COURSE OUTCOMES

III SEMESTER

MA8351 – DISCRETE MATHEMATICS

C201.1	Identify the concepts needed to test the logic of a program
C201.2	Solve problems in mathematical induction, counting principles, permutation and combination
C201.3	Solve problems in recurrence relations
C201.4	Utilize graph theory concepts in computer science
C201.5	Utilize the concepts and properties of algebraic structures such as groups, rings and fields.
C201.6	Solve problems in lattices and Boolean algebra

CS8351 – DIGITAL PRINCIPLES AND SYSTEM DESIGN

C202.1	Simplify Boolean functions using K-map
C202.2	Design and Analyse Combinational circuits with HDL description
C202.3	Design and Analyse Sequential circuits
C202.4	Design and Analyse Sequential circuits (Registers and Counters) with HDL description
C202.5	Design and Analyse Asynchronous Sequential circuits
C202.6	Implement designs using Programmable Logic Devices

CS8391 – DATA STRUCTURES

C203.1	Implement abstract data types for linked list data structureand apply for problem solution
C203.2	Examineabstract data types for stack and queue data structure and apply for problem solution
C203.3	Examine abstract data types for basic tree data structure (BST, Expression trees, AVL trees) and apply for problem solution
C203.4	Implement abstract data types for advanced tree (B-Trees, B+ Tree, Threaded Binary Tree) and heap data structures and apply for problem solution
C203.5	Inspect abstract data types for graph data structures and apply for problem solution
C203.6	Critically analyse the various sorting,searching algorithms, and hashing techniques

CS8392 – OBJECT ORIENTED PROGRAMMING

C204.1	Develop Java programs based on OOP principles
C204.2	Develop and Test Java programs based on inheritance and interfaces
C204.3	Build and Test Java applications using exceptions and I/O streams
C204.4	Develop and Test Java applications with threads
C204.5	Build Java applications with generic classes.
C204.6	Develop and Test interactive Java programs with Swings

EC8395 – COMMUNICATION ENGINEERING

C205.1	Describe the concepts of amplitude modulation system.
C205.2	Summarize the concepts of angle modulation system.
C205.3	Implement the band pass signaling schemes.
C205.4	Analyze how information is transmitted to receiver using coding schemes.
C205.5	Discuss about the various types of multiple access techniques.
C205.6	Describe the concepts of DSSS and FHSS.

CS8381 – DATA STRUCTURES LABORATORY

C206.1	Develop and Test C programs to implement linear data structures
C206.2	Use appropriate linear data structures for the given problem
C206.3	Develop and Test C programs to implement non-linear data structures
C206.4	Use and Test appropriate non-linear data structures for the given problem
C206.5	Develop and Test C programs for implementing sorting and searching algorithms
C206.6	Use and Test appropriate hashing techniques for the given problem

CS8383 – OBJECT ORIENTED PROGRAMMING LABORATORY

C207.1	Develop and Test Java programs to implement simple applications that make use of classes and packages
C207.2	Develop and Test Java programs to implement simple applications that make use of inheritance and interfaces
C207.3	Develop and Test Java programs to implement applications with array list and exception handling
C207.4	Develop and Test Java programs to implement applications with multi-threading
C207.5	Develop and Test Java programs to implement applications with file processing
C207.6	Develop and Test Java programs to implement applications with generic programming and event handling

CS8382 – DIGITAL SYSTEMS LABORATORY

C208.1	Implement and Inspect simplified combinational circuits using logic gate
C208.2	Implement and Inspect simplified combinational circuits using MSI devices
C208.3	Implement and Inspect various shift registers
C208.4	Implement and Inspect various counters
C208.5	Model and Examine combinational circuits using HDL
C208.6	Model and Examine sequential circuits using HDL

HS8381 – INTERPERSONAL SKILLS/LISTENING AND SPEAKING

C209.1	Listen and respond appropriately
C209.2	Participate in group discussions
C209.3	Make effective presentations
C209.4	Participate confidently and appropriately in conversations both formal and informal
C209.5	Attend the classes regularly
C209.6	Submit the Observation and Record regularly.

IV SEMESTER

MA8402 – PROBABILITY AND QUEUING THEORY

C210.1	Understand the fundamental knowledge of the concepts of probability and have knowledge of standard distributions which can describe real life phenomenon.
C210.2	Understand the basic concepts of one and two dimensional random variables and apply in engineering applications.
C210.3	Apply the concept of random processes in engineering disciplines.
C210.4	Acquire skills in analyzing queueing models.
C210.5	Understand and characterize phenomenon which evolve with respect to time in a probabilistic manner

CS8491 – COMPUTER ARCHITECTURE

C211.1	Identifythe basic organization of computer system and performance of a computer system.
C211.2	Utilize the basic instruction set, operations and addressing modes of MIPS architecture.
C211.3	Examine the procedure involved in designing ALU
C211.4	Compare and Contrast the non-pipelined and pipelined data path implementation of MIPS
C211.5	Inspect Parallel Processing challenges, Hardware Multithreading and Multicore architectures
C211.6	Examine the performance of Memory and I/O systems.

