# VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

## *Department of Computer Science & Engineering*
## *R18 Course outcomes*

**B.TECH (CSE) I YEAR I SEMESTER: MATHEMATICS -I**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C101.1** | Write the matrix representation of system of linear equations and identify the consistency of the system of equations. |
| **C101.2** | Find the Eigen values and Eigen vectors of the matrix and discuss the nature of the quadratic form. |
| **C101.3** | Analyze the convergence of sequence and series. |
| **C101.4** | Discuss the applications of mean value theorems to the mathematical problems, Evaluation of improper integrals using Beta and Gamma functions. |
| **C101.5** | Examine the extreme of functions of two variables with/ without constraints. |

**B.TECH (CSE) I YEAR I SEMESTER: APPLIED PHYSICS-I**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C102.1** | Identify various optical phenomena of light. |
| **C102.2** | Discuss the basic principles of quantum mechanics. |
| **C102.3** | Classify solids based on the band theory. |
| **C102.4** | Elucidate the characteristics of semiconductors and semiconductor devices. |
| **C102.5** | Explain the working principle of lasers and optical fibers. |

**B.TECH (CSE) I YEAR I SEMESTER: BASIC ELECTRICAL ENGINEERING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C103.1** | Understand the fundamentals of basic circuit components and their characteristics |
| **C103.2** | Analyze basic electrical circuits with A.C excitation. |
| **C103.3** | Understand the concepts of magnetic circuits and transformers. |
| **C103.4** | Acquire the basic concepts of electrical motors. |
| **C103.5** | Understand the concept of A.C generator and low voltage electrical installations. |

**B.TECH (CSE) I YEAR I SEMESTER: ENGINEERING GRAPHICS & MODELLING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C104.1** | Understand the concepts of engineering drawing of planes, solids and the CAD drawing software. |
| **C104.2** | Applying the principles of engineering graphics while drawing the engineering components. |
| **C104.3** | Analyze the sectional views for their configurations. |

**B.TECH (CSE) I YEAR I SEMESTER: PROGRAMMING FOR PROBLEM SOLVING- I**

# VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

## *Department of Computer Science & Engineering*
## *R18 Course outcomes*

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C105.1** | Design Algorithms and Flowcharts for real world applications using 'C'. |
| **C105.2** | Know the usage of various operators in Program development. |
| **C105.3** | Design programs involving decision and iteration structures. |
| **C105.4** | Apply the concepts code reusability using Functions. |
| **C105.5** | Analyze various searching and sorting techniques using Arrays. |

**B.TECH (CSE) I YEAR I SEMESTER: APPLIED PHYSICS LAB-I**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C106.1** | Apply optical phenomena to characterize optical sources and components. |
| **C106.2** | Determine the energy gap of a semiconductor diode and time constant of RC circuit |
| **C106.3** | Describe the electrical characteristics of PN junction diode, photodiode, LED and solar cell. |
| **C106.4** | Demonstrate the resonance in mechanical and electrical waves. |
| **C106.5** | Identify the magnetic Induction along the axis of current carrying coil. |

**B.TECH (CSE) I YEAR I SEMESTER: BASIC ELECTRICAL ENGINEERING LAB-I**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C107.1** | Get an exposure to basic electrical laws. |
| **C107.2** | Understand the response of different types of electrical circuits to different excitations. |
| **C107.3** | Understand the measurement, calculation and relation between the basic electrical parameters. |
| **C107.4** | Understand the performance characteristics of D.C electrical machines. |
| **C107.5** | Understand the performance characteristics of A.C electrical machines. |

**B.TECH (CSE) I YEAR I SEMESTER: ENLISH LANGUAGE SKILLS LAB-I**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C108.1** | Reproduce speech sounds and improve fluency in language. |
| **C108.2** | Understand syllables and consonant clusters for appropriate pronunciation. |
| **C108.3** | Exhibit effective professional skills with rhetoric eloquence. |
| **C108.4** | Deliver enthusiastic and well-practiced presentation. |
| **C108.5** | Learn Task-Based Language Learning (TBLL) through various language learning activities effectively. |

**B.TECH (CSE) I YEAR I SEMESTER: PROGRAMMING FOR PROBLEM SOLVING LAB - I**

| After completing this course the student must demonstrate the knowledge and ability to |
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|---|---|
| **C109.1** | Apply the specification of syntax rules for numerical constants and variables, data types. |
| **C109.2** | Know the Usage of various operators and other C constructs. |
| **C109.3** | Design programs on decision and control constructs. |
| **C109.4** | Develop programs on code reusability using functions. |
| **C109.5** | Implement various searching and sorting techniques using arrays. |

