

**ROHINI COLLEGE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**B.E Computer Science and Engineering**

**Anna University Regulation 2013**

**List of Course Names**

<b>S.No.</b>	<b>Sem</b>	<b>Course code</b>	<b>Course</b>	<b>Course Title</b>
1.	I	13C101	HS6151	Technical English-I
2.	I	13C102	MA6151	Mathematics-I
3.	I	13C103	PH6151	Engineering Physics-I
4.	I	13C104	CY6151	Engineering Chemistry-I
5.	I	13C105	GE6151	Computer Programming
6.	I	13C106	GE6152	Engineering Graphics
7.	I	13C107	GE6161	Computer Practices Laboratory
8.	I	13C108	GE6162	Engineering Practices Laboratory
9.	I	13C109	GE6163	Physics and Chemistry Laboratory - I
10.	II	13C110	HS 6251	Technical English – II
11.	II	13C111	MA6251	Mathematics – II
12.	II	13C112	PH 61251	Engineering Physics–II
13.	II	13C113	CY6251	Engineering Chemistry-II
14.	II	13C114	CS6201	Digital Principles And System Design
15.	II	13C115	CS 6202	Programming And Data Structures –I
16.	II	13C116	GE6262	Physics And Chemistry Laboratory– II

17.	II	13C117	CS6211	Digital Laboratory
18.	II	13C118	CS6212	Programming And Data Structures Laboratory-I
19.	III	13C201	MA6351	Transforms and Partial Differential Equations
20.	III	13C202	CS6301	Programming and Data structures II
21.	III	13C203	CS6302	Data base Management Systems
22.	III	13C204	CS6303	Computer Architecture
23.	III	13C205	CS6304	Analog and Digital Communication
24.	III	13C206	GE6351	Environmental Science and Engineering
25.	III	13C207	CS6311	Programming and Data Structures Laboratory II
26.	III	13C208	CS6312	Data base Management Systems laboratory II
27.	IV	13C209	MA6453	Probability and Queueing Theory
28.	IV	13C210	CS6551	Computer Networks
29.	IV	13C211	CS6401	Operating Systems
30.	IV	13C212	CS6402	Design and Analysis of Algorithm
31.	IV	13C213	EC6504	Microprocessor and Microcontroller
32.	IV	13C214	CS6403	Software Engineering
33.	IV	13C215	CS6411	Networks Laboratory
34.	IV	13C216	CS6412	Microprocessor and Microcontroller Laboratory
35.	IV	13C217	CS6413	Operating System Laboratory
36.	V	13C301	MA6566	Discrete Mathematics

37.	V	13C302	CS6501	Internet Programming
38.	V	13C303	CS6502	Object oriented Analysis and Design
39.	V	13C304	CS6503	Theory of Computation
40.	V	13C305	CS6504	Computer Graphics
41.	V	13C306	CS6511	Case Tools Laboratory
42.	V	13C307	CS6512	Internet programming Laboratory
43.	V	13C308	CS6513	Computer Graphics Laboratory
44.	VI	13C309	CS6601	Distributed Systems
45.	VI	13C310	IT6601	Mobile computing
46.	VI	13C311	CS6660	Compiler Design
47.	VI	13C312	IT6502	Digital Signal processing
48.	VI	13C313	CS6659	Artificial Intelligence
49.	VI	13C314(E-I)	IT6004	Software Testing
50.	VI	13C314(E-I)	IT6702	Data warehousing and Data Mining
51.	VI	13C315	CS6611	Mobile application Development Laboratory
52.	VI	13C316	CS6612	Compiler Laboratory
53.	VI	13C317	GE6674	Communication and soft skill Laboratory based
54.	VII	13C401	CS6701	Cryptography and Network security
55.	VII	13C402	CS6702	Graph Theory and Applications
56.	VII	13C403	CS6703	Grid and Cloud computing

57.	VII	13C404	CS6704	Resource Management Techniques
58.	VII	13C405(E-II)	IT6801	Service oriented Architecture
59.	VII	13C405(E-II)	CS6004	Cyber Forensics
60.	VII	13C406(E-III)	EC6703	Embedded and Real time systems
61.	VII	13C407	CS6711	Security Laboratory
62.	VII	13C408	CS6712	Grid and Cloud computing Laboratory
63.	VIII	13C409	CS6801	Multicore Architectures and Programming
64.	VIII	13C410(E-IV)	CS6008	Human Computer Interaction
65.	VIII	13C411(E-V)	MG6088	Software Project Management
66.	VIII	13C412	CS6811	Project Work

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**Course Outcomes (CO)**

**13C101- HS8151 TECHNICAL ENGLISH-I**

<b>13C101.1</b>	Develop the learners' basic communication skills in English by listening audios and long text
<b>13C101.2</b>	Explain technical things and develop instructions and recommendations
<b>13C101.3</b>	Summarize cohesively and coherently without grammatical errors, Organize the ideas logically on a topic
<b>13C101.4</b>	Interpret charts and graphs and illustrate different types of essays.
<b>13C101.5</b>	Apply the technical strategies in E-Learning and develop E- Communication Skills