CS8492 – DATABASE MANAGEMENT SYSTEMS

C212.1	Classify the modern and futuristic database applications based on size and complexity.
C212.2	Construct Relational model from ER model to perform database design effectively and optimize queries using normalization criteria.
C212.3	Examine the database transaction concepts
C212.4	Compare and contrast various indexing strategies in different database systems
C212.5	Examine query optimization algorithms and query optimization techniques
C212.6	Compare and Contrast the distributed database architectures and traditional database architecture.

CS8451 – DESIGN AND ANALYSIS OF ALGORITHMS

C213.1	Examine mathematically the notion of algorithm, asymptotic notations, and algorithmic efficiency with properties.
C213.2	Inspect the time and space complexity of the algorithms designed using brute force and divide and conquer methods
C213.3	Inspect the time and space complexity of the algorithms designed using dynamic programming techniques.
C213.4	Inspect the time and space complexity of the algorithms designed using greedy techniques.
C213.5	Examine various iterative improvement techniques
C213.6	Identify the limitations of algorithm power

CS8493 – OPERATING SYSTEMS

C214.1	Explain the basics of operating systems like kernel, shell, types and views of operating systems
C214.2	Examine process management with various Scheduling algorithms
C214.3	Inspectthe principles of concurrency and deadlock.
C214.4	Compare and Contrast various memory management schemes.
C214.5	Examinefile system implementation, protection and security mechanisms.
C214.6	Compare IoS and Andriod operating systems and perform administrative tasks on Linux servers.

CS8494 SOFTWARE ENGINEERING

C215.1	Identify the key activities in managing a software project.
C215.2	Compare different process models.
C215.3	Concepts of requirements engineering and Analysis Modeling.
C215.4	Apply systematic procedure for software design and deployment.
C215.5	Compare and contrast the various testing and maintenance.
C215.6	Manage project schedule, estimate project cost and effort required.

CS8481 – DATABASE MANAGEMENT SYSTEMS LABORATORY

C216.1	Make use of typical data definitions and manipulation commands
C216.2	Test the implementation of nested and join queries
C216.3	Develop simple application using views, sequences and synonyms.
C216.4	Inspect and implement applications that require front-end tools
C216.5	Examine database programming using implicit and explicit cursors.
C216.6	Test the implementation of Tables, views, functions, procedures, triggers and exception handling.

CS8461 – OPERATING SYSTEMS LABORATORY

C217.1	Make use of Linux commands, develop shell programs, implement system calls and simulate Linux commands
C217.2	Test the implementation of processes and IPC
C217.3	Compare the performance of various CPU scheduling algorithms
C217.4	Experiment with the implementation of semaphores, deadlock avoidance algorithm and deadlock detection algorithm
C217.5	Compare the implementation of various memory allocation, memory management and page replacement strategies.
C217.6	Examine the implementation of file allocation and file organization strategies.

HS8461 – ADVANCED READING AND WRITING

C218.1	Write different types of Essays
C218.2	Write winning job applications
C218.3	Read and evaluate texts critically
C218.4	Display critical thinking in various professional contexts
C218.5	Attend the classes regularly
C218.6	Submit the Observation and Record regularly.

V SEMESTER

MA8551 – ALGEBRA AND NUMBER THEORY

C301.1	Apply the basic notions of groups, rings, fields which will then be used to solve related problems
C301.2	Apply the fundamental concepts of advanced algebra and their role in modern mathematics and application contexts
C301.3	Examine accurate and efficient use of advanced algebraic techniques
C301.4	Solve non - trivial problems related to the concepts, and by proving simple theorems about the, statements proven by the text
C301.5	Examine integrated approach to number theory and abstract algebra, and provide a firm basis for further reading and study in the subject.

CS8591 – COMPUTER NETWORKS

C302.1	Explain the basic layers and its functions, and transmission media in computer networks
C302.2	Examine the performance of different types of networks
C302.3	Inspect the functionalities of data link and media access control protocols
C302.4	Examine different routing algorithms
C302.5	Identify appropriate protocol to be used at the transport layer
C302.6	Explain the working of various application layer protocols.