**B.TECH (CSE) I YEAR II SEMESTER: ENLISH**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C201.1** | Infer the importance of scientific discoveries in promoting social responsibilities. |
| **C201.2** | Comprehend the given texts and respond appropriately for technical and professional purposes. |
| **C201.3** | Communicate confidently and transfer information into various forms of writing. |
| **C201.4** | Understand the importance of health and nutrition for a better society. |
| **C201.5** | Present various forms of business writing skills for successful careers. |

**B.TECH (CSE) I YEAR II SEMESTER: MATHEMATICS -II**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C202.1** | Classify the various types of differential equations of first order and first degree and |
| **C202.2** | Solve higher order differential equations and apply the concepts of differential |
| **C202.3** | Find the Laplace Transform of various functions and apply to find the solutions of |
| **C202.4** | Evaluate the multiple integrals and identify the vector differential operators physically |
| **C202.5** | Evaluate the line, surface and volume integrals and converting them from one to |

**B.TECH (CSE) I YEAR II SEMESTER: CHEMISTRY**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C203.1** | Acquire knowledge of atomic, molecular and electronic changes related to conductivity. |
| **C203.2** | Apply the various processes of treatment of water for both domestic and industrial purpose. |
| **C203.3** | Apply the knowledge of electrode potentials for the protection of metals from corrosion. |
| **C203.4** | Analyze the major chemical reactions that are used in the synthesis of compounds. |
| **C203.5** | Apply the knowledge of polymers in every day's life. |

**B.TECH (CSE) I YEAR II SEMESTER: PROGRAMMING FOR PROBLEM SOLVING- II**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C204.1** | Identify various string handling functions in 'C'. |

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| **C204.2** | Develop programs with user defined data types. |
| **C204.3** | Use Dynamic memory allocation functions with pointers. |
| **C204.4** | Distinguish between Stacks and Queues. |
| **C204.5** | Analyze various Dynamic Data Structures. |

**B.TECH (CSE) I YEAR II SEMESTER: ENLISH COMMUNICATION SKILLS LAB-I**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C205.1** | Understand the variants in pronunciation. |
| **C205.2** | Identify the diverse purposes of listening and speaking. |
| **C205.3** | Discuss ideas in diverse communicative settings. |
| **C205.4** | Exhibit increased confidence in public speaking. |
| **C205.5** | Display critical thinking, problem solving and decision making skills through GD's |

**B.TECH (CSE) I YEAR II SEMESTER: CHEMISTRY LAB**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C206.1** | Determination of parameters like hardness, alkalinity and chloride content in water. |
| **C206.2** | Estimation of rate constant of a reaction from concentration-time relationships. |
| **C206.3** | Determination of physical properties like adsorption, surface tension and viscosity. |
| **C206.4** | Synthesize a small drug molecule and analyze a salt sample. |
| **C206.5** | Calculation of strength of compound using instrumentation techniques. |

**B.TECH (CSE) I YEAR II SEMESTER: ENGINEERING WORKSHOP**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C207.1** | Understanding the tools and methods of using to fabricate engineering components |
| **C207.2** | Applying the measuring techniques to verify the dimensional accuracy |
| **C207.3** | Evaluating various methods and trades of workshop in the component building |

**B.TECH (CSE) I YEAR II SEMESTER: PROGRAMMING FOR PROBLEM SOLVING LAB - II**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C208.1** | Build programs on various string handling functions. |
| **C208.2** | Develop applications on user defined data types. |
| **C208.3** | Apply dynamic memory allocation through pointers. |
| **C208.4** | Implement linear data structures through stacks and queues. |

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| **C208.5** | Create linked list dynamically through stacks and queues. |

**B.TECH (CSE) II YEAR I SEMESTER: PROBABILITY &STATISTICS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C301.1** | To differentiate among random variables involved in the probability models which are useful for all branches of engineering. |
| **C301.2** | Derive relationship among variety of performance measures using probability distributions. |
| **C301.3** | Acquire elementary knowledge of parametric and non-parametric –tests and understand the use of observing state analysis for predicting future conditions. |
| **C301.4** | Identify and examine situations that generate using problems and able to solve the tests of ANOVA for classified data. |
| **C301.5** | Apply proper measurements, Indicators and techniques of Correlation and regression analysis. |

