

**VIDYA JYOTHI INSTITUTE OF TECHNOLOGY**  
**Department of Information Technology**  
**Course Outcomes-R15**

**Course name: C101 (English-I)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Demonstrate real life skills in the light of literature.
<b>CO2</b>	Understand influential personalities, and practice human and professional values
<b>CO3</b>	Explain new versions of technology for effective usage of human resources towards development and to avoid risks
<b>CO4</b>	Identify principles and values to build collaborative knowledge and to cultivate social responsibility
<b>CO5</b>	Enhance communication skills through grammar, vocabulary with emphasis on LSRW skills.

**Course name: C102 (Mathematics-I)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Understand the term rank and Elementary Transformations of a Matrix, System of Equations.
<b>CO2</b>	Compute Eigen values and corresponding Eigen vectors of a square matrix, finding Inverse and method of Diagonalization
<b>CO3</b>	Evaluate the Mean value theorems and maxima and minima of functions of two variables
<b>CO4</b>	Evaluate of improper integrals by using beta gamma functions and evaluation of double and triple integrals by tracing the region of integration
<b>CO5</b>	Apply Laplace transform of various functions and solve the initial value problems by using Laplace transforms.

**Course name: C103 (Engineering Physics-I)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Analyze the crystal structures, properties and to identify defects in crystals
<b>CO2</b>	Explain the diffraction, interference and polarization phenomenon of light rays
<b>CO3</b>	Identify the basics of statistical mechanics and applications of LASERS in various fields
<b>CO4</b>	Interpret the significance of Magnetic materials
<b>CO5</b>	Explain fundamentals of Dielectrics and their applications

**Course name: C104 (C Programming-I)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Explain the basics of computers and its Generations
<b>CO2</b>	Able to solve problems using flowcharts, algorithms and programs
<b>CO3</b>	Able to develop programs on control structures.
<b>CO4</b>	Develop programs using Arrays, Strings and derived data types
<b>CO5</b>	Design programs on functions

**Course name: C105 (Engineering Graphics-I)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Explain the applications of different curves ,usage of different drawing instruments and projections in first angle.
<b>CO2</b>	Generate various scales used in engineering practice.
<b>CO3</b>	Draw the projections of points and straight lines.
<b>CO4</b>	Visualize and project different views of a planes.

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<b>CO5</b>	Visualize and draw the views of a given solid.
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**Course name: C106 (Engineering Chemistry -I)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Ability to explain the various processes of treatment of water for both industrial and domestic purpose
<b>CO2</b>	Identify the operating principles and the reaction mechanisms of batteries and fuel cells
<b>CO3</b>	Apply the knowledge for protection of different metals from corrosion
<b>CO4</b>	An ability to identify engineering applications of polymers
<b>CO5</b>	Able to list advanced engineering materials and their applications.

**Course name: C107 (C Programming Lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Understand basic commands in Linux.
<b>CO2</b>	Able to explain the process of execution of programs written in C language
<b>CO3</b>	Develop programs in C language
<b>CO4</b>	Analyze and design C program for a particular problem
<b>CO5</b>	Solve computing problems using control structures and arrays

**Course name: C108 (English Language Communication Skills Lab-I)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Facilitate computer-aided multimedia instruction enabling individualized and independent language learning.
<b>CO2</b>	Improve accent and intelligibility in pronunciation of English through Ice breaking and JAM sessions
<b>CO3</b>	Use vocabulary, glosses and pronunciation for appropriate usage of the target language.
<b>CO4</b>	Develop learners' communicative ability through frequent exchange of ideas and discussions.
<b>CO5</b>	Explain the concepts of verbal and non-verbal skills of communication useful in day-to-day life