EC8691 – MICROPROCESSORS AND MICROCONTROLLERS

C303.1	Develop 8086 microprocessor based assembly language programs for specified problem
C303.2	Examine the 8086 signals, bus structure, I/O programming and multiprocessor configurations
C303.3	Inspect various I/O interfacing mechanisms with 8086 microprocessor
C303.4	Examine various programming and application case studies based on 8086 microprocessor
C303.5	Develop 8051 microcontroller based assembly language programs for specified problem
C303.6	Examine various interfacing mechanisms with 8051 microcontroller

CS8501 – THEORY OF COMPUTATION

C304.1	Construct automata, regular expression for any pattern.
C304.2	Write Context free grammar for any construct.
C304.3	Design the Push down automata for any string and convert PDA to CFG
C304.4	Design Turing machines for any language
C304.5	Propose computation solutions using Turing machines
C304.6	Derive whether a problem is decidable or not.

CS8592 – OBJECT ORIENTED ANALYSIS AND DESIGN

C305.1	Express software design with UML diagrams
C305.2	Design software applications using OO concepts.•
C305.3	Identify various scenarios based on software requirements•
C305.4	Transform UML based software design into pattern based design using design patterns
C305.5	Understand the various testing methodologies for OO software

OCE552 – GEOGRAPHIC INFORMATION SYSTEM

C306.1	Explain the fundamental concepts about Geographic Information System
C306.2	Summarize the different types of data models
C306.3	Explain about data input and topology
C306.4	Make use of different data analysis tools for data quality and standards
C306.5	Demonstrate the different application areas of Geographic Information System with case studies

EC8681 – MICROPROCESSORS AND MICROCONTROLLER LABORATORY

C307.1	Develop and Test 8086 based ALP for fixed and floating point arithmetic operations
C307.2	Develop and Test 8086 based ALP for moving data block without overlap, code conversion, decimal arithmetic and matrix operations
C307.3	Develop and Test 8086 based ALP for string manipulation, sorting, searching, password checking, printing RAM size, counters ad time delay

C307.4	Develop and Test 8086 based ALP for interfacing various I/O
C307.5	Develop and Test 8051 based ALP for basic arithmetic and logical operations
C307.6	Develop and Test 8051 based ALP for square wave generation, finding 2^s compliment and converting unpacked BSD to ASCII

CS8581 – NETWORKS LABORATORY

C308.1	Examine the use of various commands using a network protocol analyzer
C308.2	Experiment with TCP and UDP protocols to implement echo client, echo server, chat and file transfer
C308.3	Compare the performance of transport layer protocols
C308.4	Examine the performance of various network protocols
C308.5	Examine various routing algorithms
C308.6	Infer the importance and implementation of error correcting codes

CS8582 – OBJECT ORIENTED ANALYSIS AND DESIGN LABORATORY

C309.1	Perform OO analysis and design for a given problem specification.
C309.2	Identify and map basic software requirements in UML mapping.
C309.3	Improve the software quality using design patterns and to explain the rationale behind applying specific design patterns
C309.4	Test the compliance of the software with the SRS.

S.No	Course ID	Course Code	Course Name	Course #	Course Outcomes: Upon the completion of the course, a student can able to	Credit
					CSE Curriculum- Regulation 2013	
					List of Course Outcomes	
1	C201	MA6351	Transforms and Partial Differential Equations	C201.1	Interpret physical processes as partial differential equations and solve both homogenous and non homogeneous equations.	4
				C201.2	Solve Fourier series concept to many applications in engineering.	
				C201.3	solve boundary value problems involving heat equation and wave equation	
				C201.4	Solve definite integrals by using Fourier Transform techniques.	
				C201.5	Construct Z- transform and find inverse Z-transform techniques for discrete systems.	
				C201.6	compute inverse Z-transform and apply Z -transform techniques to solve difference equations	
2	C202	CS6301	Programming and Data Structure II	C202.1	Define the need and the basic concepts of Object Oriented Programming	3
				C202.2	Apply the important features of Object Oriented Programming such as Classes, Objects, Inheritance and Polymorphism	
				C202.3	Illustrate the concepts of templates and Exception handling in real world applications	
				C202.4	Demonstrate the non linear data structures such as trees and graphs	
				C202.5	Analyze the algorithms using the various techniques of amortized analysis	
				C202.6	Interpret real time applications in an efficient manner using Object Oriented Programming	
3	C203	CS6302	**Database Management Systems**	**C203.1**	Develop a conceptual design of a database using Entity Relationship Model for a given scenario.	3
				C203.2	Apply normalization techniques to minimize data redundancy.	
				C203.3	Build SQL queries to retrieve data for a given scenario	
				C203.4	Explain the principles of concurrency control and deadlock recovery mechanisms used in transaction processing.	
				C203.5	Understand how data is stored in application specific databases including Temporal, Spatial, Multimedia, Web, Mobile and Distributed databases	
				C203.6	Explain the different security issues and data mining algorithms for classification, clustering and Association	