**B.TECH (CSE) I YEAR I SEMESTER: DIGITAL LOGIC DESIGN**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C302.1** | Understand various number systems, conversions, range and error detecting and correcting codes and their significance. |
| **C302.2** | Evaluate the minimization of logic gates using Boolean algebraic principles and k-maps. |
| **C302.3** | Design various simple and complex combinational circuits with real time applications. |
| **C302.4** | Analyze the basic principles behind Flip flops & the design of sequential circuits with real time applications. |
| **C302.5** | Illustrate various types of memory devices and their design. |

**B.TECH (CSE) II YEAR I SEMESTER: ELECTRONIC DEVICES & CIRCUITS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C303.1** | Demonstrate the concepts of semiconductor theory. |
| **C303.2** | Interpret the characteristics of different semiconductor devices with its applications. |
| **C303.3** | Apply different biasing techniques of transistors for amplification. |
| **C303.4** | Analyze transistor amplifiers using small signal model. |
| **C303.5** | Ability to describe the behavior of special purpose diodes. |

**B.TECH (CSE) II YEAR I SEMESTER: DATA STRUCTURES**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C304.1** | Understand the concepts of Stacks and Queues with their applications. |
| **C304.2** | Analyze various operations on Binary trees. |
| **C304.3** | Examine of various concepts of binary trees with real time applications. |

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| **C304.4** | Analyze the shortest path algorithm on graph data structures. |
| **C304.5** | Outline the concepts of hashing, collision and its resolution methods using hash functions. |

**B.TECH (CSE) II YEAR I SEMESTER: MATHEMATICAL FOUNDATIONS OF COMPUTER SCIENCE**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C305.1** | Analyze elementary mathematical arguments. |
| **C305.2** | Apply discrete mathematics problems that involve computing permutations and combinations of a set. |
| **C305.3** | Analyze problems involving recurrence relations & generating functions. |
| **C305.4** | Demonstrate various operations on discrete structures. |
| **C305.5** | Apply graph theory models to solve the problems of networks. |

**B.TECH (CSE) II YEAR I SEMESTER: PYTHON PROGRAMMING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C306.1** | Identify the differences between scripts and programs |
| **C306.2** | Solve the problems based on decision control statements |
| **C306.3** | Develop programs on functions and data structures. |
| **C306.4** | Demonstrate the programs on string operations |
| **C306.5** | Analyze the object oriented techniques for solving real time problems |

**B.TECH (CSE) II YEAR I SEMESTER: DATA STRUCTURES & PYTHON PROGRAMMING LAB**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C307.1** | Develop the programs on stacks, trees and its applications. |
| **C307.2** | Design and implementation of programs on BST and Graph Traversals. |
| **C307.3** | Apply Hashing techniques in real world applications. |
| **C307.4** | Implement oops concepts in Python. |
| **C307.5** | Develop Programs on modules and Packages. |
| **C307.6** | Design Programs that handle errors. |

**B.TECH (CSE) II YEAR I SEMESTER: DIGITAL LOGIC DESIGN& ELECTRONIC DEVICES & CIRCUITS LAB**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C308.1** | Identify and use the basic components and instruments in electronics laboratory. |
| **C308.2** | Outline the characteristics of different semiconductor devices. |

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| **C308.3** | Interpret the ripple factor, regulations of rectifiers. |
| **C308.4** | Understand the concepts of UJT and observe its characteristics. |
| **C308.5** | Design and construct the combinational and sequential circuits using digital IC's. |

**B.TECH (CSE) II YEAR I SEMESTER: GENDER SENSITIZATION**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
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| **C309.1** | To develop awareness about gender discrimination and take measurable steps to counter it. |
| **C309.2** | To identify the basic dimensions of biological, sociological, psychological and legal aspects of gender. |
| **C309.3** | To acquire knowledge about gendered division of labour in relation to politics and economics. |
| **C309.4** | To prepare the students against gender violence. |
| **C309.5** | To prepare the students to work and live together as equals. |

