR (A9556)** | **No. of Hours L: 0 T: 0 P:3** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Identifies, understand and discuss current, real -world issues | | | |
| 2 | Explain the role of self-efficacy, personal goals, and motivation in improving academic life | | | |
| 3 | Describe the behaviors and characteristics of an effective learner | | | |
| 4 | Gain knowledge of fast and rapidly changing by self learning | | | |
| 5 | Practice finding relevant course material on the Internet and incorporate them in their courses. | | | |
| 6 | Develop articles and presentation skills | | | |
| 7 | Develop the interpersonal skills, soft skills and creativity. | | | |
| 8 | Present features of the developed project to the targeted group through written and oral communication. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) COMPREHENSIVE VIVA (A9557)** | **No. of Hours L: 0 T: 0 P:0** | **Credits:4** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Articulate knowledge on various fundamentals. | | | |
| 2 | Recalls to answer questions from all the courses of the semesters comprehensively | | | |
| 3 | Attain Oral Presentation skills by answering questions in precise manner | | | |
| 4 | Attain Oral Presentation skills by answering questions in concise manner | | | |

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| 5 | Gain confidence . | | | |
| 6 | Inter-personal skills. | | | |
| 7 | Prepare the students to face interview at the academic level | | | |
| 8 | Prepare the students to face interview at the industrial level. | | | |
| **Course Outcome** | **Year / semester IV/II Sem** | **Subject Name (Subject Code) MAJOR PROJECT** (A9558) | **No. of Hours L: 0 T: 0 P:15** | **Credits:8** |
| **After the completion of this course, the students should be able to** | | | | |
| 1 | Uses fundamental knowledge and skills in engineering and apply it effectively on a project. | | | |
| 2 | Apply knowledge of the 'real world' situations that a professional engineer can encounter. | | | |
| 3 | Apply critical and creative thinking in the design of software, Hardware and Networking projects. | | | |
| 4 | As a team student can organise, record and compile their work done throughout the project in an efficient manner. | | | |
| 5 | Manage any disputes and conflicts within and outside their team. | | | |
| 6 | Demonstrate a sound technical knowledge of their selected project topic. | | | |
| 7 | Demonstrate the knowledge, skills and attitudes of a professional engineer. | | | |
| 8 | Summarize an appropriate list of literature review, analyse previous work and relate them to current project. | | | |