4	C204	CS6303	Computer Architecture	C204.1	Recognize the basic structure and operation of digital computer	3
				C204.2	Describe the various operations of fixed point and floating point representation	
				C204.3	Develop the model for the pipelining and handling hazards	
				C204.4	Differentiate the classification of parallelism of multi core processors	
				C204.5	Evaluate the memory hierarchical system including cache memories and virtual memory.	
				C204.6	Discuss the different ways of communicating with I/O devices and I/O interfaces.	
5	C205	CS6304	Analog and Digital Communication	C205.1	Recognize the basic techniques of analog and digital communication.	3
				C205.2	Describe the various operations of data and pulse communication techniques.	
				C205.3	Discuss the different ways of source and Error control coding.	
				C205.4	Develop different type of error coding problem	
				C205.5	Explain principle of multi-user radio communication.	
				C205.6	Discuss the different types of real time application in analog and digital communication.	
6	C206	GE6351	Environmental Science and Engineering	C206.1	Explain the structure and functions of a ecosystem, flow of energy in the ecosystem and the various hazards existing in the environment	3
				C206.2	Accept the importance of biodiversity and the conservation methods to overcome the threats on biodiversity	
				C206.3	Justify the need for environmental friendly processes to overcome the environment pollution with thorough knowledge on the sources, effects and the control measures of	

					pollution	
				C206.4	Discuss the various natural resources, problems caused due to overutilization of the natural resources and design the methodologies which require optimum use of natural resources	
				C206.5	Respond to the urban problems related to energy and explain the various laws for the purpose of environment protection	
				C206.6	Justify the importance of women and child welfare and realize the role of Information Technology in the protection of environment and human health	
7	C207	CS6311	Programming and Data Structure Laboratory II	C207.1	Define the need and the basic concepts of Object Oriented Programming	2
				C207.2	Apply the important features of Object Oriented Programming such as Classes, Objects, Inheritance and Polymorphism	
				C207.3	Illustrate the concepts of templates and Exception handling in real world applications	
				C207.4	Demonstrate the non linear data structures such as trees and graphs	
				C207.5	Analyze the algorithms using the various techniques of amortized analysis	
				C207.6	Interpret real time applications in an efficient manner using Object Oriented Programming	
8	C208	CS6312	Database Management Systems Laboratory	C208.1	Make use of dbms commands to create simple table for inserting and retreiving records	2
				C208.2	Apply integrity constraints, views, sequence while developing database.	
				C208.3	Explain PL/SQL BLOCK dbms	
				C208.4	Construct PL/SQL block with conditions and exception handling	
				C208.5	Make use of PL/SQL for implementing procedure and functions	
				C208.6	Develop software using database to solve real world problems	
9	C209	MA6453	Probability and Queuing Theory	C209.1	To discuss the basic concepts of probability and various distributions, their m.g.f, mean and variance.	4
				C209.2	To describe two dimensional random variables and transform the variable from one domain to another domain.	
				C209.3	Classify the random processes to solve probability problems.	

				C209.4	Use discrete time Markovian queues which can be applied in several areas of science and engineering.	
				C209.5	Formulate P-K formula to calculate different parameters for given problem.	
				C209.6	To analyze series queues and network of queues with Poisson external arrivals, exponential service requirements and independent routing. (Jackson networks).	
10	C210	CS6551	Computer Networks	C210.1	Identify the issues in the seven layers of the OSI model.	3
				C210.2	Distinguish between the various types of networks such as Ethernet,Wireless LAN etc.	
				C210.3	Apply the routing algorithms to calculate the shortest path between any two nodes in a network	
				C210.4	Analyze TCP congestion control and congestion avoidance mechanisms.	
				C210.5	Demonstrate the messages transferred for an email application.	
				C210.6	Explain the working of Application layer protocols.	
11	C211	CS6401	Operating Systems	C211.1	Illustrate the basics of computer organization, operating system structures and programs	3
				C211.2	Explain the various process management concepts	
				C211.3	Analyze the need for memory management techniques	
				C211.4	Identify and make use of file system concepts and disk management	
				C211.5	Outline the basics of Linux system	
				C211.6	Apply administrative tasks on Linux servers	
12	C212	CS6402	Design and Analysis of Algorithms	C212.1	Explain the Analysis of Algorithm Efficiency and Compare the Mathematical analysis for	3