**13C102 –MA6151-MATHEMATICES-I**

<b>13C102.1</b>	Apply the concept of orthogonal transformation to diagonalise the given matrix..
<b>13C102.2</b>	Apply the comparison test , Integral test, D' Alembert's ratio test and Leibnitz' s test to verify the convergence.
<b>13C102.3</b>	Find the radius of curvature, circle of curvature and Centre of curvature of a given curve.
<b>13C102.4</b>	Identify maxima and minima in two variables using partial differentiation.
<b>13C102.5</b>	Apply multiple integral techniques in evaluating Area and Volume of Solids

**13C103-PH6151-ENGINEERING PHYSICS-I**

<b>13C103.1</b>	Outline the various crystal structure and its growth techniques
<b>13C103.2</b>	Illustrate basic concepts of stress and strain in solids and one dimensional Heat transfer
<b>13C103.3</b>	Illustrate the quantum theory and its applications
<b>13C103.4</b>	Apply the knowledge of acoustics in designing buildings
<b>13C103.5</b>	Classify the type of optical fiber and Laser

### 13C104-CY6151-ENGINEERING CHEMISTRY-I

13C104.1	List the various methods involved in the polymerization techniques.
13C104.2	Apply the concepts of Thermodynamic laws in engineering applications.
13C104.3	Outline the molecular structure by using spectroscopic techniques.
13C104.4	Illustrate the basic concepts of phase rule for the purpose and significance of alloying.
13C104.5	Apply the basics of Nano materials and their properties in various applications.

### 13C105-GE6151-COMPUTER PROGRAMMING

13C105.1	Explain the Organization of a Computer and number systems.
13C105.2	Explain the attributes of algorithm and programming basics
13C105.3	Apply arrays and string functions in simple C programs
13C105.4	Explain functions and pointers for solving problems
13C105.5	Apply structure and union in simple C applications

### 13C106-GE6152-ENGINEERING GRAPHICS

13C106.1	Discuss the orthographic views of Engineering components.
13C106.2	Relate to basic principles of orthographic projection for drawing projection of points, lines and planes.
13C106.3	Apply basic principles of orthographic projection for drawing projection of solids like prisms, pyramids, cone and cylinder.
13C106.4	Show the sectioned view of solids and the development of solid surfaces
13C106.5	Show the isometric projection and perspective views for simple solids.

### 13C107-GE6161 COMPUTER PRATICE LABORATORY

13C107.1	Apply word processor to prepare data for presentation and visualization
13C107.2	Explain various formatting tools, types of tables, drawing tools and mail merging for effective documentation
13C107.3	Apply spread sheet to prepare data for presentation and visualization
13C107.4	Apply basic programs in C language in problem solving
13C107.5	Apply suitable data structures and functions in problem solving
13C107.6	Exhibit ethical principles in engineering practices
13C107.7	Perform task as an individual and/ or team member to manage the task in time

<b>13C107.8</b>	Express the engineering activities with effective presentation and report.
<b>13C107.9</b>	Interpret the findings with appropriate technological/ research citation

### **13C108-GE6162-ENGINEERING PRACTICES LABORATORY**

<b>13C108.1</b>	Explain the various manufacturing process in smithy, foundry, fitting, assembling and disassembling and will be able to provide effective presentation.
<b>13C108.2</b>	Summarize the operations of various machine tools lathe , drilling
<b>13C108.3</b>	Develop models by using skills achieved from workshop sections like welding, carpentry, sheet metal and plumbing
<b>13C108.4</b>	Apply the skills of basic electrical engineering for domestic wiring practices
<b>13C108.5</b>	Apply the measuring instruments like energy meter and perform measurements in electrical circuits.
<b>13C108.6</b>	Explain the working of electronic components.
<b>13C108.7</b>	Apply the electronic principle for develop engineering circuits.
<b>13C108.8</b>	Exhibit ethical principles in engineering practices
<b>13C108.9</b>	Perform task as an individual and/ or team member to manage the task in time
<b>13C108.10</b>	Express the engineering activities with effective presentation and report.
<b>13C108.11</b>	Express the engineering activities with effective presentation and report.

### **13C109-BS8161-PHYSICS AND CHEMISTRY LABORATORY**

<b>13C109.1</b>	Find the wavelength and particle size using laser and thermal conductivity of bad conductors using Lee's Disc
<b>13C109.2</b>	Compare the Young's modulus of the material by non-uniform bending and the wavelength of mercury spectrum using Spectrometer grating both individually and by teamwork
<b>13C109.3</b>	List the velocity of ultrasonic waves in different liquids like water and kerosene
<b>13C109.4</b>	Estimate strength of acids quantitatively based on the conductance and PH level of the solution both individually and in teams
<b>13C109.5</b>	Estimate water quality parameters such as dissolved oxygen content ,chloride content and iron content of the water samples.
<b>13C109.6</b>	Exhibit ethical principles in engineering practices
<b>13C109.7</b>	Perform task as individual and /or team member to manage the task in time

<b>13C109.8</b>	Express the engineering activities with the effective presentation and report.
<b>13C109.9</b>	Interpret the findings with appropriate technological/research citation

### **13C110-HS6251-TECHNICAL ENGLISH-II**

<b>13C110.1</b>	Explain convincingly their opinions and also initiate, negotiate and argue using appropriate communicative strategies.
<b>13C110.2</b>	Apply the basic grammar techniques to enhance the language
<b>13C110.3</b>	Make use of the importance of writing skills and its techniques
<b>13C110.4</b>	Develop various types and formats of reports, emails, resumes, letters, to meet particular needs or purposes
<b>13C110.5</b>	Apply skills pertaining to presentation, group discussion, creative and critical thinking in everyday life