**B.TECH (CSE) II YEAR II SEMESTER: DESIGN & ANALYSIS OF ALGORITHMS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C401.1** | Analyze the efficiency of algorithms. |
| **C401.2** | Develop algorithms divide & conquer, greedy and related problems. |
| **C401.3** | Examine the performance of Dynamic programming. |
| **C401.4** | Explain performance of algorithm using Backtracking. |
| **C401.5** | Analyze NP-Hard and NP-Complete problems. |

**B.TECH (CSE) II YEAR II SEMESTER: COMPUTER ORGANIZATION**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C402.1** | Understand the basic organization of computer and different instruction formats and addressing modes. |
| **C402.2** | Outline the concepts of 8086 microprocessor and arithmetic operations. |
| **C402.3** | Make use of microprocessor instructions to write simple programs in assembly language. |
| **C402.4** | Classify various modes of data transfers. |
| **C402.5** | Outline various inter connection structures of multiprocessors. |

**B.TECH (CSE) II YEAR II SEMESTER: JAVA PROGRAMMING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C403.1** | Understand OOP concepts to apply basic Java constructs. |
| **C403.2** | Analyze different forms of inheritance and usage of Exception Handling |
| **C403.3** | Understand the different kinds of file I/Multithreading in complex Java programs, and usage of Container classes |

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| **C403.4** | Contrast different GUI layouts and design GUI applications |
| **C403.5** | Construct a full-fledged Java GUI application, and Applet with database connectivity. |

**B.TECH (CSE) II YEAR II SEMESTER: SOFTWARE ENGINEERING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C404.1** | Outline the framework activities for a given project. |
| **C404.2** | Examine Right process model for a given project. |
| **C404.3** | Analyze various system models for a given Context. |
| **C404.4** | Understand various testing techniques for a given project. |
| **C404.5** | Identify various risks in project development. |

**B.TECH (CSE) II YEAR II SEMESTER: DATABASE MANAGEMENT SYSTEMS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C405.1** | Understand the concepts of Entity-Relationship Model for enterprise level databases |
| **C405.2** | Analyze the database and provide restricted access to different users of database. |
| **C405.3** | Understand various Normal forms to carry out schema refinement. |
| **C405.4** | Analyze various Concurrency control protocols. |
| **C405.5** | Examine working principles of Recovery algorithms. |

**B.TECH (CSE) II YEAR II SEMESTER: PROFESSIONAL COMMUNICATIONS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C406.1** | Acquire enhanced personality. |
| **C406.2** | Exhibit appropriate professional etiquette. |
| **C406.3** | Practice team building with strong communication skills. |
| **C406.4** | Develop problem solving skills and decision-making. |
| **C406.5** | Demonstrate effective presentation skills. |

**B.TECH (CSE) II YEAR II SEMESTER: JAVA PROGRAMMING LAB**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C407.1** | Apply basic Java constructs and OOP to solve mathematical problems. |
| **C407.2** | Apply Inheritance in Java programs and Analyze Exception Handling code. |
| **C407.3** | Implement File input/output and multithreading concepts in advanced Java programs. |

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| **C407.4** | Design different GUI applications using GUI layouts. |
| **C407.5** | Apply Applet development and Database connectivity to build GUI applications. |

**B.TECH (CSE) II YEAR II SEMESTER: DATABASE MANAGEMENT SYSTEMS LAB**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C408.1** | Use the SQL commands such as DDL, DML and DCL statements to perform different operations. |
| **C408.2** | Apply various Integrity constraints on the database tables. |
| **C408.3** | Apply Joins to retrieve the information from multiple tables. |
| **C408.4** | Design different Views of tables for different users. |
| **C408.5** | Design and implement a PL/SQL program which includes procedures, functions, cursors and triggers. |

**B.TECH (CSE) II YEAR II SEMESTER: ENVIRONMENTAL SCIENCE**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C409.1** | Define and explain the structure and functions of ecosystem, values of biodiversity, threats to biodiversity and conservation of biodiversity. |
| **C409.2** | Explain the limitations of the resources and impacts of over utilization of natural resources. |
| **C409.3** | Explain the sources and effects of environmental pollution and list and identify the available techniques to control the pollution. |
| **C409.4** | Explain the global environmental issues like climate change, ozone depletion and can explain the scope of EIA, Environmental Management Plan and environmental audit and list the EIA methods. |
| **C409.5** | Mention the salient features of environmental acts and rules and define the sustainable goals along with measures required for the sustainability. |

