Course Code	Course Name	Course Outcomes
14211001	Mathematics-1	CO-1. Modeling of certain physical phenomena into appropriate matrices and their transformations.
		CO- 2. Transforming line integrals, double and triple integrals into one another in solving mathematical models of some engineering applications.
		CO- 3. Students shall apply Laplace transform techniques in Transient and steady state analysis of electrical circuits, analysis of Structural engineering problems such as deflection of beams, columns etc.
		CO-4. Students are able to understand and apply Green's, Stoke's and Gauss-divergence theorems in solid mechanics, fluid mechanics, electrical engineering and various other fields.
14211002	Mathematics-2	CO-1. Students are able to understand and apply differential equations in solving Hydrodynamics, Electromagnetic fields and Fluid mechanics problems.
		CO- 2. Students are able to understand and apply Numerical Methods in solving Simultaneous equations and Transcendental equations.
		CO-3. Solving engineering problems that can be modeled as ordinary differential equations without finding general solutions.
		CO-4. Students are able to apply Fourier transform techniques to solve the Differential and Partial Differential equations that may arise in electrical circuits, analysis of Structural engineering problems such as deflection of beams, columns etc.

Code	Course	Course Outcomes
14221003	Engineering Physics	• CO-1. The different realms of physics and their applications in both scientific and technological systems are achieved through the study of physical optics, lasers and fiber optics.
		• CO-2. The important properties of crystals like the presence of long-range order and periodicity, structure determination using X-ray diffraction are focused along with ultrasonic non-destructive technique.
		• CO-3. The properties and device applications of semiconducting and magnetic materials are illustrated.
		• CO-4.The importance of super conducting materials and Nano-Materials along with their engineering applications is well elucidated
14231004	Engineering Chemistry	CO-1. Graduate will be able to apply the knowledge of chemistry to identifying and addressing the problems of boilers in industry.
		CO-2. Graduate will be able to appreciate the use of high polymers in engineering uses.
		CO-3. Graduate will demonstrate the knowledge of Fuels and lubricating oils in Engines.
		CO-4. Graduate will be able to appreciate the appropriate analytical methods in chemical analysis using instrumentation.
14241005	English	CO-1. Have improved communication in listening, speaking, reading and writing skills in general.
		CO-2. Have developed their oral communication and fluency in group discussions and interviews.
		CO-3. Have improved awareness of English in science and technology context.

		CO-4. Have achieved familiarity with a variety of technical reports.
14031006	Engineering Drawing	CO-1.Apply principles of drawing in representing dimensions of an object.
		CO-2.Construct polygons and curves.
		CO-3.Draw projections of points, lines, planes and solids in different positions.
		CO-4.Convert the orthographic views into isometric views and vice versa.
14051007	Problem Solving & Programming in C	CO-1. Able to understand the basic building blocks of C.
		CO-2. Able to use logical structure and control structures of a computer program.
		CO-3. Able to describe the use of arrays and modular programming
		CO-4. Able to illustrate the use of memory allocation and file handling functions.
14991008	Engineering Workshop	CO-1.Use marking tools, measuring tools, cutting tools (chisels, saws) used in carpentry and fitting trades to prepare basic carpentry and fitting joints.
		CO-2.Prepare Foundry jobs like single piece pattern and double piece pattern.
		CO-3. Make basic house wire connections.
		CO-4.Fabricate tin smithy jobs using snips, stakes and wooden mallet.
		(IT-Workshop)
		CO-5. Able to assemble and disassemble the PC.
		CO-6. Able to install Windows OS.
		CO-7. Able to work with MS-Office.
		CO-8. Able to Browse the Internet.
		CO-1. Able to write, compile and debug programs in C language and use different data types in a computer program.