					Recursive and Non-recursive algorithms	
				C212.2	Identify the efficiency of Brute Force And Divide-And-Conquer technique algorithms.	
				C212.3	Identify the efficiency of Dynamic Programming And Greedy Technique algorithms.	
				C212.4	Solve the problems using Iterative Improvement technique.	
				C212.5	Solve the problems using Backtracking and Branch and Bound Technique.	
				C212.6	Outline the limitations of Algorithm power	
13	C213	EC6504	Microprocessor and Microcontroller	C213.1	Study the Architecture of 8086 microprocessor	3
				C213.2	Learn the design aspects of I/O	
				C213.3	Design the Memory Interfacing circuits.	
				C213.4	Designing various communication and bus interfacing techniques.	
				C213.5	Study the Architecture of 8051 microcontroller.	
				C213.6	Demonstrate real time applications of 8051 microcontroller.	
14	C214	CS6403	Software Engineering	C214.1	Demonstrate the phases of software development process.	3
				C214.2	Illustrate the concepts of requirements engineering process	
				C214.3	Model the user requirements using UML	
				C214.4	Identify and apply appropriate software architectures and patterns to carry out high level design of a system	
				C214.5	Develop and apply testing strategies for software applications	
				C214.6	Demonstrate effective software project management techniques	
15	C215	CS6411	Networks Laboratory	C215.1	Create and learn the socket programming	2
				C215.2	Analyze and apply the simulation tools	
				C215.3	Implement the various protocols	
				C215.4	Analyze the performance of protocols in	

S.No	Course ID	Course Code	Course Name	Course #	Course Outcomes	Credit
					different layers	
				C215.5	Analyze the performance of routing algorithms	
				C215.6	Design and analyze the network simulator concept	
16	C216	CS6412	Microprocessor and Microcontroller Laboratory	C216.1	Design ALP Programmes for fixed and Floating Point and Arithmetic	2
				C216.2	Demonstrate Interfacing different I/Os with processor	
				C216.3	Experiment with waveforms using Microprocessor	
				C216.4	Develop Programs in 8051	
				C216.5	Analyze the difference between simulator and Emulator	
				C216.6	Make use of MASM software to develop simple applications.	
17	C217	CS6413	Operating Systems Laboratory	C217.1	Execute Unix commands and Develop Simple Shell Programs	2
				C217.2	Evaluate the performance of various CPU Scheduling Algorithms	
				C217.3	Implement various file allocation strategies, and Semaphore	
				C217.4	Implement deadlock avoidance and Detection Algorithms	
				C217.5	Analysis various page replacement algorithms	
				C217.6	Develop Multithreaded Applications and synchronize the execution of threads	

S.No	Course ID	Course Code	Course Name	Course #	Course Outcomes: Upon the completion of the course, a student can able to	Credit
18	C301	MA6566	Discrete Mathematics	C301.1	Interpret the basic logic formula to formulate the normal forms, and predicate calculus to test the logic of a program.	4
				C301.2	Interpret the working Knowledge of set notation and elementary set theory and be aware of the counting principles.	
				C301.3	Interpret the basic definitions and properties associated with different forms of graphs.	
				C301.4	practice the concepts and properties of algebraic structure such as groups,rings and fields.	
				C301.5	demonstrate the equivalence relation using the logical relations.	
				C301.6	examine the concept of Boolean set using the logical relations.	

19	C302	CS6501	Internet Programming	C302.1	Implement oops concepts using java	4
				C302.2	create a basic website using html and css	
				C302.3	Design and implement dynamic web page with validation using JavaScript objects and by applying different event handling mechanisms	
				C302.4	Design simple webpage using AJAX	
				C302.5	Design and implement simple web page in PHP, and to present data in XML format and server side programs using Servlets and JSP.	
				C302.6	Design a simple mini project using java,servlet and jdbc	
20	C303	CS6502	Object Oriented Analysis and Design	C303.1	Design and implement the project using uml diagrams	3
				C303.2	Create and use uml analysis and design patterns	
				C303.3	Design and implement the pos case study using uml	
				C303.4	Design and implement the package and system sequence diagrams	
				C303.5	Create code from design	
				C303.6	Compare and contrast between various testing techniques	
21	C304	CS6503	Theory of Computation	C304.1	Demonstrate the different forms of proof and Design a finite automaton.	3
				C304.2	Construct Context free grammar and Develop the normal forms for CFG	
				C304.3	Develop a push-down automata	
				C304.4	Design the Turing machine	
				C304.5	Discover Decidable and Undecidable Problems	
				C304.6	Create the Post Correspondence problem solution and know the concepts of Recursive and Recursively Enumerable Languages,Tractable and Intractable	
22	**C305**	**CS6504**	**Computer Graphics**	**C305.1**	**Outline the application and various input and output devices used in computer graphics..**	**3**
				C305.2	**Use different algorithms for drawing objects such as line, circle and ellipse.**	
				C305.3		
				C305.4	**Compare 2D and 3D transformations.**	
				C305.5	**Distinguish interior and exterior clipping algorithms.**	
				C305.6	**Choose various color models.** **Design various animation sequences.**	