**B.TECH (CSE) III YEAR I SEMESTER: COMPUTER NETWORKS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C501.1** | Understand the overview of reference models. |
| **C501.2** | Classify and illustrate various sub protocols in multi access protocols. |
| **C501.3** | Understand various routing algorithms and their operations. |
| **C501.4** | Recommend transport protocol for the given scenarios. |
| **C501.5** | Identify the protocols and functionalities in application layer |

**B.TECH (CSE) III YEAR I SEMESTER: OPERATING SYSTEMS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C502.1** | Understand the basic functions of Operating systems and system calls. |

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| **C502.2** | Analyze process scheduling and synchronization. |
| **C502.3** | Understand the concepts of memory management. |
| **C502.4** | Examine the concepts of MASS storage structure. |
| **C502.5** | Compare different protection methods of OS and understand the deadlock concepts. |

**B.TECH (CSE) III YEAR I SEMESTER: WEB TECHNOLOGIES**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C503.1** | Develop static and dynamic web pages using HTML and java script. |
| **C503.2** | Understand the XML tags and to parse XML data with java. |
| **C503.3** | Develop web applications using server side programming with PHP. |
| **C503.4** | Implement web applications using JDBC and Servlets. |
| **C503.5** | Apply web applications with JSP. |

**B.TECH (CSE) III YEAR I SEMESTER: FORMAL LANGUAGES & AUTOMATA THEORY**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C504.1** | Appreciate the role and structure of Language theory. |
| **C504.2** | Design of regular expressions for language constructs and conversions of NFA and DFA. |
| **C504.3** | Demonstrate the derivations and properties of various CFG and Regular grammars. |
| **C504.4** | Design of PDA for the given CFG. |
| **C504.5** | Appreciate the role of the Turing machine as computational and universal machine. |

**B.TECH (CSE) III YEAR I SEMESTER: HUMAN COMPUTER INTERACTION**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C505.1** | Explain the capabilities of both humans and computers from the viewpoint of human information processing. |
| **C505.2** | Describe and use HCI design principles, standards and guidelines. |
| **C505.3** | Analyze and identify user models, user support, socio-organizational issues, and stakeholder requirements of HCI systems. |
| **C505.4** | Discuss about different mobile applications and related design issues. |
| **C505.5** | Analyze and discuss HCI issues in virtual reality, multimedia, and Word Wide Web-related environments. |

**B.TECH (CSE) III YEAR I SEMESTER: LINUX PROGRAMMING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C506.1** | Understand and make effective use of Linux file handling utilities. |
| **C506.2** | Solve problems using shell scripting language (bash). |

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| **C506.3** | Develop the skills necessary for systems programming. |
| **C506.4** | Examine various operations involved in process and signal management. |
| **C506.5** | Distinguish intra and inter process communication. |

**B.TECH (CSE) III YEAR I SEMESTER: SOFTWARE PROJECT MANAGEMENT**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C507.1** | Compare and contrast the various CSM models. |
| **C507.2** | Understand the principle of software engineering. |
| **C507.3** | Examine the lifecycle phases, artifacts of the process and model based software architectures. |
| **C507.4** | Compare various work flow process models. |
| **C507.5** | Evaluate different software product metrics. |

**B.TECH (CSE) III YEAR I SEMESTER: COMPUTER GRAPHICS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C508.1** | Outline the areas of Computer Graphics. |
| **C508.2** | Examine various 2D Geometrical transforms. |
| **C508.3** | Understand 3D Geometrical transforms. |
| **C508.4** | Apply different visible surface detection methods. |
| **C508.5** | Plan the sequence of an animation for a given scenario. |

**B.TECH (CSE) III YEAR I SEMESTER: INTRODUCTION TO MICROCONTROLLER & APPLICATIONS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C509.1** | Interpret the internal organization of 8051 with its unique features. |
| **C509.2** | Infer and give examples about the various addressing modes, instruction formats and instructions of 8051. |
| **C509.3** | Construct the hardware and software interaction with each other using programming. |
| **C509.4** | Summarize the features of the advanced architecture using ARM controller. |
| **C509.5** | Train their practical knowledge through laboratory experiments. |

**B.TECH (CSE) III YEAR I SEMESTER: BASIC ELECTRONICS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C510.1** | Understand and analyze the different types of diodes, operation and its characteristics Design and analyze the DC bias circuitry of BJT and FET Design. |
| **C510.2** | To analyze and design diode application circuits, amplifier circuits and oscillators employing BJT, FET devices. |
| **C510.3** | Understand the different applications based on operational amplifier. |