**Course name: C109 (Engineering Physics/Engineering Chemistry Lab-I)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Experiment on Melde's and Torsional pendulum with knowledge in waves and mechanics
<b>CO2</b>	Visualize the fundamental optical phenomenon like Interference, diffraction and Dispersion
<b>CO3</b>	Identify the basic Electrical characteristics of LED, RC circuits
<b>CO4</b>	Apply Titrimetric analysis for estimating the quantity of the compound accurately.
<b>CO5</b>	Handle instruments like conductometer and potentiometer for measuring conductance & emf value.
<b>CO6</b>	Evaluate and record the physical properties like Viscosity and Surface tension

**Course name: C110 (IT Workshop Lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
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<b>CO1</b>	Identify the various components of computer system
<b>CO2</b>	Get hands on experience in software Installation
<b>CO3</b>	Explain the trouble shooting problems
<b>CO4</b>	Use the tools Power Point ,Documentation, Tabulation and Calculations
<b>CO5</b>	Use Internet and World Wide Web

**Course name: C111 (English-II)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Acquire the real life skills in the light of literature.
<b>CO2</b>	Develop managerial skills for successful careers. By making critical decisions
<b>CO3</b>	Demonstrate physical and mental fitness with true sportsman spirit.
<b>CO4</b>	Build collaborative knowledge and cultivate social responsibility.
<b>CO5</b>	Enhance communication skills through grammar, vocabulary with emphasis on LSRW skills.

**Course name: C112 (Mathematics-II)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Able to solve first order differential equations and their applications.
<b>CO2</b>	Identify different types of higher order differential equations and their applications in engineering problems
<b>CO3</b>	Apply Fourier series and defining it for various types of functions
<b>CO4</b>	Evaluating the Fourier transforms of functions of single variable
<b>CO5</b>	Justify integrals of functions or vector-related quantities over curves, surfaces, and domains in two- and three-dimensional space.

**Course name: C113 (Engineering Physics-II)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Able to solve first order differential equations and their applications.
<b>CO2</b>	Identify different types of higher order differential equations and their applications in engineering problems
<b>CO3</b>	Apply Fourier series and defining it for various types of functions
<b>CO4</b>	Evaluating the Fourier transforms of functions of single variable
<b>CO5</b>	Justify integrals of functions or vector-related quantities over curves, surfaces, and domains in two- and three-dimensional space.

**Course name: C114 (C Programming -II)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Develop various sorting and searching algorithms
<b>CO2</b>	Design solutions using derived data types and user defined data types- structures, arrays, pointers
<b>CO3</b>	Develop programs on dynamic memory allocation for effective memory utilization
<b>CO4</b>	Implement linear data structures-list, stack and queue
<b>CO5</b>	Apply various file handling techniques for better data management

**Course name: C115 (Mathematics -III)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
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<b>CO1</b>	Solve engineering problems involving Algebraic and transcendental equations
<b>CO2</b>	Acquires the knowledge of interpolation in predicting future out comes based on the present knowledge
<b>CO3</b>	Evaluating the Numerical Solutions for Integrals and Fitting of different types of curves to the given data
<b>CO4</b>	Solve Initial Value Problems by Numerical Methods
<b>CO5</b>	Explain the applications of Partial Differential Equations

**Course name: C116 (Basic Electrical Engineering)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Explain the basic electrical circuit parameters and the concepts of AC/DC circuits. Apply theorems to solve both AC and DC circuits.
<b>CO2</b>	List RMS and Average value calculations for different alternating quantities and the representation of alternating quantities in Phasor form.
<b>CO3</b>	Identify the process of construction and operation of the transformer, calculation of efficiency and regulation at different operating power factors.
<b>CO4</b>	Identify the construction and operation of DC/AC machines and their applications
<b>CO5</b>	Use the measuring instruments and their operational aspects in detail.

**Course name: C117 (English Language Communication Skills Lab-II)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Build the language proficiency in English with emphasis on LSRW skills.
<b>CO2</b>	Develop communication skills through various language learning activities.
<b>CO3</b>	Summarize the nuances of English speech sounds, stress, rhythm, intonation and syllable division.
<b>CO4</b>	Acquire and exhibit acceptable etiquette essential in social & professional settings.
<b>CO5</b>	Improve the fluency in spoken English and neutralize mother tongue influence.