				C306.1	Identify Use Cases and develop the Use Case model.	
23	C306	CS6511	Case Tools Laboratory	C306.2	Draw relevant state charts and activity diagrams	2
				C306.3	Identity the conceptual classes and develop a domain model with UML Class	
				C306.4	Identified scenarios find the interaction between objects and represent	
				C306.5	Identify the User Interface, Domain objects, and Technical services. Draw the	
				C306.6	Partial layered, logical architecture diagram with UML package diagram notation.	
				C306.7	Implement the Technical services layer, Domain Object Layer and User interface Layer	
24	C307	CS6512	Internet Programming Laboratory	C307.1	Create a simple web page using table, form and frame	2
				C307.2	Create a simple webpage using CSS	
				C307.3	Develop a simple java script application.	
				C307.4	Implement servlet -database connectivity	
				C307.5	Create simple XSLT program.	
				C307.6	Develop a simple web services.	
25	C308	CS6513	Computer Graphics Laboratory	C308.1	Develop drawings that demonstrate computer graphics and design skills.	2
				C308.2	Design algorithms for different geometric shapes line, circle, and ellipse.	
				C308.3	Demonstrate the graphics primitives and geometrical transformations.	
				C308.4	Create interactive graphics applications using one or more graphics application programming interfaces.	
				C308.5	Apply different clipping methods and its transformation to graphics display device	
				C308.6	Make use of projections and animation for displaying a 3D scene on 2D screen	
26	C309	CS6601	Distributed Systems	C309.1	Explain the basic concepts of distributed systems	3
				C309.2	Demonstrate idea of peer to peer services and file system	
				C309.3	Relationships between idea of peer to peer services and real time applications	
				C309.4	Illustrate system level and support required for distributed system	
				C309.5	Explain issues involved in studying process and resource management	
				C309.6	Elaborate Resource Management and scheduling algorithm	
27	C310	IT6601	Mobile Computing	C310.1	Explain how the structure of mobile computing applications differs from wireless networking	3

				C310.2	Illustrate the difference between Fixed Assignment Schemes, Random and Reservation MAC Protocols	
				C310.3	Analyze how the mobile node acquires an IP address dynamically	
				C310.4	Examine how to improve the performance of TCP over mobile network	
				C310.5	Explain the different mobile and wireless network architectures	
				C310.6	Describe different routing protocols available in the wireless network	
				C310.7	Classify the different operating systems available for mobile devices based on mobility	
				C310.8	Analyze the pros and cons of the M-Commerce.	
28	C311	CS6660	Compiler Design	C311.1	Demonstrate the phases of complier and token specification.	3
				C311.2	Design lexical analysis phase and its underlying formal models such as finite state automata and their connection to language definition through regular expression.	
				C311.3	Develop a parser according to the given specification.	
				C311.4	Build the semantic analyzer with various inputs.	
				C311.5	Illustrate the runtime environment	
				C311.6	Summarize the code optimization and code generation techniques	
29	C312	IT6502	Digital Signal Processing	C312.1	To introduce basic concepts of signal and systems	4
				C312.2	To learn about DFT, its properties, applications and two different FFT algorithms	
				C312.3	To teach the design of infinite impulse response filters for filtering undesired signals	
				C312.4	To teach the design of finite impulse response filters for filtering undesired signals.	
				C312.5	Explain how quantization noise cand be minimized through truncation and rounding off	
				C312.6	Understand how the signals can be scaled	
30	C313	CS6659	Artificial Intelligence	C313.1	Demonstrate Search strategies using informed and uninformed search.	3
				C313.2	Create and implement a basic agent program	