### **13C111-MA8251- MATHEMATICS-II**

<b>13C111.1</b>	Solve the line integral, surface integral and volume integral in Engineering applications
<b>13C111.2</b>	Solve simultaneous first order linear equations with constant coefficients.
<b>13C111.3</b>	Solve the second order ODE by Laplace transformation.
<b>13C111.4</b>	Find the analytic functions by Milne Thomson method
<b>13C111.5</b>	Solve real definite integrals, contour integrals around unit circle and semi-circle

### **13C112-PH6251-ENGINEERING PHYSICS-II**

<b>13C112.1</b>	Infer the electrical properties of material and quantum theory.
<b>13C112.2</b>	Classify the type of semiconductor and its uses.
<b>13C112.3</b>	Outline the magnetic properties of different materials and superconductivity.
<b>13C112.4</b>	Apply the knowledge of polarization in polaroid's
<b>13C112.5</b>	Interpret the metallic glasses, Nano Materials and Biomaterials

### **13C113-CY6251-ENGINEERING CHEMISTRY-II**

<b>13C113.1</b>	Explain the concepts of various water treatment process.
<b>13C113.2</b>	Apply the principles of electrochemical reactions in prevention of materials from corrosion.

<b>13C113.3</b>	Explain the working of power plants using conventional and non-conventional sources of energy such as nuclear, solar and wind
<b>13C113.4</b>	Illustrate knowledge of metals for Engineering Applications
<b>13C113.5</b>	Explain various types of fuels, their manufacturing processes and calculation of calorific theoretically

#### **C114/CS6201DIGITAL PRINCIPLES AND SYSTEM DESIGN**

<b>13C114.1</b>	Apply Arithmetic operations in any number system and various techniques to simplify the Boolean functions
<b>13C114.2</b>	Apply a Combinational& Sequential logic Circuits to perform arithmetic & Shift operations correspondingly.
<b>13C114.3</b>	Identify Synchronous Sequential circuits for the given condition.
<b>13C114.4</b>	Identify Synchronous Sequential circuits for the given condition.
<b>13C114.5</b>	Apply Programmable Logic towards memory management

#### **C115/CS 6202 – PROGRAMMING AND DATA STRUCTURES –I**

<b>13C115.1</b>	Explain the basic concepts and control structures in C for problem solving
<b>13C115.2</b>	Explain Structures and Unions and File Handling concepts for File Manipulation process
<b>13C115.3</b>	Apply the different linear data structures such as Linked List to solve various problems.
<b>13C115.4</b>	Explain various linear data structures like stacks and queues.
<b>13C115.5</b>	Apply sorting, searching and hashing techniques to use in various algorithms using C language.

#### **13C116-GE6262-PHYSICS AND CHEMISTRY LABORATORY-II**

<b>13C116.1</b>	Find the particle size by diode laser .
<b>13C116.2</b>	List out the thermal conductivity of bad conductors .
<b>13C116.3</b>	Show the velocity of ultrasonic waves in different liquids like water and kerosene
<b>13C116.4</b>	Show the iron content of the given solution using potentiometer
<b>13C116.5</b>	Relate water quality parameters such as alkalinity, hardness, Sodium of the water samples both individually and in teams.

<b>13C116.6</b>	Exhibit ethical principles in engineering practices
<b>13C116.7</b>	Perform task as an individual and/ or team member to manage the task in time
<b>13C116.8</b>	Express the engineering activities with effective presentation and report.
<b>13C116.9</b>	Interpret the findings with appropriate technological/ research citation

### **C117/CS6211 –DIGITAL LABORATORY**

<b>13C117.1</b>	Interpret Combinational circuits Using Logic gates.
<b>13C117.2</b>	Illustrate Combinational circuits Using MSI Devices
<b>13C117.3</b>	Practice various counters using Flip-flops
<b>13C117.4</b>	Practice shift registers using Flip-flops
<b>13C117.5</b>	Solve verilog codes for the design of digital circuits.
<b>13C117.6</b>	Exhibit ethical principles in engineering practices
<b>13C117.7</b>	Perform task as an individual and / or team member to manage the task in time
<b>13C117.8</b>	Express the Engineering activities with effective presentation and report
<b>13C117.9</b>	Interpret the findings with appropriate technological / research citation.

### **C118/CS6212 –PROGRAMMING AND DATA STRUCTURES LABORATORY-I**

<b>13C118.1</b>	Apply basicprogramming fundamentals in C programs for given application.
<b>13C118.2</b>	Explain Structures and Union concepts using C programs.
<b>13C118.3</b>	Apply C programming an application using file handling concepts.
<b>13C118.4</b>	Apply Operations on a Stack and Queues using simple expressions.
<b>13C118.5</b>	Apply sorting, searching and hashing techniques in a suitable application in C to solve practical problems.
<b>13C118.6</b>	Exhibit ethical principles in engineering practices
<b>13C118.7</b>	Perform task as an individual and / or team member to manage the task in time

<b>13C118.8</b>	Express the Engineering activities with effective presentation and report
<b>13C118.9</b>	Interpret the findings with appropriate technological / research citation.

