

## SE Information Technology SEMESTER-I

<b>Name Of Subject:</b>	<b>Discrete Mathematics (214441)</b>
<b>Course Objectives:</b>	
1	Gain sound knowledge to formulate and solve problems with sets and propositions.
2	To understand and solve counting problems by applying elementary counting techniques to solve problems of discrete probability
3	To understand Graph and Tree terminologies and models to be applied in real life problems.
4	To recognize types of relation, formulate and solve problems with relations and functions
5	To understand basics of number theory and its applications.
6	To understand the various types' algebraic structures and its applications
<b>Course Outcomes:</b>	
CO1	Formulate, apply formal proof techniques and solve the problems with logical reasoning.
CO2	Analyze and evaluate the combinatorial problems by using probability theory
CO3	Apply the concepts of graph theory to devise mathematical models
CO4	Analyze types of relations and functions to provide solution to computational problems.
CO5	Identify techniques of number theory and its application.
CO6	Identify fundamental algebraic structures
<b>Name Of Subject:</b>	
<b>Logic Design &amp; Computer Organization (214442)</b>	
<b>Course Objectives:</b>	
1	To make undergraduates, aware of different levels of abstraction of computer systems from hardware perspective.
2	To make undergraduates, understand the functions, characteristics of various components of Computer& in particular processor & memory.
<b>Course Outcomes:</b>	
CO1	Perform basic binary arithmetic & simplify logic expressions
CO2	Grasp the operations of logic ICs and Implement combinational logic functions using ICs.
CO3	Comprehend the operations of basic memory cell types and Implement sequential logic functions using ICs.
CO4	Elucidate the functions & organization of various blocks of CPU.
CO5	Understand CPU instruction characteristics, enhancement features of CPU.
CO6	Describe an assortment of memory types (with their characteristics) used in computer systems and basic principle of interfacing input, output devices.
<b>Name Of Subject:</b>	
<b>Data Structure &amp; Algorithms (214443)</b>	
<b>Course Objectives:</b>	
1	To study data structures and their implementations and applications
2	To learn different searching and sorting techniques.
3	To study some advanced data structures such as trees, graphs and tables.
4	To learn different file organizations.
5	To learn algorithm development and analysis of algorithms.
<b>Course Outcomes:</b>	
CO1	Perform basic analysis of algorithms with respect to time and space complexity.
CO2	Select appropriate searching and/or sorting techniques in the application development
CO3	Implement abstract data type (ADT) and data structures for given application.

CO4	Design algorithms based on techniques like brute -force, divide and conquer, greedy, etc.
CO5	Apply implement learned algorithm design techniques and data structures to solve problems
CO6	Design different hashing functions and use files organizations.
<b>Name Of Subject: Object-Oriented Programming (214444)</b>	
<b>Course Objectives:</b>	
1	Apply concepts of object-oriented paradigm.
2	Design and implement models for real life problems by using object-oriented programming.
3	Develop object-oriented programming skills.
<b>Course Outcomes:</b>	
CO1	Differentiate various programming paradigms
CO2	Identify classes, objects, methods, and handle object creation, initialization, and Destruction to model real-world problems.
CO3	Identify relationship among objects using inheritance and polymorphism principles.
CO4	Handle different types of exceptions and perform generic programming.
CO5	Use of files for persistent data storage for real world application.
CO6	Apply appropriate design patterns to provide object-oriented solutions.
<b>Name Of Subject: Basics of Computer Network (214445)</b>	
<b>Course Objectives:</b>	
1	To understand the fundamentals of communication system.
2	To understand the basics of internetworking.
3	To understand services and protocols used at Physical, Data Link, Network, Transport Layer
<b>Course Outcomes:</b>	
CO1	Understand and explain the concepts of communication theory and compare functions of OSI and TCP/IP model
CO2	Analyze data link layer services, error detection and correction, linear block codes, cyclic Codes, framing and flow control protocols
CO3	Compare different access techniques, channelization and IEEE standards
CO4	Apply the skills of subnetting, supernetting and routing mechanisms
CO5	Differentiate IPv4 and IPv6.
CO6	Illustrate services and protocols used at transport layer.
<b>Name Of Subject: Logic Design &amp; Computer Organization Lab(214446)</b>	
<b>Course Objectives:</b>	
1	To design & implement combinational and sequential circuits.
2	To learn simulation of digital systems.
<b>Course Outcomes:</b>	
CO1	Use logic function representation for simplification with K-Maps and design Combinational logic circuits using SSI & MSI chips.
CO2	Design Sequential Logic circuits: MOD counters using synchronous counters.
CO3	Understand the basics of simulator tool & to simulate basic blocks such as ALU & memory.
<b>Name Of Subject: Data Structure &amp; Algorithms Lab(214447)</b>	
1	To study data structures and their implementations and applications.
2	To learn different searching and sorting techniques.
3	To study some advanced data structures such as trees, graphs and tables.