14051009	Programming in C Lab	CO-2. Able to implement programs involving decision structures, loops, arrays and functions on different applications.
		CO-3. Able to implement the modular programming concepts, pointers, structures and unions.
		CO-4. Able to develop the concepts of file I/O operations and random access to files
14991010	Engineering Sciences Lab	CO-1. Graduate will be able to apply the knowledge of physics laboratory in measuring the standard values.
		CO-2. Graduate will correlate the theory and experimental results.
		CO-3. Graduate will be able to apply the knowledge of chemistry laboratory in identifying and addressing the problems in hardness of water.
		CO-4. Able to appreciate the appropriate analytical methods in chemical analysis using instrumentation.
14241011	English Language and Communication Skills Lab	CO-1. Have improved communication in listening, speaking, reading and writing skills in general.
		CO-2. Have developed their oral communication and fluency in group discussions and interviews.
		CO-3. Have improved awareness of English in science and technology context.
		CO-4. Have achieved familiarity with a variety of technical reports.
		CO-1. Students will be able to know about the operation of various Electronics Devices and their applications.

14042101	Electronic Devices & Circuits	CO- 2. Understand the operation and applications of Bipolar Junction Transistor (BJT).
		CO-3. Able to compare BJT, JFET and MOSFET.
		CO-4. Understand the operation and application of Oscillators and Op-Amps.
14052102	Data Structures	CO-1.Study variety of abstract data type (ADT) and data structures.
		CO-2.Implementation of linked data structures such as linked lists and binary trees.
		CO-3. Be familiar with some graph algorithms such as shortest path and minimum spanning tree.
		CO-4.Be familiar with various sorting algorithms including quick sort, merge sort and heap sort.
14052103	Digital Logic Design	CO-1.Students should be able to solve basic binary math operations.
		CO-2. Encode symbols and numbers in binary codes
		CO-3.Students should be able to design different units that are elements of typical computer's CPU.
		CO-4.Students should be able to apply knowledge of the logic design course to solve problems of designing of control units of different input/output devices.
14052104	Mathematical Foundations of Computer Science	CO-1.Able to apply mathematics concepts and logical reasoning to solve problems in different fields of Computer Science.
		CO-2. Perform operations on discrete structures such as propositions, functions, and relations.
		CO-3. Learn Algebraic structures and able to apply Elementary Combinatorics.

		CO-4. Explain basic definitions and properties associated with simple planar graphs, including isomorphism, connectivity, and Euler's formula, and describe the difference between Eulerian and Hamiltonian graphs.
14122105	Electrical Engineering	CO-1. Understanding of the operation of op-amps, diodes and transistors in order to build circuits. CO-2. Students understand basic properties of AC and DC machines.
		CO-3. Able to get the knowledge about various measuring instruments.
		CO-4. Have knowledge about Rectifier and power supplies.
14052106	Object oriented Programming Through C++	CO-1. Students are able to learn c ++ data types, Constants, variables, Create correctly formatted I/O, C++ expressions using operator precedence, basic programming constructs of C++ .
		CO-2. Students are able to apply object oriented programming concepts & design programs in C++.
		Create simple classes having data members and member functions, friend, constructors and destructors.
		CO-3. Understand dynamic memory allocation and pointers.
		CO-4. . Understand the concept of template classes and be able to instantiate objects from both regular and template classes.
14052107	Object oriented Programming &	CO-1. Students will be able to understand the concepts and implementation of constructors and destructors.
		CO-2. Able to implement operator overloading and function overloading in C++.

14032107	Data Structures Lab	CO-3. Able to implement inheritance and polymorphism in C++.
		CO-4. Able to implement the data structures like stacks, queues, linked lists, trees, and graphs, searching and sorting using C++.
14992108	Electrical & Electronics Engineering Lab	CO-1. The student will be able to Solve the basic electrical circuits.
		CO-2. Learning to conduct experiments involving electric and electronic components and to analyze and interpret the measurements results.
		CO-3. Designing, construct and characterize electric and electronic circuits according to specification.
		CO-4. Getting familiar with state of the art electronic test equipment to characterize the behavior of electric and electronic devices and circuits.
14212201	Probability & Statistics	CO-1. Know how to calculate fundamental concepts such as the cumulative distribution function, expectations, and distributions for functions of random variables.
		CO-2. Know the basic continuous distributions (Uniform, Exponential, Normal and Gamma) and know how to work with them.
		CO-3. Evaluate estimators, construct confidence intervals, and perform hypothesis tests in the context of a single population sample.
		CO-4. The student will be able to analyze the problems of engineering and industry using the techniques of testing of hypothesis, curve fitting, statistical quality control and draw appropriate inferences.