### **13C201-MA6351-TRANSFORMS AND PARTIAL DIFFERENTIAL EQUATION**

<b>13C201.1</b>	Formulate simple Engineering problems as Partial Differential Equations
<b>13C201.2</b>	Apply the concept of Fourier series in solving boundary value problems
<b>13C201.3</b>	Solve the standard Partial Differential Equations in engineering problems like Wave equation, Heat flow equation by Fourier series.
<b>13C201.4</b>	Solve Fourier, Fourier Sine and Cosine transforms and properties
<b>13C201.5</b>	Understand the discrete transform applied to engineering problems.

### **13C202-CS6301-PROGRAMMING AND DATA STRUCTURES-II**

<b>13C202.1</b>	Illustrate problem solutions using Object Oriented Techniques.
<b>13C202.2</b>	Demonstrate the concepts of data abstraction, encapsulation and inheritance for problem solutions.
<b>13C202.3</b>	Outline the concepts of Exception handling and templates.
<b>13C202.4</b>	Analyze the various tree structure algorithms.
<b>13C202.5</b>	Apply the different data structures to problem solutions.

### **13C203-CS6302-DATA BASE MANAGEMENT SYSTEMS**

<b>13C203.1</b>	Illustrate the database design for applications.
<b>13C203.2</b>	Use of ER diagram and normalization techniques in database application.
<b>13C203.3</b>	Apply concurrency control techniques and recovery procedures to solve problem
<b>13C203.4</b>	Solve the different query using various query processing techniques.
<b>13C203.5</b>	Compare advanced databases with traditional databases

### 13C204-CS6303-COMPUTER ARCHITECTURE

13C204.1	Interpret the computer organization components, instructions and addressing modes
13C204.2	Solve fixed-point and floating point arithmetic unit.
13C204.3	Build pipelined datapath for various instructions and classify the pipeline hazards
13C204.4	Classify parallel processing and outline multiprocessors
13C204.5	Analyze the different types of memory and I/O systems.

### 13C205-CS6304-ANALOG AND DIGITAL COMMUNICATION

13C205.1	Illustrate analog communication techniques
13C205.2	Illustrate digital communication techniques
13C205.3	Illustrate data and pulse communication techniques
13C205.4	Make use of various error control coding techniques to identify/correct errors
13C205.5	Outline multi-user radio communication

### 13C206-GE6351-ENVIRONMENTAL SCIENCE AND ENGINEERING

13C206.1	Illustrate the features of Ecosystem & biodiversity.
13C206.2	Choose pollution control methods and waste management.
13C206.3	Apply the environmental concepts for conservation and protection of natural resources.
13C206.4	Demonstrate the impact of social issues on environment.
13C206.5	Demonstrate the impact of human on environment.

### 13C207-CS6311-PROGRAMMING AND DATA STRUCTURES LABORATORY-II

13C207.1	Select good programming design methods for program development.
13C207.2	Develop C++ programs for object oriented concepts.
13C207.3	Develop C++ programs for handling exceptions.
13C207.4	Develop C++ programs for practical problems using non-linear data structures.
13C207.5	Develop recursive programs using trees and graphs.

<b>13C207.6</b>	Exhibit ethical principles in engineering practices
<b>13C207.7</b>	Perform task as an individual and/ or team member to manage the task in time
<b>13C207.8</b>	Express the engineering activities with effective presentation and report.
<b>13C207.9</b>	Interpret the findings with appropriate technological/ research citation

### **13C208-CS6312-DATABASE MANAGEMENT LABORATORY-II**

<b>13C208.1</b>	Interface data base language commands to creates implement database
<b>13C208.2</b>	Analyze the data base using querieSto retrieve records
<b>13C208.3</b>	Applying PL/SQL for processing database
<b>13C208.4</b>	Analyze front end tools to design forms, reports and menus
<b>13C208.5</b>	Develop solutions usingdata base concepts for real time requirements.
<b>13C208.6</b>	Exhibit ethical principles in engineering practices
<b>13C208.7</b>	Perform task as an individual and/ or team member to manage the task in time
<b>13C208.8</b>	Express the engineering activities with effective presentation and report.
<b>13C208.9</b>	Interpret the findings with appropriate technological/ research citation

### **13C209-MA6453-PROBABILITY AND QUEUEING THEORY**

<b>13C209.1</b>	Explain the basic knowledge of Probability and Distributions
<b>13C209.2</b>	Explain the fundamental knowledge of One and Two dimensional random variables
<b>13C209.3</b>	Categorize Discrete and Continuous processes
<b>13C209.4</b>	Infer the solutions to Single and Multi channel Queuing problems
<b>13C209.5</b>	Compare Linear and Non Linear Queueing models

### **13C210-CS6551-COMPUTER NETWORKS**

<b>13C210.1</b>	Illustrate the basic layers and its functions in computer networks
<b>13C210.2</b>	Analyze and design routing algorithms
<b>13C210.3</b>	Utilize protocols for various functions in the network
<b>13C210.4</b>	Summarize the Media Access Control Protocols and different

	Internetworking
<b>13C210.5</b>	Inspect the working of various application layer protocols.