4	To learn different file organizations.
5	To learn algorithm development and analysis of algorithms.
<b>Course Outcomes:</b>	
CO1	Analyze algorithms and to determine algorithm correctness and time efficiency class.
CO2	Implement abstract data type (ADT) and data structures for given application.
CO3	Design algorithms based on techniques like brute -force, divide and conquer, greedy, etc.).
CO4	Solve problems using algorithmic design techniques and data structures.
CO5	Analyze of algorithms with respect to time and space complexity
<b>Name Of Subject: Object Oriented Programming Lab(214448)</b>	
<b>Course Objectives:</b>	
1	Apply concepts of object-oriented paradigm.
2	Design and implement models for real life problems by using object-oriented programming
3	Develop object-oriented programming skills
<b>Course Outcomes:</b>	
CO1	Differentiate various programming paradigms.
CO2	Identify classes, objects, methods, and handle object creation, initialization, and destruction to model real-world problems.
CO3	Identify relationship among objects using inheritance and polymorphism.
CO4	Handle different types of exceptions and perform generic programming.
CO5	Use file handling for real world application.
CO6	Apply appropriate design patterns to provide object-oriented solutions
<b>Name Of Subject: Soft Skill Lab(214449)</b>	
<b>Course Objectives:</b>	
1	To facilitate a holistic development of students while focusing on enhancing soft skills.
2	To highlight the need to improve soft skills among engineering students so as to become good professionals.
3	To develop and nurture the soft skills of the students through individual and group activities.
4	To expose students to right attitudinal and behavioural aspects and assist in building the same through activities.
<b>Course Outcomes:</b>	
CO1	Introspect about individual's goals, aspirations by evaluating one's SWOC and think creatively.
CO2	Develop effective communication skills including Listening, Reading, Writing and Speaking.
CO3	Constructively participate in group discussion, meetings and prepare and deliver Presentations.
CO4	Write precise briefs or reports and technical documents.
CO5	Practice professional etiquette, present oneself confidently and successfully handle personal interviews .
CO6	Function effectively in multi-disciplinary and heterogeneous teams through the knowledge of team work, Inter-personal relationships, conflict management and leadership quality.
<b>SE Information Technology SEMESTER-II</b>	
<b>Name Of Subject: Engineering Mathematics III (207003)</b>	
<b>Course Objectives:</b>	

1	To make the students familiarize with concepts and techniques in Linear differential equations, Fourier transform& Z-transform, Statistical methods, Probability theory and Numerical methods.
2	The aim is to equip them with the techniques to understand advanced level mathematics and its applications that would enhance thinking power, useful in their disciplines.
<b>Course Outcomes:</b>	
CO1	Solve Linear differential equations, essential in modelling and design of computer-based systems.
CO2	Apply concept of Fourier transform and Z-transform and its applications to continuous and discrete systems and image processing.
CO3	Apply Statistical methods like correlation& regression analysis and probability theory for data analysis and predictions in machine learning
CO4	Solve Algebraic & Transcendental equations and System of linear equations using numerical techniques.
CO5	computing.
<b>Name Of Subject: Processor Architecture (214451)</b>	
<b>Course Objectives:</b>	
1	To study architectural details of PIC 18 microcontroller.
2	To study applications of PIC through various interfacing devices.
<b>Course Outcomes:</b>	
CO1	Apprehend architecture and memory organization of PIC 18 microcontroller.
CO2	Implement embedded C programming for PIC 18.
CO3	Use concepts of timers and interrupts of PIC 18
CO4	Demonstrate real life applications using PIC 18.
CO5	Analyze architectural details of ARM processor.
<b>Name Of Subject: Database Management System (214452)</b>	
<b>Course Objectives:</b>	
1	The objective of the course is to present an introduction to database management system as a subject in its own right.
2	To understand the fundamental concepts of Relational Database management system
3	To present SQL and procedural interfaces to SQL comprehensively.
4	To provide a strong formal foundation in Relational Database Concepts, database concepts, technology and practice & to introduce the concepts of Query Processing.
5	To introduce the concepts of Transaction Processing and to present the issues and techniques relating to concurrency and recovery in multi-user database
6	To introduce the recent trends in database technology
<b>Course Outcomes:</b>	
CO1	Apply fundamental elements of database management systems.
CO2	Design ER-models to represent simple database application scenarios
CO3	Formulate SQL queries on data for relational databases.
CO4	Improve the database design by normalization & to incorporate query processing.
CO5	Apply ACID properties for transaction management and concurrency control.
CO6	Analyze various database architectures and technologies.
<b>Name Of Subject: Computer Graphics(214453)</b>	