14012202	Environmental Studies	CO-1. Graduate will be able to apply the knowledge of Environmental issues in his area of work.
		CO-2. He will appreciate the need and methods for conservation of Natural Resources for sustainable development.
		CO-3. Analyze interaction between social and environmental processes.
		CO-4. The graduate will appreciate disaster management in preventing loss of property and life.
14052203	Database Management Systems	Co-1. Can apply the ER concepts to design the databases.
		CO-2. Advanced concepts like triggers, assertions and constrains can be applied effectively in designing the business applications.
		CO-3 .Apply normalization techniques to normalize a database.
		CO-4. Be familiar with the basic issues of transaction processing and concurrency control and Master the basics of query evaluation techniques and query optimization.
14052204	Formal Languages & Automata Theory	CO-1. Basic understanding of the notion of a regular set and its representation by DFA's, NFA's and regular expressions.
		CO-2. Basic understanding of the notion of a context-free language and its representation by context-free grammars and push-down automata.
		CO-3. Practical applications of regular expressions and context-free grammars.
		CO-4. Find solution to the problem using Turing machines.

14052205	Java Programming	CO-1. Ability to solve problems using object oriented approach and implement them using Java
		CO-2. Ability to write Efficient programs with multitasking ability and handle exceptions
		CO-3. Create user friendly interface
		CO-4. Ability to create AWT components
14052206	Computer Organization	CO-1.Perform arithmetic operations of binary number system.
		CO-2. Understand the organization of the Control unit, Arithmetic and Logical unit, Memory unit and the I/O unit.
		CO-3. Ability to use memory and I/O devices effectively and to explore the hardware requirements for cache memory and virtual memory.
		CO-4. Ability to understand the concept of pipelining and multiprocessors.
14252207	Database Management Systems Lab	CO-1. Design and implement a database schema for a given problem-domain
		CO-2. Populate and query a database using SQL DDL/DML commands.
		CO-3. Able to implement Oracle functions and operators.
		CO-4. Programme PL/SQL including stored procedures, stored functions and cursors.
14052208	Java Programming Lab	CO-1. Students will be able to create, compile, and run Java programs.
		CO-2. Students are able to write java programs using primitive data types, control statements, methods, and arrays.
		CO-3. Students are able to implement Packages, Interfaces and Exception handling.

		CO-4.Students are able to Create and Develop a GUI interface and Java applets.
14053101	Operating Systems	CO-1. Write System and application programs to exploit operating system functionality.
		CO-2. Compare and contrast the various ways of structuring an operating system such as object oriented, modular, micro-kernel, and layered.
		CO-3. Define the types of processor scheduling such as short-term, medium-term, and long-term.
		CO-4. Compare and contrast the common algorithms used for both preemptive and non preemptive scheduling of tasks in operating systems, such as FCFS, SJF, priority, Round Robin, Multilevel queue and multilevel feedback queue.
14053102	Computer Networks	CO-1. Understand the basics of the TCP/IP reference model, as well as the OSI reference model.
		CO-2. Understand the difference between hierarchical and distance vector routing.
		CO-3. Understand Network and Transport protocols.
		CO-4.Understand Data link and Application layer protocols.
14053103	Software Engineering	CO-1. Ability to Define a software process
		CO-2. Learn the basics of the life cycle of software
		CO-3. Analyze the requirements of a software
		Allows to do software Design
		CO-4. Awareness over code and test the soft ware.