### **13C211-CS6401-OPERATING SYSTEM**

<b>13C211.1</b>	Outline the basic concepts and functions of Operating Systems
<b>13C211.2</b>	Outline various threading models, process synchronization and solve deadlock problem
<b>13C211.3</b>	Compare the performance of various CPU scheduling algorithms
<b>13C211.4</b>	Compare and contrast various memory management schemes
<b>13C211.5</b>	Illustrate I/O management and file systems

### **13C212-CS6402-DESIGN AND ANALYSIS OF ALGORITHM**

<b>13C212.1</b>	Interpret the fundamental needs of algorithms in problem solving
<b>13C212.2</b>	Compare the different bus configurations.
<b>13C212.3</b>	Develop algorithms for various computing problems
<b>13C212.4</b>	Analyze the time and space complexity of various algorithms
<b>13C212.5</b>	Outline the limitations of algorithms in problem solving

### **13C213-CS6404-MICROPROSESSOR AND MICROCONTROLLER**

<b>13C213.1</b>	Interpret the architecture and function of microprocessor.
<b>13C213.2</b>	Compare the different bus configurations.
<b>13C213.3</b>	Model various applications using microprocessor.
<b>13C213.4</b>	Interpret the architecture and function of microcontroller.
<b>13C213.5</b>	Examine various interfacing using microcontroller.

### **13C214-CS6403-SOFTWARE ENGINEERING**

<b>13C214.1</b>	Illustrate the key activities in managing a software project.
<b>13C214.2</b>	Compare different process models.
<b>13C214.3</b>	Outline the Concepts of requirements engineering and Analysis Modeling.
<b>13C214.4</b>	Apply systematic procedure for software design and deployment.
<b>13C214.5</b>	Compare and contrast the various testing and maintenance.

### 13C215-CS6411-NETWORK LABORATORY

<b>13C215.1</b>	Develop the code for various networking protocols.
<b>13C215.2</b>	Develop simple applications using TCP & UDP
<b>13C215.3</b>	Build the socket program using simulation
<b>13C215.4</b>	Examine the performances of Routing protocol
<b>13C215.5</b>	Experiment with congestion control algorithm using network simulator.
<b>13C215.6</b>	Exhibit ethical principles in engineering practices
<b>13C215.7</b>	Perform task as an individual and/ or team member to manage the task in time
<b>13C215.8</b>	Express the engineering activities with effective presentation and report.
<b>13C215.9</b>	Interpret the findings with appropriate technological/ research citation

### 13C216-CS6412-MICROPROCESSOR AND MICROCONTROLLER LABORATORY

<b>13C216.1</b>	Develop ALP for arithmetic and logical operations in 8086 and 8051
<b>13C216.2</b>	Make use of different I/O interfacing with 8086 microprocessor
<b>13C216.3</b>	Construct different waveforms using 8086 microprocessor.
<b>13C216.4</b>	Develop ALP to perform string manipulations, code conversion, matrix operation, sorting and searching
<b>13C216.5</b>	Develop assembly language programs for various applications using 8051 microcontroller
<b>13C216.6</b>	Exhibit ethical principles in engineering practices
<b>13C216.7</b>	Perform task as an individual and/ or team member to manage the task in time
<b>13C216.8</b>	Express the engineering activities with effective presentation and report.
<b>13C216.9</b>	Interpret the findings with appropriate technological/ research citation

### 13C217-CS6413-OPERATING SYSTEM LABORATORY

13C217.1	Experiment with Unix commands and shell programming
13C217.2	Build 'C' program for process and file system management using system calls
13C217.3	Choose the best CPU scheduling algorithm for a given problem instance
13C217.4	Identify the performance of various page replacement algorithms
13C217.5	Develop algorithm for deadlock avoidance, detection and file allocation strategies
13C217.6	Exhibit ethical principles in engineering practices
13C217.7	Perform task as an individual and/ or team member to manage the task in time
13C217.8	Express the engineering activities with effective presentation and report.
13C217.9	Interpret the findings with appropriate technological/ research citation

### 13C301-CS6566-DISCRETE MATHEMATICS

13C301.1	Apply mathematical logic to solve problems
13C301.2	Solve counting principles problems by applying elementary counting techniques using product, sum, permutations, combinations, pigeon hole principle.
13C301.3	Apply how graph and tree concepts are used to solve problems arising in the computer science.
13C301.4	Explain the concepts and properties of algebraic structures such as groups ,rings and fields
13C301.5	Explain Boolean Algebra Lattices, Posets and their properties.

### 13C302-CS6501-INTERNET PROGRAMMING

13C302.1	Apply the concept of HTML5, cascading style sheet in website design
13C302.2	Develop a basic website using HTML and Cascading Style Sheets
13C302.3	Compare and contrast the Java Script programming for client and server along with its event handling mechanisms
13C302.4	Build a simple web page in PHP with XML data format
13C302.5	Outline web services and client presentation using AJAX

### 13C303-CS6502-OBJECT ORIENTED ANALYSIS AND DESIGN

<b>13C303.1</b>	Outline OOAD concepts and various UML diagrams
<b>13C303.2</b>	Select an appropriate design pattern
<b>13C303.3</b>	Illustrate about domain models and conceptual classes
<b>13C303.4</b>	Compare and contrast various testing techniques
<b>13C303.5</b>	Construct projects using UML diagrams

### 13C304-CS6503-THEORY OF COMPUTATION

<b>13C304.1</b>	Outline the concept of Finite Automata and Regular Expression
<b>13C304.2</b>	Illustrate the design of Context Free Grammar for any language set
<b>13C304.3</b>	Demonstrate the push down automaton model for the given language. resources.
<b>13C304.4</b>	Make use of Turing machine concept to solve the simple problems
<b>13C304.5</b>	Outline decidability or undesirability of various problems.