**Course name: C118 (C Programming Lab- II)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Develop various sorting and searching algorithms
<b>CO2</b>	Design solutions using derived data types and user defined data types- structures, arrays, pointers
<b>CO3</b>	Develop programs on dynamic memory allocation for effective memory utilization
<b>CO4</b>	Implement linear data structures-list, stack and queue
<b>CO5</b>	Apply various file handling techniques for better data management

**Course name: C119 (Engineering Workshop)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>CO1</b>	Recite workshop tools and their operations.
<b>CO2</b>	Use wooden and metallic components by carpentry and foundry respectively.
<b>CO3</b>	Use welding equipment.
<b>CO4</b>	Use blacksmithy technique to fabricate ferrous component
<b>CO5</b>	Demonstrate skills on plumbing and machine shops trades.

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**Course name: C201 (Probability and Statistics)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C201.1</b>	To differentiate among random variables involved in the probability models which are useful for all branches of engineering
<b>C201.2</b>	Derive relationship among variety of performance measures using probability distributions.
<b>C201.3</b>	Acquire elementary knowledge of parametric and non parametric tests and understand the use of observing state analysis for predicting future conditions
<b>C201.4</b>	Identify and examine situations that generate using problems and able to solve the tests of ANOVA for classified data.
<b>C201.5</b>	Apply proper measurement, Indicators and techniques of correlation and Regression analysis.

**Course name: C202 (Mathematical Foundation of Computer Science)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C202.1</b>	Evaluate elementary mathematical arguments and identify fallacious reasoning (not just fallacious conclusions).
<b>C202.2</b>	Solve discrete mathematics problems that involve: computing permutations and combinations of a set.
<b>C202.3</b>	Analyze and deduce problems involving recurrence relations and generating functions.
<b>C202.4</b>	Perform operations on discrete structures such as sets, functions, relations and sequences.
<b>C202.5</b>	Apply Graph theory models to solve problems of Computer Science & Engineering.

**Course name: C203 (Data Structures )**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C203.1</b>	Analyze the representation of various data structures and implement the mechanisms of Stacks and Queues with their applications..
<b>C203.2</b>	Implement the operations like searching, insertion, deletions and traversing mechanisms on Binary Trees.
<b>C203.3</b>	Implement various advance concepts of trees with real time applications.
<b>C203.4</b>	Implement various algorithms on graph data structures, including finding the minimum spanning tree, shortest path with real time applications, etc.
<b>C203.5</b>	Outline the concepts of hashing, collision and its resolution methods using hash function.

**Course name: C204 (Digital Logic Design)**

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<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C204.1</b>	Understand various number systems, conversions, range and error detecting and correcting codes and their significance.
<b>C204.2</b>	Evaluate the minimization of logic gates using Boolean algebraic principles and k-maps.
<b>C204.3</b>	Design various simple and complex combinational circuits with real time applications.
<b>C204.4</b>	Analyze the basic principles behind Flip flops & the design of sequential circuits with real time applications.
<b>C204.5</b>	Illustrate various types of memory devices and their design.

**Course name: C205 (Object Oriented Programming )**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C205.1</b>	Describe importance concepts of Object Oriented Programming
<b>C205.2</b>	Develop the applications using Object Oriented Programming through C++
<b>C205.3</b>	Implements the concepts of inheritance and polymorphism
<b>C205.4</b>	Apply the IO Streams and files to develop a program for real time problems
<b>C205.5</b>	Apply advanced features like templates and exception handling to make programs supporting reusability and sophistication

**Course name: C206(Electronic Devices &Circuits)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C206.1</b>	Understand and Analyze the different types of diodes, operation and its characteristics.
<b>C206.2</b>	Analyze and design diode application circuits( rectifiers and filters).
<b>C206.3</b>	Design and analyze the DC bias circuitry of BJT and FET Design biasing circuits using diodes and transistors.
<b>C206.4</b>	Analyze and design amplifier circuits and oscillators employing BJT, FET devices.