<b>Course Objectives:</b>	
1	Understand the foundations of computer graphics: hardware systems, math basis, light and color.
2	Understand the complexities of modeling realistic objects through modeling complex scenes using a high-level scene description language.
3	Become acquainted with some advanced topics in computer graphics. The student should gain an expanded vocabulary for discussing issues relevant to computer graphics (including both the underlying mathematics and the actual programming).
4	The student should gain an appreciation and understanding of the hardware and software utilized in constructing computer graphics applications.
5	The student should gain a comprehension of windows, clipping and view-ports in relation to images displayed on screen.
6	The student should gain an understanding of geometric, mathematical and algorithmic concepts necessary for programming computer graphics.
<b>Course Outcomes:</b>	
CO1	Apply mathematical and logical aspects for developing elementary graphics operations like scan conversion of points, lines, circle, and apply it for problem solving
CO2	Employ techniques of geometrical transforms to produce, position and manipulate Objects in 2 dimensional and 3-dimensional space respectively.
CO3	Describe mapping from a world coordinates to device coordinates, clipping, and projections in order to produce 3D images on 2D output device.
CO4	Apply concepts of rendering, shading, animation, curves and fractals using computer graphics tools in design, development and testing of 2D, 3D modeling applications.
CO5	Perceive the concepts of virtual reality.
<b>Name Of Subject: Software Engineering (214454)</b>	
<b>Course Objectives:</b>	
1	To learn the principles of Software Engineering
2	To learn and understand methods of capturing, specifying, visualizing and analyzing software requirements
3	To know design principles to software project development.
4	To learn basics of IT project management.
5	To understand software quality attributes and testing principles.
6	To introduce formal methods and recent trends in Software Engineering.
<b>Course Outcomes:</b>	
CO1	Classify various software application domains.
CO2	Analyze software requirements by using various modeling techniques
CO3	Translate the requirement models into design models.
CO4	Apply planning and estimation to any project.
CO5	Use quality attributes and testing principles in software development life cycle.
CO6	Discuss recent trends in Software engineering by using CASE and agile tools
<b>TE Information Technology SEMESTER-I</b>	
<b>Name Of Subject: Theory of Computation (314441)</b>	