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|---|---|
| **C510.4** | Analyze different types of oscillators and multivibrators. |
| **C510.5** | Design and analyze any digital logic gate circuits. |

**B.TECH (CSE) III YEAR I SEMESTER: ELEMENTS OF CIVIL ENGINEERING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C511.1** | Understand Geological properties and Geotechnical aspect of civil engineering. |
| **C511.2** | Plan the concept of different building byelaws and planning principles. |
| **C511.3** | Analyze the concept of stress-strain and to identify the properties of the fluid changes treatment process. |
| **C511.4** | Apply modern tools of surveying and understand basic concepts of concrete. |
| **C511.5** | Apply modern tools of surveying and understand basic concepts of concrete. |

**B.TECH (CSE) III YEAR I SEMESTER: SMART CITY**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C512.1** | Understand the necessity of smart infrastructure and to promote cities that provide quality of life to citizens. |
| **C512.2** | Explain technology-based solution on smart mobility. |
| **C512.3** | Illustrate & introduce the smart and sustainable waste and water management for smart cities. |
| **C512.4** | Evaluate economical models for smart infrastructure solution. |
| **C512.5** | Create healthy and waste ridden environment. |

**B.TECH (CSE) III YEAR I SEMESTER: NON-CONVENTIONAL ENERGY SOURCES**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C513.1** | Understand various types of solar, wind renewable energy source. |
| **C513.2** | Apply principles of direct energy conversion for electrical power generation. |
| **C513.3** | Understand various types of bio-mass, geothermal, ocean, hybrid energy systems. |
| **C513.4** | Analyze the usage of Renewable energy sources. |

**B.TECH (CSE) III YEAR I SEMESTER: FUNDAMENTALS OF ELECTRICAL POWER GENERATION & PROTECTION**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C514.1** | Understand the operation of Thermal power station through its schematic diagram. |
| **C514.2** | Analyze the arrangement of Hydroelectric power station through its components. |
| **C514.3** | Sketching the various components of Nuclear power station. |
| **C514.4** | Correlating the operation of Gas and Diesel power station through its schematic Diagram. |
| **C514.5** | Understand various power system protection components. |

# VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

## *Department of Computer Science & Engineering*
## *R18 Course outcomes*

**B.TECH (CSE) III YEAR I SEMESTER: TOTAL QUALITY MANAGEMENT**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C515.1** | To explore the quality framework in production and operational aspects. |
| **C515.2** | To evaluate the role of quality in product design and analysis. |
| **C515.3** | To analyze quality in process improvement and modern production management tools. |
| **C515.4** | To understand the role of TQM tools and techniques in elimination of wastages and reduction of defects. |
| **C515.5** | To analyze the requirements of quality management system. |

**B.TECH (CSE) III YEAR I SEMESTER: ELEMENTS OF MECHANICAL ENGINEERING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C516.1** | Understand the basic concepts of mechanical engineering. |
| **C516.2** | Apply principles of engineering mechanics in mechanism and machines. |
| **C516.3** | Develop manufacturing methods to produce engineering components. |
| **C516.4** | Evaluate alternative designs for the engineering components. |
| **C516.5** | Compare various standards relevant to automobiles. |

**B.TECH (CSE) III YEAR I SEMESTER: PRODUCT ENGINEERING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C517.1** | Understand project management and collaborative working. |
| **C517.2** | Appreciate Product Lifecycle Management. |
| **C517.3** | Design products using engineering design concepts. |
| **C517.4** | Understand the benefits of design documentation and drawings in engineering. |
| **C517.5** | Appreciate the concepts of rapid prototyping. |

**B.TECH (CSE) III YEAR I SEMESTER: COMPUTER NETWORKS & OPERATING SYSTEMS LAB**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C518.1** | Implement various CPU scheduling algorithms. |
| **C518.2** | Apply the memory management techniques. |
| **C518.3** | Write Programs on File allocation strategies. |
| **C518.4** | Implement various algorithms for error detection and correction. |
| **C518.5** | Implement Algorithms on Shortest path routing. |

**B.TECH (CSE) III YEAR I SEMESTER: WEB TECHNOLOGIES LAB**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C519.1** | Design static web pages that perform client side authentication. |
| **C519.2** | Understand XML data representation. |
| **C519.3** | Create dynamic web application using PHP and access database. |
| **C519.4** | Implement sessions in web applications. |
| **C519.5** | Design dynamic web applications using MVC architecture. |