**Course name: C207 (Data Structures Lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C207.1</b>	Develop the programs on stack and its applications
<b>C207.2</b>	Demonstrate the operations on trees
<b>C207.3</b>	Demonstrate the implementations of various advanced trees
<b>C207.4</b>	Design and implementation of programs on BST and graph traversals
<b>C207.5</b>	Understand the C++ program structure and also basics of C++ programming.

**Course name: C208 (Electronic Devices & circuits and Digital Logic Design lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C208.1</b>	Understand and use the basic components and instruments of the electronics laboratory.
<b>C208.2</b>	Understand and verify the characteristics and applications of diodes and transistors.



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<b>C208.3</b>	Implement and verify logic gates and its applications.
<b>C208.4</b>	Design and verify functionality of different circuits using ICs

**Course name: C209 (Design and Analysis of Algorithms)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C209.1</b>	Analyze the efficiency of algorithms
<b>C209.2</b>	Develop algorithms divide & conquer, greedy and related problems
<b>C209.3</b>	Examine the performance of Dynamic programming
<b>C209.4</b>	Explain performance of algorithm using Backtracking
<b>C209.5</b>	Analyze NP-Hard and NP-Complete problems

**Course name: C210 (Computer Organization)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C210.1</b>	Understanding the basic organization of computer and different instruction formats and addressing modes.
<b>C210.2</b>	Analyze the concept of pipelining, segment registers and pin diagram of CPU.
<b>C210.3</b>	Write simple programs on assembly language.
<b>C210.4</b>	Evaluate various modes of data transfer between CPU and I/O devices.
<b>C210.5</b>	Examine various inter connection structures of multi processors.

**Course name: C211 (Database Management Systems)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C211.1</b>	Design Entity-Relationship Model for enterprise level databases.
<b>C211.2</b>	Develop the database and provide restricted access to different users of database and formulate the Complex SQL queries.
<b>C211.3</b>	Analyze various Relational Formal Query Languages and various Normal forms to carry out Schema refinement.
<b>C211.4</b>	Use of suitable Indices and Hashing mechanisms for real time implementation.
<b>C211.5</b>	Analyze various concurrency control protocols and working principles of recovery algorithms

**Course name: C212 (Software Engineering)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C212.1</b>	Choose a process model to apply for given project requirements
<b>C212.2</b>	Analyze and apply the framework activities for a given project
<b>C212.3</b>	Design various system models for a given scenario
<b>C212.4</b>	Design and apply various testing techniques
<b>C212.5</b>	Understand metrics for Process and Products

**Course name: C213 (Java Programming)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C213.1</b>	Understand OOP concepts to apply basic Java constructs
<b>C213.2</b>	Analyze different forms of inheritance and handle different kinds of file I/O

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<b>C213.3</b>	Evaluate the usage of Exception Handling and Multithreading in complex Java programs
<b>C213.4</b>	Contrast different GUI layouts and design GUI applications
<b>C213.5</b>	Construct a full-fledged Java GUI application, and Applet with database connectivity

**Course name: C214 (Environmental Science)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C214.1</b>	Understand the importance of Ecosystem and its Resources
<b>C214.2</b>	Be aware on the Variety of Living organism and the need to conserve them
<b>C214.3</b>	Understand the impacts of Developmental Activities.
<b>C214.4</b>	Understand the Environmental Policies, Management Plan and Regulations
<b>C214.5</b>	Sensitize on a Sustainable Future.

**Course name: C215 (Java Programming Lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C215.1</b>	Familiarize with Java Environment and use of Java Development Kit for the creation and execution of java programs
<b>C215.2</b>	Develop programs on various concepts like data abstraction & data hiding, encapsulation, inheritance, polymorphism.
<b>C215.3</b>	Create and use threads, handle exceptions and write applets.
<b>C215.4</b>	Develop the programs using interfaces, inner classes, wrapper classes and generics.
<b>C215.5</b>	Develop GUI applications

**Course name: C216 (Database Management Systems Lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C216.1</b>	Apply SQL statements including DDL, DML and DCL statements to perform different operations.
<b>C216.2</b>	Design different views of tables for different users.
<b>C216.3</b>	Apply various integrity Constraints on the database tables
<b>C216.4</b>	Apply the Normalization techniques to the data base for consistency.
<b>C216.5</b>	Implement PLSQL concepts like cursors, procedures and triggers.