				C313.3	Design and implement prepositional logic and first order logic	
				C313.4	Design partial order planning and planning graph.	
				C313.5	Develop Expert systems in real time problems	
				C313.6	Design and implement the fuzzy systems	
31	C314	GE6757	Total Quality Management	C314.1	Explain the need for quality, dimensions of quality and the salient contributions of Quality experts which focus on customer satisfaction	3
				C314.2	Discuss the principles such as leadership, employee focus and involvement, teamwork, performance appraisal, continuous improvement and supplier partnership that are inclined towards total quality management	
				C314.3	Demonstrate the Basic and New seven management tools, Benchmarking and Failure Mode Effect Analysis (FMEA) for quality management	
				C314.4	Justify the need for the industrial applications of Quality Function Deployment, Total Productive Maintenance, Taguchi Quality loss function and the performance measures	
				C314.5	Explain the need for quality auditing, ISO 9000 quality system and its benefits	
				C314.6	Demonstrate the benefits of I SO 14000 Quality system and the implementation of TQM in manufacturing processes and services	
32	C315	CS6611	Mobile Application Development Laboratory	C315.1	Develop an application that uses Graphical User Interface, layout managers and event listeners	2
				C315.2	Create applications with database connectivity	
				C315.3	Develop applications that use RSS feed	
				C315.4	Implement the concepts of multithreading	
				C315.5	Develop mobile application that uses GPS information	
				C315.6	Develop mobile application to write data to SD card and send alert message	
33	C316	CS6612	Compiler Laboratory	C316.1	Build the different phases of compiler using tools.	2
				C316.2	Design a program to identify string /variable/constant.	
				C316.3	Design a calculator using LEX and YACC tool.	
				C316.4	Analyze the control flow and data flow of a typical program	
				C316.5	Build and generate an assembly language program equivalent to a source language program	
				C316.6	Construct an optimized code for any given program	
34	C317	GE6674	Communication and Soft Skills - Laboratory Based	C317.1	Identify, evaluate and suggest solutions to problems encountered in a large group communication like a group Discussion and thereby be proficient and become updated on current topics .	2

S.No	Course ID	Course Code	Course Name	Course #	Course Outcomes: Upon the completion of the course, a student can able to	Credit
				C317.2	Prepare a speech appropriate for Technical presentation and other similar occasions.	
				C317.3	Analyze, review and write the essential tools to practice writing letter (official) and apply for a job.	
				C317.4	Assess, articulate appropriate responses for a variety of listening situations/contexts, thus enhance listening skills.	

S.No	Course ID	Course Code	Course Name	Course #	Course Outcomes: Upon the completion of the course, a student can able to	Credit
35	C401	CS6701	Cryptography and Network Security	C401.1	Illustrate the principle of number theory and their usage in classical encryption techniques	3
				C401.2	Apply the concept of Advanced Encryption techniques such as Triple DES, RC5 and public key cryptosystems	
				C401.3	Illustrate how hash function and digital signatures are used for authentication	
				C401.4	Demonstrate how a networked system can be protected using kerberos, firewalls, IDS against threats such as intruders and viruses	
				C401.5	Analyze how IPsec (Internet Protocol Security) establishes a secure transmission link in Virtual Private Networks (VPN)	
				C401.6	Interpret how Secure Socket Layer (SSL) ensures secure transmission over internet	
36	C402	CS6702	Graph Theory and Applications	C402.1	Explain precise and accurate mathematical definitions of objects in graph theory.	3
				C402.2	Categorize the various types of spanning trees and isomorphism and examine the planar graphs.	
				C402.3	Explain the aspects of matrices, colouring and directed graphs.	
				C402.4	Solve the permutation and combination problems.	
				C402.5	Use the knowledge of generating function in solving problems.	
				C402.6	Solve the recurrence relations.	
37	C403	CS6703	Grid and Cloud Computing	C403.1	Explain various Technologies in Grid and Cloud	3
				C403.2	Demonstrate how Grid computing helps in solving large scale scientific problems.	

				C403.3	Illustrate the Concept of Virtualization in Cloud Computing	
				C403.4	Develop a simple application in Grid and Cloud.	
				C403.5	Develop a simple application in Hadoop	
				C403.6	Explain various security issues in the grid and the cloud environment.	
38	C404	CS6704	Resource Management Techniques	C404.1	Make use of simplex method to solve optimization problems	3
				C404.2	Demonstrate the concept of duality to solve Shortest route problem	
				C404.3	Explain integer programming method	
				C404.4	Demonstrate the types of constraints and optimization methods.	
				C404.5	Utilize PERT in project management	
				C404.6	Utilize CPM in project management	
39	C405	IT6801	Service Oriented Architecture	C405.1	Demonstrate the xml fundamentals	3
				C405.2	Apply and build applications based on XML	
				C405.3	Outline the key principles behind SOA and compare with different architectures	
				C405.4	Demonstrate the advanced concepts like service composition, orchestration and choreography	
				C405.5	Discuss the various WS-* specification standards	
				C405.6	Design and Develop web service framework with respect to SOA	
40	C406	CS6007	Information Retrieval	C406.1	Explain the functions of various components of Information Retrieval and Web Search Engines	3
				C406.2	Discuss the key principles and methods underlying Information Retrieval	
				C406.3	Develop web search engines retrieve documents including XML documents using indexes	
				C406.4	Illustrate how search engine ranks and filter documents	
				C406.5	Elaborate how relevant feedback mechanism helps to improve the performance of Information Retrieval	
				C406.6	Describe how text mining techniques such as classification and clustering used to extract information	