14053104	Compiler Design	CO-1. . Have the clear idea regarding the different phases of compiler in design of a complier.
		CO-2. Able to use the compiler construction tools related to complier design effectively and efficiently.
		CO-3. Have the clear idea of language specifications using context and free grammars (CFG).
		CO-4.Able to write the optimized code.
14053105	Computer Graphics	CO-1. Have the clear idea regarding the applications of the computer graphics and Graphics Systems.
		CO-2. Design algorithms for different geometric shapes line, circle, ellipse...etc.
		CO-3. Perform transformations (rotation, scaling, and translation, shearing) on geometric objects.
		CO-4. Understand the working of animation technique.
14043106	Micro Processors	CO-1. Students will become familiar with 8086 microprocessors and able to write some simple programs
		CO-2. Interface the 8086 microprocessor with various devices (RAM, ROM, ADC and DAC) and program them.
		CO-3. Convert ideas into programs written with the 8086 instruction set.
		CO-4. Explain the basics of Various kinds of Microprocessors (80386, 80486 and Pentium) including their structure, operation and interface with systems.
	Human Values & Professional Ethics	CO-1.Understand need, basic guidelines, contents and process for value education

14253107	(Audit Course)	CO-2.Meaning of trust, respect and find difference between respect and differentiation
		CO-3. Look at the connection between ethics and technology, the ethical issues emerged in the information society
		CO-4. Understand information privacy, Intellectual property, and security.
14053108	Computer Networks & Operating System Lab	CO-1. Understand the basics of the TCP/IP layer model, as well as the OSI 7 layer model.
		CO-2. Learn to carry out Dijkstra's shortest path algorithm in a given network.
		CO-3. Define the types of processor scheduling such as short-term, medium-term, and long-term.
		CO-4. Compare and contrast the common algorithms used for both preemptive and non preemptive scheduling of tasks in operating systems, such as FCFS, SJF, priority, Round Robin, Multilevel queue and multilevel feedback queue.
14043109	Micro Processors Lab	CO-1. Interpret programs in assembly language Format.
		CO-2. Be able to modify existing programs.
		CO-3. Analyze the interfacing circuitry and programs required for peripheral support chips and other hardware.
		CO-4. Develop control specific programs.
		CO-1. Ability to develop blueprint solutions to the complex problems using object oriented approach.
		CO-2. Identify and Represent classes and responsibilities using UML notation.

14053201	Object Oriented Analysis & Design	CO-3. Model the behavioral elements of systems by using UML notations like interaction diagrams, State chart diagrams, activity diagrams etc.
		CO-4. Explain how the Unified Modeling Language (UML) represents an object-oriented system using a number of modeling views.
14053202	Design & Analysis of Algorithms	CO-1. Analyze the complexity of the algorithms.
		CO-2. Use techniques divide and conquer, greedy, dynamic programming, backtracking, branch and bound to solve the problems.
		CO-3. Explain the major graph algorithms and their analysis.
		CO-4. . Explain basic complexity classes such as P, NP, NP Hard and NP-complete.
14053203	Web Technologies	CO-1. Understand and apply JavaScript, CSS & XHTML to create dynamic XHTML.
		CO-2.Exposure to basic Web Programming: Including HTML programming (manual and tool-assisted). Java Script programming of reactive web pages elements, PHP scripting.
		CO-3. Exposure to database programming using PHP.
		CO-4. The necessary skills to write server side programs.
14053204	Unix & Shell Programming	CO-1. The fundamental skills required to write simple and complex Shell scripts to automate jobs and processes in the Unix environment.
		CO-2.Have hands-on knowledge of the basic principles of Unix file system.
		CO-3.Tell the difference between conventional function calls versus system calls in UNIX and classifies system calls in UNIX.