**Course name:MC1(Intellectual Property rights & Cyber laws)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>1</b>	Understand the need for cyber laws in global context
<b>2</b>	Analyze Cyber Crimes & legal framework
<b>3</b>	Identify the application of Cyber laws in India
<b>4</b>	Outline the features of IT Act 2000
<b>5</b>	Analyze the E commerce governing laws in India



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**Course name: MC2 ( Professional Ethics, Human Values & Self Development)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
1	Practice optimistic attitude for an efficient socially viable and multi-faceted personality.
2	Demonstrate functions of non-verbal <i>communication in formal context</i> .
3	Build effective individual & team dynamics for professional accomplishments.
4	Analyze appropriate strategic Interpersonal Skills for productive workplace relationships.
5	Correspond in multiple contexts, for varied audiences, across genres and modalities.

**Course name: C301(Linux Programming)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C301.1</b>	Understand and make effective use of Linux utilities.
<b>C301.2</b>	Able to write shell scripts to solve the problems.
<b>C301.3</b>	Develop the skills necessary for file system and directory handling.
<b>C301.4</b>	Learn the concepts of process and signal system calls.
<b>C301.5</b>	Implement inter process communication mechanisms.

**Course name: C302 (Computer Networks)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C302.1</b>	Understand the concept of network reference models
<b>C302.2</b>	To Analyze various connecting devices of a network and describe multichannel access protocols
<b>C302.3</b>	Analysis of routing algorithm and congestion algorithms and classify IPV4 addressing scheme
<b>C302.4</b>	Understand Transport layer protocols
<b>C302.5</b>	Discuss Application layer protocols

**Course name: C303 (Operating systems)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C303.1</b>	Understanding the operating system concepts and process management
<b>C303.2</b>	Analyze process scheduling and synchronization.
<b>C303.3</b>	Understand memory management concepts.
<b>C303.4</b>	Illustrate File System implementation and Mass Storage Structure.
<b>C303.5</b>	Analyze Deadlock mechanisms.

**Course name: C304 (Cloud Computing)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C304.1</b>	Understand Systems Modeling, Clustering and Virtualization Concepts.

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<b>C304.2</b>	Analyze different cloud deploy & service models.
<b>C304.3</b>	Design the Cloud Virtual Machines Migration and Cloud enhancing service.
<b>C304.4</b>	Understand Monitoring, Management and Applications in Cloud Computing.
<b>C304.5</b>	Understand Data security mechanism and SLA Management in Cloud.

**Course name: C305 (Principles of Programming Languages)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C305.1</b>	Ability to apply suitable programming paradigm for the application.
<b>C305.2</b>	Ability to express syntax and semantics in formal notation.
<b>C305.3</b>	Apply Object Oriented, concurrency programming constructs.
<b>C305.4</b>	Comparing features of different programming languages.
<b>C305.5</b>	Ability to write programs in various programming languages

**Course name: OE(IME)**

At the end of the course the student should be able to	
<b>1</b>	Describe the architecture of 8051 with its special function registers
<b>2</b>	Interpret the internal organization of 8051 with its unique features.
<b>3</b>	Infer and give examples about the various addressing modes, instruction formats and instructions of 8051.
<b>4</b>	Construct the hardware and software interaction with each other using programming
<b>5</b>	Summarize the features of the advanced architecture using ARM controller.

**Course name: OE (BEI)**

<b>At the end of the course the student should be able to</b>	
<b>1</b>	Summarize the concepts of different Diode devices with its characteristics
<b>2</b>	Summarize the concepts of different Transister devices with its characteristics.
<b>3</b>	Describe the fundamental concepts and basic principle of meters.
<b>4</b>	Categorize different transducers and their working principles.
<b>5</b>	Explain different bridges and understand how different physical parameters can be acquired.