### 13C305-CS6504-COMPUTER GRAPHICS

<b>13C305.1</b>	Illustrate the concept of graphics hardware devices and software used.
<b>13C305.2</b>	Design three dimensional graphics and apply three dimensional transformations
<b>13C305.3</b>	Apply Illumination and color models.
<b>13C305.4</b>	Design animation sequences.
<b>13C305.5</b>	Design three dimensional graphics and apply three dimensional transformations

### 13C306-CS6511-CASE TOOLS LABORATORY

<b>13C306.1</b>	Develop projects using Object oriented concepts.
<b>13C306.2</b>	Apply UML analysis and design diagrams for the applications
<b>13C306.3</b>	Apply appropriate design patterns for achieving the functionalities of system level.
<b>13C306.4</b>	Develop code from design using tools like rational suite, Argo UML
<b>13C306.5</b>	Develop code for various testing techniques.
<b>13C306.6</b>	Exhibit ethical principles in engineering practices
<b>13C306.7</b>	Perform task as an individual and / or team member to manage the task in time
<b>13C306.8</b>	Express the Engineering activities with effective presentation and report
<b>13C306.9</b>	Interpret the findings with appropriate technological / research citation.

### 13C307-CS6512-INTERNET PROGRAMMING LABORATORY

<b>13C307.1</b>	Develop web pages using HTML/XML and style sheets
<b>13C307.2</b>	Analyse user interfaces using Java frames and applets
<b>13C307.3</b>	Compare and contrast dynamic web pages using server side scripting
<b>13C307.4</b>	Develop a Client Server application and develop a web page using JSP
<b>13C307.5</b>	Build the applications using AJAX
<b>13C307.6</b>	Exhibit ethical principles in engineering practices
<b>13C307.7</b>	Perform task as an individual and / or team member to manage the task in time
<b>13C307.8</b>	Express the Engineering activities with effective presentation and report
<b>13C307.9</b>	Interpret the findings with appropriate technological / research citation.

### 13C308-CS6513-COMPUTER GRAPHICS LABORATORY

<b>13C308.1</b>	Make use of algorithms to draw 2D and 3D objects
<b>13C308.2</b>	Show transformations and projections for 2D and 3D objects
<b>13C308.3</b>	Manipulate a graphical object using clipping algorithms and viewing technique

<b>13C308.4</b>	Use an image editing tool for image manipulation and enhancement
<b>13C308.5</b>	Utilize the authoring tool to develop a 3D scene and to perform 2D animation
<b>13C308.6</b>	Exhibit ethical principles in engineering practices
<b>13C308.7</b>	Perform task as an individual and / or team member to manage the task in time
<b>13C308.8</b>	Express the Engineering activities with effective presentation and report
<b>13C308.9</b>	Interpret the findings with appropriate technological / research citation.

### **13C309-CS6601-DISTRIBUTED SYSTEM**

<b>13C309.1</b>	Outline the distributed systems architecture.
<b>13C309.2</b>	Outline the inter process communication in distributed systems.
<b>13C309.3</b>	Illustrate the file accessing model and various services in distributed system.
<b>13C309.4</b>	Demonstrate concurrency control and properties of transaction in Distributed systems.
<b>13C309.5</b>	Discuss resource and process management in distributed system

### **13C310-IT6601-MOBILE COMPUTING**

<b>13C310.1</b>	Illustrate the basics of mobile telecommunication system
<b>13C310.2</b>	Discuss about the required functionality at each layer for given application
<b>13C310.3</b>	Classify different types of mobile telecommunication systems
<b>13C310.4</b>	Demonstrate the Adhoc networks concepts and its routing protocols
<b>13C310.5</b>	Make use of mobile operating systems in developing mobile applications

### **13C311-CS6660-COMPILER DESIGN**

<b>13C311.1</b>	Illustrate the phases of a Compiler
<b>13C311.2</b>	Illustrate the translation of regular expression into parse tree using syntax analyzer
<b>13C311.3</b>	Construct the intermediate representation considering the type systems
<b>13C311.4</b>	Apply the optimization techniques for the generated code
<b>13C311.5</b>	Use the different compiler construction tools to develop a simple compiler

### 13C312-IT6502-DIGITAL SIGNAL PROCESSING

<b>13C312.1</b>	outline the basic concepts of Signals & Systems
<b>13C312.2</b>	Illustrate the Discrete Fourier Transform and its applications
<b>13C312.3</b>	Design Infinite Impulse Response (IIR) Filter
<b>13C312.4</b>	Design Finite Impulse Response (FIR) Filter
<b>13C312.5</b>	Analyze the signal processing concepts in system having more than one sampling frequency