<b>Course Objectives:</b>	
1	To know the applicability of the model of computation to different problems.
2	To understand in detail the relationship among formal languages, formal grammars and automata.
3	To learn the design of Finite Automata, Pushdown Automata and Turing Machine for processing offormal languages.
4	To study the theory of computability and complexity for algorithm design.
<b>Course Outcomes:</b>	
CO1	Construct finite automata and its variants to solve computing problems.
CO2	Write regular expressions for the regular languages and finite automata.
CO3	Identify types of grammar, design and simplify Context Free Grammar.
CO4	Construct PushdownAutomata machine for the Context Free Language.
CO5	Design and analyze Turing machines for formallanguages.
CO6	Understand decidable and undecidable problems, analyze complexity classes.
<b>Name Of Subject: Operating Systems (314442)</b>	
<b>Course Objectives:</b>	
1	To introduce basic concepts and functions of modern operating systems.
2	To understand the concept of process, thread management and scheduling
3	To learn the concept of concurrency control.
4	To study various Memory Management techniques.
5	To know the concept of I/O and File management.
6	To learn concept ofsystem software.
<b>Course Outcomes:</b>	
CO1	Understanding the role of Modern Operating Systems.
CO2	Apply the concepts of process and thread scheduling
CO3	Apply the concept of process synchronization, mutual exclusion and the deadlock.
CO4	Understand and apply the concepts of various memory management techniques.
CO5	Make use of concept of I/O management and File system.
CO6	Understand Important of System software.
<b>Name Of Subject: Machine Learning (314443)</b>	
<b>Course Objectives:</b>	
1	To understand the basic concepts of machine learning and apply them for the various problems
2	To learn various machine learning types and use it for the various machine learning tasks.
3	To optimize the machine learning model and generalize it
<b>Course Outcomes:</b>	
CO1	Apply basic concepts of machine learning and different types of machine learning algorithms
CO2	Differentiate various regression techniques and evaluate their performance
CO3	Compare different types of classification models and their relevant application
CO4	Illustrate the tree-based and probabilistic machine learning algorithms.
CO5	Identify different unsupervised learning algorithms for the related real world problems.
CO6	Apply fundamental concepts of ANN.
<b>Name Of Subject: Human Computer Interaction(314444)</b>	
<b>Course Objectives:</b>	

1	To introduce to the field of human-computer-interaction study
2	To gain an understanding of the human part of human-computer-interactions.
3	To learn to do design and evaluate effective human-computer-interactions.
4	To study HCI models and theories.
5	To understand HCI design processes.
6	To apply HCI to real life use cases.
<b>Course Outcomes:</b>	
CO1	Explain importance of HCI study and principles of user-centered design (UCD) approach.
CO2	Develop understanding of human factors in HCI design.
CO3	Develop understanding of models, paradigms, and context of interactions.
CO4	Design effective user-interfaces following a structured and organized UCD process.
CO5	Evaluate usability of a user-interface design.
CO6	Apply cognitive models for predicting human-computer-interactions.
<b>Name Of Subject: (Elective -I ) Advanced Database Management System (314445(B))</b>	
<b>Course Objectives:</b>	
1	To understand the fundamental concepts of Relational and Object-oriented databases.
2	To learn and understand various Parallel and Distributed Database Architectures and Applications.
3	To understand and apply the basic concepts, categories and tools of NoSQL Database.
4	To learn and understand Data warehouse and OLAP Architectures and Applications.
5	To learn data mining architecture, algorithms, software tools and applications.
6	To learn enhanced data models for advanced database applications.
<b>Course Outcomes:</b>	
CO1	Understand relational and object-oriented databases.
CO2	Learn and understand of parallel & distributed database architectures..
CO3	Learn the concepts of NoSQL Databases
CO4	Understand data warehouse and OLAP technologies.
CO5	Apply data mining algorithms and to learn various software tools.
CO6	Learn emerging and enhanced data models for advanced applications.
<b>TE Information Technology SEMESTER-II</b>	
<b>Name Of Subject: Computer Network and Security (314451)</b>	
<b>Course Objectives:</b>	
1	The application layerservices, responsibilities and protocol.
2	Fathom wireless network and different wireless standards
3	Differences in different wireless networks and to learn different mechanism used at layers of wireless network.
4	The concept of network security
5	Basic cryptographic techniques in application development.
6	Cybersecurity vulnerabilities & study typical threatsto modern digital systems.