**B.TECH (CSE) III YEAR I SEMESTER: PERSONALITY DEVELOPMENT & BEHAVIOURAL SKILLS**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C520.1** | Practice optimistic attitude for an efficient, socially viable and multi-faceted personality. |
| **C520.2** | Demonstrate functions of non-verbal communication in formal context. |
| **C520.3** | Build effective individual & team dynamics for professional accomplishments. |
| **C520.4** | Analyze appropriate strategic Interpersonal Skills for productive workplace relationships. |
| **C520.5** | Correspond in multiple contexts, for varied audiences, across genres and modalities. |

**B.TECH (CSE) III YEAR II SEMESTER: MANAGERIAL ECONOMICS AND FINANCIAL ANALYSIS**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C601.1** | Understand the nature and scope of business economics. |
| **C601.2** | Differentiate the various forms of Business organizations. |
| **C601.3** | Identify the impact of economic variables on the Business firms |
| **C601.4** | Analyze the Demand, Supply, Production, Cost, Market Structure, Pricing aspects |
| **C601.5** | Analyze, compare and interpret the Financial Statements of a Company using ratios. |

**B.TECH (CSE) III YEAR II SEMESTER: COMPILER DESIGN**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C602.1** | Formulate tokens for various programming languages. |
| **C602.2** | Apply principles of parsing techniques to do syntax analysis. |
| **C602.3** | Formulate semantic rules to do semantic analysis. |
| **C602.4** | Apply optimization techniques on the intermediate code. |
| **C602.5** | Generate the target code. |

**B.TECH (CSE) III YEAR II SEMESTER: DATA WARE HOUSING & DATA MINING**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C603.1** | Understand the fundamentals of Data warehousing and OLAP technology. |
| **C603.2** | Outline the Data Mining and Data pre-processing techniques. |
| **C603.3** | Identify the frequent patterns using association algorithms. |
| **C603.4** | Distinguish how classification algorithms are used on data sets. |
| **C603.5** | Compare different clustering techniques on large data sets. |

**B.TECH (CSE) III YEAR II SEMESTER: ARTIFICIAL INTELLIGENCE**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C604.1** | Understanding the evolution and present status of AI. |
| **C604.2** | Understanding different algorithms of AI. |
| **C604.3** | Understanding different AI techniques like HMM and Reinforcement Learning. |
| **C604.4** | Able to apply the basic concepts of AI in real life. |

**B.TECH (CSE) III YEAR II SEMESTER: OBJECT ORIENTED ANALYSIS & DESIGN**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C605.1** | Understand Object Oriented Software Development Process. |
| **C605.2** | Construct class and object diagrams for the given scenario. |
| **C605.3** | Model interaction diagrams, use case diagrams and activity diagrams for a given project. |
| **C605.4** | Design State diagrams involving processes and threads. |
| **C605.5** | Apply the concept of architectural design for deploying the code for software. |

**B.TECH (CSE) III YEAR II SEMESTER: INFORMATION SECURITY**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C606.1** | Identify various Security Attacks. |
| **C606.2** | Understand various Encryption Principles and algorithms. |
| **C606.3** | Implement Cryptography algorithms. |
| **C606.4** | Understand various Security Associations and Key Management. |
| **C606.5** | Design a Firewall for Security. |

**B.TECH (CSE) III YEAR II SEMESTER: SOFTWARE TESTING METHODOLOGIES**

| After completing this course the student must demonstrate the knowledge and ability to |
|---|

| | |
|---|---|
| **C607.1** | Understand the purpose of Software testing. |
| **C607.2** | Discuss various testing techniques and able to prepare the test cases for specific requirements. |
| **C607.3** | Understand transaction and data flow testing. |
| **C607.4** | Construct the test plans and validate the test plan. |
| **C607.5** | Understand the testing policies and standards. |

**B.TECH (CSE) IIIYEAR II SEMESTER: PRINCIPLES OF PROGRAMMING LANGUAGES**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C608.1** | Understand the importance of programming paradigms. |
| **C608.2** | Illustrate the syntax and semantics in formal notation. |
| **C608.3** | Make use of expressions and statements for subprograms and blocks. |
| **C608.4** | Select different object oriented concepts for solving a given problem. |
| **C608.5** | Compare the features of different programming languages. |