**Course name: OE(Total quality management)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>1</b>	To explore the quality framework in production and operational aspects.
<b>2</b>	To evaluate the role of quality in product design and analysis.
<b>3</b>	To analyze quality in process improvement and modern production management tools.
<b>4</b>	To analyze the requirements of quality management system.

**Course name: C307 (Operating Systems & Computer Networks Lab )**

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<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C307.1</b>	Implement Data link layer framing methods.
<b>C307.2</b>	Implement various algorithms for error detection and correction.
<b>C307.3</b>	Simulate various routing algorithms.
<b>C307.4</b>	Implement CPU scheduling ,deadlock avoidance and prevention algorithms
<b>C307.5</b>	Simulate various page replacement techniques and file allocation methods.

**Course name: C308(Advanced Communication Skills Lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C308.1</b>	The student will be able to build communication competence in person-to-person interactions to build self-efficacy and to manage relationships and improve communicative behaviour of dyadic interactions in various contexts.
<b>C308.2</b>	The student will be able to annotate effectively for active reading, increased comprehension & retention while synthesizing information both print and online sources for their relevance, accuracy and appropriateness.
<b>C308.3</b>	The student will be able to develop unique qualities of professional rhetoric and writing style and explore different format features in both print, multimedia documents, and develop document design skills.
<b>C308.4</b>	The student will be able to identify essential components of Presentation and will be able to speak with greater control and charisma in front of a larger audience.
<b>C308.5</b>	The students will be able to know the significance of group activities and acquire oral skills & body language used for effective Group discussion and prepared to face interviews.

**Course name: C309(PDBS)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C309.1</b>	1. To develop sharpened personality for an efficient socially viable, multi-faceted and impressive personality.
<b>C309.2</b>	To perform well during campus drives and different interviews.
<b>C309.3</b>	To build effective team dynamics for professional accomplishments.
<b>C309.4</b>	To communicate with more confidence using better written and spoken English.

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<b>C309.5</b>	To give better presentations and explanation with the use of digital inventions.
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**Course name: C310 (Web Technologies)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C310.1</b>	Create static and dynamic web pages using HTML and java script
<b>C310.2</b>	Analyze the XML and how to parse XML data with java
<b>C310.3</b>	Develop web applications using server side scripting language-PHP
<b>C310.4</b>	Implement the web applications using JDBC and java servlets
<b>C310.5</b>	Apply web applications with Java Server Pages

**Course name: C311(Automata & Compiler Design)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C311.1</b>	Understand & analyze the phases in compilation & parsing
<b>C311.2</b>	Identify the process in parsing and semantic analysis
<b>C311.3</b>	Apply type checking and also perform type conversions.
<b>C311.4</b>	Understand Symbol tables and code optimization methods
<b>C311.5</b>	Analyze data flow and generate object code

**Course name: C312 (Data Warehousing and Data Mining)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C312.1</b>	Understand the fundamentals of Data warehousing and OLAP technology.
<b>C312.2</b>	Understand Data Mining and Data Pre-processing
<b>C312.3</b>	Analyze and apply association algorithms on large data sets.
<b>C312.4</b>	Analyze and apply classification algorithms on large data sets.
<b>C312.5</b>	Analyze and apply clustering techniques on large data.

**Course name: C313 (Managerial Economics and Financial Analysis)**

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<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C313.1</b>	Understand the importance of certain basic issues governing the business operations namely demand and supply, production function, cost analysis
<b>C313.2</b>	Apply managerial tools and techniques in obtaining optimal solutions for business problems
<b>C313.3</b>	Differentiate the various forms of business organizations
<b>C313.4</b>	Evaluate and interpret the financial statements of companies using ratios
<b>C313.5</b>	Apply the methods of capital budgeting in effective investment decision making