		CO-4.Define mechanisms for local and remote inter process communication in UNIX.
14033205	Artificial Intelligence	CO-1.Posses the ability to select a search algorithm for a problem and characterize its time and space complexities.
		CO-2.Posses the skill for representing knowledge using appropriate technique.
		CO-3. Understand the conceptual and computational trade-offs between the expressiveness of different formal representations.
		CO-4. Posses the ability in apply AI techniques to solve problems of Game playing, Expert Systems, Machine Learning and Natural Language Processing.
14053206	Wireless Sensor Networks	CO-1. Students will be introduced to some existing applications of wireless sensor networks and GSM.
		CO-2. To have a good understanding of Mobile Computing and MAC.
		CO-3. Students will learn to program sensor network platforms and Tools.
		CO-4. To know the concept of Energy Consumption, Sensing, Communication Range and Clustering of Sensors.
14053207	Advanced Computer Architecture	CO-1. Realize parallelism and Parallel architectures.
		CO-2. Exposure to differentials of shared memory multiprocessors and distributed memory multicomputer.
		CO-3. Skills in evaluating and optimizing the performance of parallel computer architectures
		CO-4. Ability to use Thread level parallelism.

Course Code	Course Name	Course Outcomes
14053208	Multimedia Systems	CO-1.Basic concepts of Sound/Audio and image/Graphics.
		CO-2.Basic concepts of Video and Animation, Data compression standards.
		CO-3. Basic knowledge of multimedia database system, Hypertext and MHEG.
		CO-4.Fundamentals of Multimedia Operating systems and Basic concepts of Synchronization.
14243209	Advanced English & Communication Skills Lab	CO-1. Have improved communication in listening, speaking, reading and writing skills in general.
		CO-2. Have developed their oral communication and fluency in group discussions and interviews.
		CO-3. Have improved awareness of English in science and technology context.
		CO-4. Have achieved familiarity with a variety of technical reports.
14053210	Web Technologies Lab	CO-1.Design and implement a basic website.
		CO- 2.Implement different navigation strategies.
		CO-3.Use client-side technologies (XHTML, CSS, forms, JavaScript) and Use server-side technology PHP to implement websites.
		CO-4. Develop simple back-end database to support a website.
14254101	Managerial Economics & Financial Analysis	CO-1. Students should be able to understand the application of Managerial Economics in various aspects of decision making
		CO-2.The thorough understanding of Managerial Economics and Analysis of Financial Statements facilities the Techno crafts-cum-Entrepreneurs to take-up decisions effectively and efficiently in the challenging Business Environment.

		CO-3.Students should be able to think and analyze the critical problems in accountancy
		CO-4.Students should be able to enhance their leadership qualities and understand the key elements to be an entrepreneur
14054102	Data Warehousing & Data Mining	CO-1.Identify and understand the components of warehousing.
		CO-2. Compare and contrast OLAP and data mining as techniques for extracting knowledge from a data warehouse.
		CO-3. Identify and understand the data extraction and transformation techniques.
		CO-4.Gain knowledge about data mining, decision tree and clustering.
14054103	Cloud Computing	CO-1. To learns fundamentals and essentials of Cloud Computing.
		CO-2. Understanding the key dimensions of the challenge of Cloud computing.
		CO-3. Assessment of the economics, financial and technological implications for selecting cloud computing.
		CO-4. Understand how cloud components fit together.
14054104	Software Testing	CO-1. Understand the basic testing procedures
		CO-2. Generating test cases and test suites.
		CO-3. Test how the software reacts under repeated execution of the same operations.
		CO-4. Know how automated tools run tests significantly faster than human users and build a suite of tests that covers every feature in an application.

14054105	Software Project Management	CO-1. Understands how different management and development practices affect software and process quality.
		CO-2. Describe and determine the purpose and importance of project management from the perspectives of planning tracking and completion of project.
		CO-3. Compare and differentiate organization structures and project structures.
		CO-4. Able to analyze the Case Study: CCPDS-R(The command Center Processing and Display System-Replacement.
14054106	Digital Image Processing	CO-1. Examine various types of images, intensity transformations and spatial filtering.
		CO-2. Develop Fourier transforms for image processing in frequency domain.
		CO-3. Evaluate the methodologies for image segmentation, restoration, topology, etc.
		CO-4. Analyze Image data compression techniques.
14054107	Software Architecture	CO-1. Design and understand software architecture
		CO-2. Recognize major software architectural styles
		CO-3. Describe a software architecture using various documentation approaches and architectural description languages.
		CO-4. Identify and assess the quality attributes of a system at the architectural level.
		CO-1. Able to Categorize Storage Networking Issues
		CO-2. Able to identify the components and uses of a storage Area Networks(SAN)