### 13C313-CS6659 ARTIFICIALINTELLIGENCE

<b>13C313.1</b>	Identify problems that are amenable to solution by AI methods
<b>13C313.2</b>	Recognize appropriate AI methods to solve a given problem
<b>13C313.3</b>	Discuss a given problem in the language/framework of different AI methods
<b>13C313.4</b>	Develop basic AI algorithms
<b>13C313.5</b>	Model an empirical evaluation of different algorithms on a problem for mail and state the conclusions that the evaluation supports

### 13C314(E-I)-IT6004-SOFTWARE TESTING

<b>13C314.1</b>	Outline the basic testing principles and strategies
<b>13C314.2</b>	Identify suitable tests to be carried out while designing test cases
<b>13C314.3</b>	Compare the various levels of testing
<b>13C314.4</b>	Analyze the organizational structures and test plans
<b>13C314.5</b>	Illustrate the automatic testing tools and test metrics

### **13C314(E-I) IT 6702-Data Warehousing and Data Mining**

<b>13C314.1</b>	Identify the scope and necessity of Data Mining & Warehousing for the society
<b>13C314.2</b>	Describe the designing of Data Warehousing so that it can be able to solve the root problems.
<b>13C314.3</b>	To understand various tools of Data Mining and their techniques to solve the real time problems.
<b>13C314.4</b>	To develop ability to design various algorithms based on data mining tools.
<b>13C314.5</b>	To develop further interest in research and design of new Data Mining techniques

### **13C315-CS6621-MOBILE APPLICATION DEVELOPMENT LABORATORY**

<b>13C315.1</b>	Develop mobile applications using GUI and Layouts.
<b>13C315.2</b>	Develop mobile applications using Event Listener.
<b>13C315.3</b>	Develop mobile applications using Databases.
<b>13C315.4</b>	Develop mobile applications using RSS Feed, Internal/External Storage, SMS, Multithreading and GPS.
<b>13C315.5</b>	Develop a simple mobile application.
<b>13C315.6</b>	Exhibit ethical principles in engineering practices
<b>13C315.7</b>	Perform task as an individual and / or team member to manage the task in time
<b>13C315.8</b>	Express the Engineering activities with effective presentation and report
<b>13C315.9</b>	Interpret the findings with appropriate technological / research citation.

### 13C316-CS6612-COMPILER LABORATORY

<b>13C316.1</b>	Apply different compiler writing tools to implement the different Phases
<b>13C316.2</b>	Analyse the data flow and control flow of various phases
<b>13C316.3</b>	Construct the intermediate representation in phases
<b>13C316.4</b>	Develop the backend of a compiler for 8086 assembler
<b>13C316.5</b>	Compare various code optimization techniques
<b>13C316.6</b>	Exhibit ethical principles in engineering practices
<b>13C316.7</b>	Perform task as an individual and / or team member to manage the task in time
<b>13C316.8</b>	Express the Engineering activities with effective presentation and report
<b>13C316.9</b>	Interpret the findings with appropriate technological / research citation.

### 13C317-GE6674-COMMUNICATION AND SOFT SKILLS - LABORATORY BASED

<b>13C317.1</b>	To classify the content material and make effective presentation
<b>13C317.2</b>	Employ adequate soft skills to successfully execute the job on hand
<b>13C317.3</b>	To respond favorably to the values of others opinion and manage difficult situations in group discussions wisely.
<b>13C317.4</b>	To execute various skills in grooming for any profession.
<b>13C317.5</b>	To perform intelligently during job interviews and be successful
<b>13C317.6</b>	Exhibit ethical principles in engineering practices
<b>13C317.7</b>	Perform task as an individual and / or team member to manage the task in time
<b>13C317.8</b>	Express the Engineering activities with effective presentation and report
<b>13C317.9</b>	Interpret the findings with appropriate technological / research citation.

### 13C402-CS6701-CRYPTOGRAPHY AND NETWORKS SECURITY

<b>13C402.1</b>	Compare various encryption techniques.
<b>13C402.2</b>	Contrast public key algorithms with private key algorithms
<b>13C402.3</b>	Apply various message authentication functions and secure algorithms.
<b>13C402.4</b>	Identify different types of security systems and applications.
<b>13C402.5</b>	Analyze different levels of security and services in e-mail & web security

### 13C403-CS6702-GRAPH THEORY AND APPLICATIONS

<b>13C403.1</b>	Explain the basic concepts of Graph Theory
<b>13C403.2</b>	Analyze isomorphism of a graph using fundamental knowledge of Graph theory
<b>13C403.3</b>	Develop the Graph serve as models for many standard problems.
<b>13C403.4</b>	Solve counting principles by applying elementary counting techniques using sum, product, Permutations, Combinations, Pigeon hole principle.
<b>13C403.5</b>	Construct mathematical proofs using generating functions.

### 13C404-CS7003-GRID AND CLOUD COMPUTING

<b>13C404.1</b>	Apply grid computing techniques to solve large scale scientific problems.
<b>13C404.2</b>	Illustrate the data intensive grid service models and grid computing techniques
<b>13C404.3</b>	Apply the concept of virtualization in cloud
<b>13C404.4</b>	Experiment with the programming model for Hadoop and globus toolkit
<b>13C404.5</b>	Interpret the security models in the grid and cloud environment.