41	C407	CS6711	Security Laboratory	C407.1	Demonstrate The SUBSTITUTION & TRANSPOSITION TECHNIQUES Concepts	2
				C407.2	Demonstrate The DES,RSA Algorithms	
				C407.3	Demonstrate The Diffiee-Hellman,MD5,SHA-1 Algorithms	
				C407.4	Implement The SIGNATURE SCHEME - Digital Signature Standard And Demonstrate How To Provide Secure Data Storage, Secure Data Transmission And For Creating Digital Signatures (Gnupg).	
				C407.5	Setup A Honey Pot And Monitor The Honeypot On Network (KF Sensor) And Illustrate The Rootkits	
				C407.6	Demonstrate Intrusion Detection System (Ids) Using Any Tool And Perform Wireless Audit On An Access Point Or A Router And Decrypt WEP And WPA	
42	C408	CS6712	Grid and Cloud Computing Laboratory	C408.1	Develop a Web Service application using grid tool kits and Grid service using apache axis	2
				C408.2	Develop application using Java or C/C++ Grid APIs and Develop secured applications using basic security mechanisms available in Globus Toolkit.	
				C408.3	Compare and Contrast the working of virtual machines in different configuration.	
				C408.4	Create a simple program in Virtual Machine	
				C408.5	Construct the installation of single one cluster and Develop a program to interact with it.	
				C408.6	Demonstrate the use of Map and Reduce tasks	
43	C407	CS6801	Multi – Core Architectures and Programming	C407.1	Understand the basic concepts of Advanced Computer Architecture along with its performance issues and parallel program design	3
				C407.2	Compare and Contrast the different synchronization primitives used in parallel program design and select the best method	
				C407.3	Classify and recommend the communication between threads with required parameters.	
				C407.4	Design shared memory programming with OpenMP	
				C407.5	Design and develop distributed memory programming with MPI	

				C407.6	Compose the various parallel program by integrating both OpenMP and MPI	
44	C408	CS6008	Human Computer Interaction	C408.1	Discuss the foundation of Human Computer Interaction	3
				C408.2	Apply and develop effective HCI for individuals and persons with disabilities.	
				C408.3	Demonstrate the various models and theories involved in HCI.	
				C408.4	Outline HCI implications for designing multimedia/ ecommerce/ e-learning Web sites.	
				C408.5	Discuss the various Platforms, Application framework for mobile HCI	
				C408.6	Design and Develop meaningful user interface.	
45	C409	GE6075	Professional Ethics in Engineering	C409.1	Recognize the core values that shape the ethical behavior of an engineer and create awareness on professional ethics and human values.	3
				C409.2	Examine the major moral and social theories	
				C409.3	Develop comprehension of professional and ethical responsibilities of engineers, including code of ethics of professional societies	
				C409.4	Examine basic risk assessment techniques in the engineering decision-making process	
				C409.5	Discriminate Collective Bargaining, Confidentiality and Intellectual Property Rights	
				C409.6	Organize the common ethical challenges that arise in engineering, business, technology and environmental aspects.	
46	C410	CS6811	Project Work	C410.1	Demonstrate broad and coherent conceptual understandings of the mathematical, and computer science & engineering principles, theory and practice to solve real-world problems	6
				C410.2	Analyse complex engineering problems and apply appropriate software technologies to design and develop software components/systems	
				C410.3	Acquire and evaluate research regarding new knowledge development within the computer science and engineering discipline and its social, cultural, environmental and legal context;	
				C410.4	Develop creative solutions to problems and conceive innovative approaches in developing and designing of software systems for the development of society and the engineering profession	
				C410.5	demonstrate a responsible and ethical software professional in a team of Software developers	
				C410.6	Prepare high quality engineering documents that can be understandable by both technical and	

					nontechnical people.	
				C410.7	Work collaboratively to plan and execute project work or research to advance the scientific basis, technologies or practices within the computer science and engineering discipline.	
				C410.8	Realize the need for further knowledge and continuously work on improving own knowledge through learning latest tools and technologies used in the field of IT/ITES	