<b>Course Outcomes:</b>	
CO1	Know Responsibilities, services offered and protocol used at application layer of network
CO2	Understand wireless network and different wireless standards.
CO3	Recognize the Adhoc Network's MAC layer, routing protocol and Sensor network architecture
CO4	Define the principal concepts of network security and Understand network security threats, security services, and countermeasures
CO5	Apply basic cryptographic techniques in application development.
CO6	Gain a good comprehension of the landscape of cyber security Vulnerabilities & describe typical threats to modern digital systems.
<b>Name Of Subject: Data Science and Big Data Analytics (314452)</b>	
<b>Course Objectives:</b>	
1	To introduce basic need of Big Data and Data science to handle huge amount of data.
2	To understand the basic mathematics behind the Big data.
3	To understand the different Big data processing technologies.
4	To understand and apply the Analytical concept of Big data using Python.
5	To visualize the Big Data using different tools.
6	To understand the application and impact of Big Data
<b>Course Outcomes:</b>	
CO1	Understand Big Data primitives
CO2	Learn and apply different mathematical models for Big Data
CO3	Demonstrate Big Data learning skills by developing industry or research applications
CO4	Analyze and apply each learning model comes from a different algorithmic approach and it will perform differently under different datasets.
CO5	Understand, apply and analyze needs, challenges and techniques for big data visualization
CO6	Learn different programming platforms for big data analytics.
<b>Name Of Subject: Web Application Development (314453)</b>	
<b>Course Objectives:</b>	
1	To familiarize students with Web Programming basic concepts
2	To learn and understand Web scripting languages.
3	To explore the Front end & Back end web programming skills.
4	To understand and learn Mobile web development.
5	To understand and learn Web application deployment.
<b>Course Outcomes:</b>	
CO1	Develop Static and Dynamic website using technologies like HTML, CSS, Bootstrap.
CO2	Demonstrate the use of web scripting languages.
CO3	Develop web application with Front End & Back End Technologies.
CO4	Develop mobile website using JQuery Mobile.
CO5	Deploy web application on cloud using AWS.



<b>Name Of Subject:</b>	<b>Elective-II (Artificial Intelligence) (314454 ( A ))</b>
<b>Course Objectives:</b>	
1	To understand Fundamental concepts of Artificial Intelligence and different search strategies.
2	To explore Various knowledge representations and reasoning schemes.
3	To understand Fundamentals of NLP and Game Theory.
4	To explore of AI applications.
<b>Course Outcomes:</b>	
CO1	Understand the fundamental concepts of Artificial Intelligence
CO2	Identify and apply appropriate search strategies for any AI problem
CO3	Explore knowledge reasoning and knowledge representation methods (for solving real world problems)
CO4	Analyze the suitable techniques of NLP to develop AI applications
CO5	Correlate the appropriate methods of Game Theory to design AI applications
CO6	Understand the concept of deep learning and AI applications
<b>Name Of Subject:</b>	<b>Internship (314455)</b>
<b>Course Objectives:</b>	
1	To encourage and provide opportunities for students to get professional/personal experience through internships.
2	To learn and apply the technical knowledge gained from academics /classroom learning in real life/industrial situations.
3	To get familiar with various tools and technologies used in industries and their applications.
4	To enable students to develop professional skills and expand their professional network with the development of employer-valued skills like teamwork,
5	To apply the experience gained from industrial internship to the academic course completion project.
6	To nurture professional and societal ethics in students
7	Understand the social, economic and administrative considerations that influence the working environment of industrial organizations
<b>Course Outcomes:</b>	
CO1	To develop professional competence through industry internship.
CO2	To apply academic knowledge in a personal and professional environment
CO3	To build the professional network and expose students to future employees.
CO4	To Apply professional and societal ethics in their day to day life.
CO5	To become a responsible professional having social, economic and administrative considerations.
CO6	To make own career goals and personal aspirations.
<b>BE Information Technology SEMESTER-I</b>	
<b>Name Of Subject:</b>	<b>Information Storage and Retrieval (414441)</b>
<b>Course Objectives:</b>	
1	To understand the concepts of information retrieval.
2	To understand the role of clustering in information retrieval.
3	To learn different indexing structures and searching techniques.
4	To evaluate the performance of the IR system and understand user interfaces for searching.