14054108	Storage Area Networks	CO-3. Able to identify challenges for network storage.
		CO-4. To have clear idea about clusters in Storage Area Networks.
14054109	Service Oriented Architecture	CO-1.Known about the basic principles of service oriented architecture , its components and techniques
		CO-2. Understand the architecture of web services
		CO-3. To have clear idea about SOA delivery strategies.
		CO-4. Understand technology underlying the service design
14054110	Network Management Systems	CO-1. To have clear idea about data communication and network management related issues.
		CO-2. Be familiar with SNMP protocol and its uses in managing and monitoring networks.
		CO-3. Be familiar with different versions of SNMP for managing Networked Devices.
		CO-4. To have clear idea about XML Based Network, Reliable fault tolerant network management.
14054111	Software Testing and Case tools lab	CO-1.The students understand the process to be followed in the software development life cycle.
		CO-2. Automate the testing process by using several testing tools.
		CO-3. Design and implement projects using OO concepts.
		CO-4. Use the UML analysis and design diagrams.
		CO-1. The student will be able to use Weka tool
		CO-2. Build a data warehouse

14054112	Data Warehousing & Data Mining Lab	CO-3. Mine Statistical Measures in large databases.
		Co-4. Can differentiate between Classification & Clustering.
14254201	Management Science	CO-1. The course enables the students to above the principles and applications of management knowledge and exposure to the latest developments in the field.
		CO-2. This helps to take effective and efficient managerial decision on physical and human resources of an organization.
		CO-3. Besides, the knowledge of Management Science facilities for his/her personal and professional development.
		CO-4. Have the clear idea about Project management techniques to engineering problems such as PERT/CPM.
14054202	Cryptography & Network Security	CO-1. Project the network from both internal and external attacks.
		CO-2. Understand theory of fundamental cryptography, encryption and decryption algorithms,
		CO-3. Build secure authentication systems by use of message authentication techniques.
		CO-4. To have an idea about Viruses, Malwares and mechanisms for preventing these threats.
14054203	Design Patterns	CO-1. Identify common design patterns in the context of incremental and iterative development.
		CO-2. Know the underlying object oriented principles of design patterns.
		CO-3. Understand the context in which the pattern can be applied.

		CO-4. Distinguish pattern approach for software applications.
14054204	Principles of TCP/IP	CO-1.To learns the TCP/IP reference model for computer communication.
		CO-2. To have an idea about IP address classes and IP datagram format in communication.
		CO-3. To have an idea about TCP and UDP protocols.
		CO-4. To learn error reporting message protocols and advanced versions of IP and ICMP.
14054205	Soft Computing	CO-1. Learn about soft computing techniques and their applications
		CO-2. Analyze various neural network architectures
		CO-3. Apply fuzzy logic and reasoning to handle uncertainty and solve engineering problems
		CO-4. Apply genetic algorithms to combinatorial optimization problems.
14054206	Grid Computing	CO-1. Understand and explain the basic concepts of Grid Computing.
		CO-2. Understanding Grid Security and Resource Management in Grid Computing.
		CO-3.Understand Data Management and Grid Portals.
		CO-4.Understand Globus Toolkit and gLite.
14054207	Seminar	CO-1. Student is expected to do an in depth study in a specialized area
		CO-2. To learn investigation methodologies in specialized areas.
		CO-3. Evaluate and synthesize evidence in order to draw conclusions consistent with the text
		CO-4. Have and develop presentation skills
		CO-1. Problem solving skills

14054208	Project Work	CO-2.Students must have acquired System integration skills
		CO-3. Documentation skills
		CO-4. Project management skills.