**Course name: C314 Object Oriented Analysis And Design**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C314.1</b>	Understand object oriented software development process
<b>C314.2</b>	Gain exposure to object oriented methodologies & UML diagrams
<b>C314.3</b>	Use object oriented behavioral modeling analysis for project
<b>C314.4</b>	Apply object oriented Architectural modeling analysis for project
<b>C314.5</b>	Construct for developing structural design of a given project by using

**Course name: OE (PRINCIPLES OF COMMUNICATIONS)**

<b>At the end of the course the student should be able to</b>	
<b>1</b>	Understanding the fundamentals of communications
<b>2</b>	Summarize the different modulation techniques involved in analog Communication
<b>3</b>	Summarize the different modulation techniques involved in digital Communication.
<b>4</b>	Identify the applications of various wired and wireless communications in real time.
<b>5</b>	Elaborate the fundamentals of satellite and optical communications.

**Course name: OE (Fundamentals of Embedded systems)**

<b>At the end of the course the student should be able to</b>	
<b>1</b>	Contrast the basics of embedded system with its application
<b>2</b>	Illustrate the components required for embedded system design.
<b>3</b>	Summarize the different development tool for embedded system
<b>4</b>	Relate the concepts of RTOS in real time programming
<b>5</b>	Outline the features of advanced buses for distributed data transfer in system design

**Course name: OE (Financial institutions & markets)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>1</b>	To explore Indian investment environment.
<b>2</b>	To evaluate available investment avenues.
<b>3</b>	To analyze the role of regulatory bodies in Indian Financial system.
<b>4</b>	To identify recent trends and challenges in Indian banking sector

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**Course name: C316 (Web Technologies Lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C316.1</b>	Design and implement static & dynamic web pages
<b>C316.2</b>	Implement the concepts of XML and apply parsing of XML data with Java
<b>C316.3</b>	Develop web applications using PHP, Servlets, JSP & MySQL

**Course name: C317(Data Mining and case tools lab)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C317.1</b>	Ability to understand various data mining tools and demonstrate the classification clusters etc in data sets.
<b>C317.2</b>	Design & Model ATM system and real world problems using UML

**Course name: C318(QMLR )**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C318.1</b>	To perform well in various competitive exams and placement drives.
C318.2	To solve basic and complex mathematical problems in short time.
C318.3	To become strong in Quantitative Aptitude and Reasoning which can be applied
C318.4	To develop problem solving skills and analytical abilities, which play a great role in corporate and industry set up.

**Course name: C401 --Mobile Application Development**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
1	Understand and analyze the limitations and challenges of working in a mobile and wireless environment to implement mobile applications
C401.2	Understand the concepts of J2ME
C401.3	Understand and apply the knowledge of J2ME packages to design and develop user interfaces for mobile applications
C401.4	Apply the concepts of JDBC & Embedded SQL for implementing database applications
C401.5	Understand the generic connection framework.

**Course name: C402--Information Security**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
C402.1	Identify various security attacks.
C402.2	Understand various encryption principles and algorithms.



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C402.3	Analyze different Cryptography algorithms.
C402.4	Understand various security associations and key management.
C402.5	Design a firewall for security.

**Course name: C403 --Software Testing Methodologies**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
C403.1	Understand the purpose of Software testing.
C403.2	Analyze various flow testing techniques.
C403.3	Understand domain testing.
C403.4	Construct decision tables for Logic Based Testing.
C403.5	Understand and apply node reduction algorithm.

**Course name: C404- Big Data Analytics(PE3)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
C404.1	Understand the foundations, definitions, and challenges of Big Data.
C404.2	Apply Hadoop file system interfaces.
C404.3	Understand Map Reduce features
C404.4	Understand various Hadoop Eco Systems.
C404.5	Understand and analyze various data visualization tools

**Course name: OE (INTRODUCTION TO MATLAB)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
C	Break down computational problems into a series of simple steps.
C	create programs in the MATLAB language for engineering applications.
2	Apprise and get familiarized with the visualization techniques
3	Formalized with different applications tools required different area of domain.
4	Expose to the common algorithms and techniques that are the Building blocks of MATLAB.