5	To understand information sharing on the web.
6	To understand the various applications of information retrieval giving emphasis to multimedia and distributed IR, web Search.
<b>Course Outcomes:</b>	
CO1	Understand the concept of Information retrieval and to apply clustering in information retrieval.
CO2	Use an indexing approach for retrieval of text and multimedia data.
CO3	Evaluate performance of information retrieval systems.
CO4	Apply the concepts of multimedia and distributed information retrieval.
CO5	Use appropriate tools in analyzing the web information
CO6	Simulate the working of a search engine and recommender system.
<b>Name Of Subject:</b>	<b>Software Project Management(414442)</b>
<b>Course Objectives:</b>	
1	To discuss the fundamentals of Software Project Management
2	To explain Project Design and Project Evaluation.
3	To acquire skill in Activity Planning and to deal with Risk Management
4	To provide platform to understand through different tools about Project Tracking, Monitoring & Control.
5	To discuss Staff Selection Process and the issues related to Staff Management.
6	To provide exposure to modern tools used for Software Project Management.
<b>Course Outcomes:</b>	
CO1	Apply the practices and methods for successful Software Project Management
CO2	Create Design and Evaluate Project
CO3	Analyze Project Schedule and calculate Risk Management with help of tools.
CO4	Demonstrate different tools used for Project Tracking, Monitoring & Control.
CO5	Identify Staff Selection Process and the issues related to Staff Management.
CO6	Discuss and use modern tools for Software Project Management.
<b>Name Of Subject:</b>	<b>Deep Learning (414443)</b>
<b>Course Objectives:</b>	
1	To introduce the theoretical foundations, algorithms, methodologies, and application of neural networks and deep learning.
2	To design and develop an application-specific deep learning model.
3	To provide the practical knowledge handling and analyzing real world applications.
<b>Course Outcomes:</b>	
CO1	Understand the theoretical foundations, algorithms, and methodologies of Deep Learning.
CO2	Apply the concepts of Convolution Neural Networks and use of popular CNN architectures.
CO3	Compare Feed Forward Neural Network and Recurrent Neural Network and learn modeling the time dimension using RNN and LSTM.
CO4	Elaborate unsupervised deep learning algorithms like Autoencoders.
CO5	Explore Representation Learning and Transfer Learning techniques using variants of CNN architecture.
CO6	Evaluate the performance of deep learning algorithms and to provide solution for various real-world applications.
<b>Name Of Subject:</b>	<b>Elective – III (Mobile Computing) (414444)</b>
<b>Course Objectives:</b>	

1	To understand the basic concepts of mobile computing.
2	To learn the basics of mobile telecommunication system.
3	To understand the Generations of Mobile Communication Technologies.
4	To be familiar with the network layer protocols and Ad-Hoc networks.
5	To know the basis of transport and application layer protocols.
6	To gain knowledge about different mobile platforms and application development.
<b>Course Outcomes:</b>	
CO1	understand the basic concepts of mobile computing, MAC and different multiplexing technics.
CO2	understand Protocols, Connection Establishment, Frequency Allocation, Routing of mobile telecommunication system like GSM, GPRS, UMTS.
CO3	understand the Generations of Mobile Communication Technologies
CO4	learn mobile IP , Adhoc – Network, Reactive Routing protocols, Multicast Routing.
CO5	obtaining knowledge of transport layer protocol TCP, File System, and different application layer protocols.
CO6	gain knowledge about different mobile platforms, operating Systems, Software Development Kit, Security Issues.
<b>Name Of Subject: Elective – IV (Introduction to DevOps)(414445)</b>	
<b>Course Objectives:</b>	
1	To understand the need of DevOps as a software engineering practice.
2	To understand the background of DevOps Evolution.
3	To know and understand the concept of Continuous Integration Continuous Delivery (CICD).
4	To learn the concept of continuous deployment and test strategies.
5	To learn the monitoring system and reliability engineering.
6	To explore the emerging tools used in the DevOps lifecycle.
<b>Course Outcomes:</b>	
CO1	Understand the fundamental concepts of DevOps
CO2	Link the background of DevOps with other technologies
CO3	Comprehend the concept of continuous integration and continuous delivery
CO4	Compare various stages of continuous deployment and test strategies
CO5	Justify the importance of monitoring system and reliability engineering
CO6	Use the latest tools in DevOps
<b>Name Of Subject: Project Stage I(414448)</b>	
<b>Course Objectives:</b>	
1	To build up their practical experience with implementation and hence develops self-confidence.
2	To generate the opportunities to experience practically the facts learned in various fields together.
3	To improve overall communication skill, Teamwork and Leadership Qualities, professionalism.
4	To apply the knowledge for solving realistic problems.
5	To evaluate alternative approaches and justify the use of selected tools and methods.
<b>Course Outcomes:</b>	
CO1	To apply knowledge of mathematics, science, and engineering to formulate the Problem statement.
CO2	To design and conduct experiments, as well as to analyze and interpret data.
CO3	Understand the professional and ethical responsibility.
CO4	To communicate effectively.
CO5	Get broad education which is necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context.
CO6	Recognition of the need for, and an ability to engage in life-long learning.