### 13C405-EC6011-RESOURCE MANAGEMENT

13C405.1	Apply the concepts of linear Programming Techniques
13C405.2	Apply the concepts of transportation and assignment problems in real world problems
13C405.3	Apply the concepts of integer programming in real world problems
13C405.4	Demonstrate the types of constraints and optimization methods
13C405.5	Apply the concept of PERT and CPM in project management

### 13C407(E-II)-IT6801-SERVICE ORIENTED ARCHITECTURE

13C406.1	Use the project plan and identify the best project.
13C406.2	Analyze the cost, human resource and project infrastructure of concern project.
13C406.3	Compare and contrast activity planning models and analyzing software risks by risk management strategies.
13C406.4	Choose the management project principles to lead the project in team as need of industry.
13C406.5	Develop interplay of people in an organization and spirit of working in teams.

### 13C406(E-II)/CS6004/Cyber Forensics

13C406.1	Interpret the issues of security in Network layer and Transport layer.
13C406.2	Apply internet firewalls for trusted system.
13C406.3	Analyze various problems of Cyber Crime and apply techniques of computer forensics.
13C406.4	Identify the proper forensics tools for investigation.
13C406.5	Evaluate the validation of forensics data

### 13C407(E-III)-CS6703-EMBEDDED AND REAL TIME SYSTEM

13C407.1	Outline the architecture and programming of ARM processor.
13C407.2	Outline the concepts program level in embedded processor computing.
13C407.3	Outline the basic concepts of real time Operating system.
13C407.4	Illustrate the concept of design methodologies techniques for embedded system.
13C407.5	Outline Model real-time applications using embedded-system concepts.

### 13C408-CS6711-SECURITY LABORATORY

13C408.1	Experiment with intrusion detection system using any <b>snort tool</b>
13C408.2	Demonstrate how to provide secure data storage, secure data transmission and for creating digital signatures using <b>GnuPG</b>
13C408.3	Interpret various substitution & transposition techniques, DES, RSA Algorithm, Diffiee-Hellman, MD5 and SHA-1
13C408.4	Examine wireless audit on an access point or a router and decrypt WEP and WPA using <b>Net Stumbler</b> .
13C408.5	Build a honey pot and <b>examine</b> the honeypot on network using <b>KF Sensor</b> .
13C408.6	Exhibit ethical principles in engineering practices
13C408.7	Perform task as an individual and / or team member to manage the task in time
13C408.8	Express the Engineering activities with effective presentation and report
13C408.9	Interpret the findings with appropriate technological / research citation.

### 13C409-CS6712-GRID AND CLOUD COMPUTING LABORATORY

13C409.1	Make use of the Grid Toolkit.
13C409.2	Design and Implement new Grid applications Grid.
13C409.3	Make use of the Cloud Toolkit.
13C409.4	Build cloud applications on Cloud.
13C409.5	Construct the applications according to the services.

### 13C411-CS6801-MULTICORE ARCHITECTURE AND PROGRAMMING

<b>13C411.1</b>	Demonstrate the characteristics and challenges in multicore architecture..
<b>13C411.2</b>	Analyze the various issues in programming parallel processors.
<b>13C411.3</b>	Apply the logic of openMP in shared memory programming.
<b>13C411.4</b>	Apply MPI in Distributed memory programming.
<b>13C411.5</b>	Compare and contrast programming for serial processors and programming for parallel processors.

### 13C412(E-IV)-CS6008-HUMAN COMPUTER INTERACTION

<b>13C412.1</b>	Demonstrate a effective dialog for HCI.
<b>13C412.2</b>	Create an effective HCI for individuals and persons with disabilities.
<b>13C412.3</b>	Analyze the importance of user feedback.
<b>13C412.4</b>	Outline the HCI implications for designing multimedia/ ecommerce/ e-learning Websites.
<b>13C412.5</b>	Develop a meaningful user interface.

### 13C413-MG6088-SOFTWARE PROJECT MANAGEMENT

<b>13C413.1</b>	Identify the theoretical and methodological issues involved in modern software engineering project management
<b>13C413.2</b>	Develop the transferable skills in logical analysis, communication and project management necessary for working within a team.
<b>13C413.3</b>	Translate a specification to a design, and identify the components to build the architecture for a given problem, using an appropriate software engineering methodology
<b>13C413.4</b>	Select and use project management frameworks that ensure successful outcomes.
<b>13C413.5</b>	Develop software projects based on current technologies, by managing resources economically and keeping ethical value

**13C415-CS6811-PROJECT WORK**

<b>13C415.1</b>	Identify the problem by applying acquired knowledge.
<b>13C415.2</b>	Analyze and categorize executable project modules after considering risks.
<b>13C415.3</b>	Develop a prototype/experimental set-up necessary to complete the project
<b>13C415.4</b>	Discuss the results obtained to derive conclusions
<b>13C415.5</b>	Defend the work by preparing a report as per the University format.
<b>13C415.6</b>	Assess health, safety and legal relevant to professional engineering practices.
<b>13C415.7</b>	Comply the environmental needs and sustainable development.
<b>13C415.8</b>	Justify ethical principles in engineering practices
<b>13C415.9</b>	Perform multi-disciplinary task as an individual and / or team member to manage the project/task.
<b>13C415.10</b>	Comprehend the Engineering activities with effective presentation and report.
<b>13C415.11</b>	Interpret the findings with appropriate technological / research citation

**HOD**

**PRINCIPAL**