**Course name: OE(Fundamentals of Entrepreneurship)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
1	To provide awareness about entrepreneurship
2	To develop idea generation, creative and innovative skills among students
3	To self-motivate the students by making aware of different opportunities by exploring themselves by discussing successful growth/failure stories
4	To learn to start an enterprise and design business plans those are suitable for funding by considering all dimensions of business.

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**Course name: C406 –Advanced Databases (PE 4)**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
C406.1	Understand the concepts of Distributed Database Systems.
C406.2	Identify different Architectural Models for Distributed DBMS.
C406.3	Analyze the query processors.
C406.4	Design Algorithms for Concurrency control Mechanisms.
C406.5	Analyze different Parallel DBMS Techniques based on given constraints.

**Course name: C407-- Hadoop & Bigdata Lab**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
C407.1	Understand java programs required for developing map reduce programs in Hadoop.
C407.2	Analyze Installation of Hadoop environment and learn Unix file system commands.
C407.3	Impart Knowledge of map reduce paradigm to solve complex problems.
C407.4	Implement best practices Hadoop programming tool PIG in Hadoop eco system.
C407.5	Apply HIVE scripting in Hadoop eco system.

**Course name: C408 --Mobile Application Development Lab**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
C408.1	Analyze and understand the Mobile Applications Development environment and J2ME wireless tool kit
C408.2	Design and develop real time GUI based mobile applications
C408.3	Design and implement real time J2ME applications

**Course name: C409 --Mini Project**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C409.1</b>	Analyze and communicate software requirement specifications
<b>C409.2</b>	Apply design and development principles in the construction of software systems of varying complexity
<b>C409.3</b>	Able to function effectively on team to accomplish a common goal
<b>C409.4</b>	Exhibit documentation skills to generate project reports

**Course name: C410 (Design Patterns )**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C410.1</b>	Understand the Design patterns in software applications.
<b>C410.2</b>	Discuss the Creational Patterns
<b>C410.3</b>	Categorize the Structural Pattern.

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<b>C410.4</b>	Investigate Behavior Patterns
<b>C410.5</b>	Construct the good design pattern structures

**Course name: C411 (E-Commerce )**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C411.1</b>	Identify the anatomy of E-Commerce applications.
<b>C411.2</b>	Categorize different Electronic payment systems.
<b>C411.3</b>	Examine Supply chain Management.
<b>C411.4</b>	Analyze the various marketing strategies for an online business.
<b>C411.5</b>	Design strategies for E-Commerce Catalogues.

**Course name: C412 (Semantic Web and Social Networks )**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C412.1</b>	Understand knowledge representation for the Semantic Web Intelligence
<b>C412.2</b>	Identify the role of Ontologies in the semantic web.
<b>C412.3</b>	Learn Ontology Engineering.
<b>C412.4</b>	Develop Semantic Web Applications and Services.
<b>C412.5</b>	Create OWL-S Ontology for Web Services.

**Course name: C413 (Technical Seminar )**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C413.1</b>	Student able to Communicate effectively
<b>C413.2</b>	Student able to develop good presentation skills
<b>C413.3</b>	Student able to analyze and consolidate the presentation
<b>C413.4</b>	Student able to effectively interact with others
<b>C413.5</b>	Student able to explain the latest technologies and trends in computing.

**Course name: C414 --Comprehensive viva**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C414.1</b>	Student able to develop self-confidence, spontaneity and communication skills
<b>C414.2</b>	Comprehend for all the courses studied in the entire programme and Continue to advance their knowledge

**Course name: C416 (Major Project )**

<b>After completing this course the student must demonstrate the knowledge and ability to</b>	
<b>C415.1</b>	Analyze and communicate software requirement specifications
<b>C415.2</b>	Apply design and development principles in the construction of software systems of varying complexity
<b>C415.3</b>	Able to function effectively on team to accomplish a common goal
<b>C415.4</b>	Exhibit documentation skills to generate project reports

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