CO7	To use the techniques, skills, and modern engineering tools necessary for engineering practices.
CO8	safety, manufacturability, and sustainability.
	<b>BE Information Technology SEMESTER-II</b>
<b>Name Of Subject:</b>	<b>Distributed Systems(414450)</b>
<b>Course Objectives:</b>	
1	To learn the principles, architectures and programming models used in distributed systems.
2	To understand the fundamentals and knowledge of the Middleware of distributed systems
3	To gain knowledge of working components and fault tolerance of distributed systems.
4	To understand the significance of agreement, fault tolerance and recovery protocols in Distributed Systems.
5	To make students aware about distributed and multimedia file systems and web systems.
6	Create an awareness of Emerging trends in distributed computing.
<b>Course Outcomes:</b>	
CO1	Demonstrate the core concepts of distributed systems.
CO2	Understand the concept of middleware of distributed systems.
CO3	Understand Inter-process communication methods and analyze different coordination algorithms.
CO4	Comprehend the importance of replication to achieve fault tolerance in distributed systems.
CO5	Analyze the design and functioning of existing distributed file systems, distributed multimedia, and distributed web-based systems.
CO6	Understand various Recent Trends in distributed systems.
<b>Name Of Subject:</b>	<b>Elective-V (Software Defined Network)(414451)</b>
<b>Course Objectives:</b>	
1	To understand the Need, History of SDN and Methods of API in SDN.
2	2. To understand role of Open Flow protocol and SDN Controllers and Use cases.
3	3. Acquire knowledge of Virtualization and its basic principles and understand role of Cloud Computing using SDN
4	To learn concept of data centre in SDN
5	To learn about security issues and challenges in SDN.
6	To learn applications and future of SDN.
<b>Course Outcomes:</b>	
CO1	Acquire fundamental knowledge of SDN exploring the need, characteristics, and architecture of SDN and methods of API's in SDN.
CO2	Recognize Open Flow protocols and its forwarding, pipeline model and use cases of SDN controller.
CO3	Demonstrate virtualization and Cloud computing services of SDN.
CO4	Comprehend IT Infrastructure and understand the data center in SDN.
CO5	Analyse various security issues and challenges in SDN.
CO6	Comprehend SDN application areas and future.
<b>Name Of Subject:</b>	<b>ElectiveVI (Ethical Hacking and Security)(414452)</b>
<b>Course Objectives:</b>	
1	Understand Importance of Ethical Hacking and legalities of penetration Testing

2	Apply Foot printing techniques with realistic approach
3	Analyze Meta exploit tool with Kali Linux for penetration testing
4	Analyze Privilege Escalation techniques in Windows and Linux
5	Create awareness about web application security and Hacking
6	Apply WiFi Hacking and security Techniques
<b>Course Outcomes:</b>	
CO1	Identify Ethical hacking processes and become acquainted with Penetration testing.
CO2	Recognize Foot printing techniques and apply in real time applications
CO3	Build knowledge about Meta exploit tool with Kali Linux
CO4	Differentiate Privilege Escalation in Windows and Linux
CO5	Construct Secure Web Applications to understand Hacking Techniques.
CO6	Recognize Wifi Hacking and Security techniques.
<b>Name Of Subject: Startup and Entrepreneurship(414453)</b>	
<b>Course Objectives:</b>	
1	To encourage students to build new technology, knowledge system based on innovations and can address local challenges.
2	Creating environment to innovate and build products towards sustainable development goals.
3	To provide platform for speedy communication and market reach of technology/ product developed by students.
4	To have start up ecosystem by bridging the gap between academia, industries and financial institutions, government support
<b>Course Outcomes:</b>	
CO1	Able to understand key concepts and framework of innovation and start-up ecosystem.
CO2	Gain knowledge of how to develop start up ecosystem, its key components and how to influence and manage dynamics between them and increase the productivity
CO3	Understand the role of different stakeholders in ecosystem in building and supporting growth of start-ups.
CO4	Have insight into global trend in start-up ecosystem and product development.
CO5	Mapping different start-up ecosystems and developing performance indicators.