**B.TECH (CSE) I11 YEARI I SEMESTER: BASIC ELECTRONIC INSTRUMENTATION**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C609.1** | Comprehend the basics of instrumentation system and its static and dynamic characteristics. |
| **C609.2** | Classify and describe resistive, inductive, capacitive and other transducers which are used for measuring various parameters. |
| **C609.3** | Understand the working principles of oscilloscopes, signal generators and analysers. |
| **C609.4** | Explain about different types of signal analyzers. |
| **C609.5** | Apply the complete knowledge of various electronics instruments/transducers to measure the physical quantities in the field of science, engineering and Technology. |

**B.TECH (CSE) III YEAR II SEMESTER: CONSUMER ELECTRONICS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C610.1** | Understand electronics engineering concepts used in consumer electronics systems. |
| **C610.2** | Identify the need of preventive maintenance in various electronic appliances. |
| **C610.3** | Evaluate and analyze different electronic products and systems based on specifications. |
| **C610.4** | Use different product safety, compliance standards and techniques associated with electronic products. |
| **C610.5** | Identify the need of preventive maintenance in various electronic appliances. |

**B.TECH (CSE) III YEAR II SEMESTER: GREEN BUILDING TECHNOLOGIES**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C611.1** | Understand the Green building concept and focus on approaches that make building sustainable. |
| **C611.2** | Illustrate Green building assessment and accreditation system. |
| **C611.3** | Apply low energy building strategies. |
| **C611.4** | Designing green building and improve sustainability of infrastructure. |
| **C611.5** | Classify the economic benefits of green buildings. |

**B.TECH (CSE) III YEAR II SEMESTER: ENVIRONMENT POLLUTION & CONTROL METHODS**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C612.1** | Understanding about the various air pollutants and effect on environment. |
| **C612.2** | Analyze quality of air in the form of air quality index and dispersion modeling. |
| **C612.3** | Determine sampling and measurements of air Pollutants. |
| **C612.4** | Analysis and measurement of soil contamination. |
| **C612.5** | Predict types of noise and problems arise due to noise pollution. |

**B.TECH (CSE) III YEAR II SEMESTER: ENERGY AUDITING & CONSERVATION**

| After completing this course the student must demonstrate the knowledge and ability | |
|---|---|
| **C613.1** | Understand energy audit of industries. |
| **C613.2** | Predict management of energy systems. |
| **C613.3** | Sequence the methods of improving efficiency of electric motor. |
| **C613.4** | Analyze the power factor and to design a good illumination system. |
| **C613.5** | Determine pay back periods for energy saving equipment. |

**B.TECH (CSE) III YEAR II SEMESTER: PRINCIPLES OF ELECTRIC POWER UTILIZATION**

| After completing this course the student must demonstrate the knowledge and ability | |
|---|---|
| **C614.1** | Understand basic principles of illumination, electric heating and welding, Electric drives and Traction. |
| **C614.2** | Determine the lighting requirements for flood lighting, household and industrial needs. |
| **C614.3** | Calculate heat developed in induction furnace. |
| **C614.4** | Evaluate speed time curves for traction. |
| **C614.5** | Analyze specific energy consumption of traction systems. |

# VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

## *Department of Computer Science & Engineering*
## *R18 Course outcomes*

**B.TECH (CSE) III YEAR II SEMESTER: FINANCIAL INSTITUTIONS AND MARKETS**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C615.1** | To explore Indian investment environment. |
| **C615.2** | To evaluate available investment avenues. |
| **C615.3** | To study the operational framework of financial markets. |
| **C615.4** | To analyze the role of regulatory bodies in Indian Financial system. |
| **C615.5** | To identify recent trends and challenges in Indian banking sector. |

**B.TECH (CSE) III YEAR II SEMESTER: DIGITAL MARKETING**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C616.1** | To understand Digital business and digital marketing in the globalized market. |
| **C616.2** | Design a User interface for a mobile application using J2ME. |
| **C616.3** | Create a mobile application for small computing devices. |
| **C616.4** | Apply the concepts of JDBC & Embedded SQL for Database Connection. |
| **C616.5** | Understand the generic connection framework. |

**B.TECH (CSE) IV YEAR I SEMESTER: FUNDAMENTAL CONCEPTS OF NANOSCIENCE & NANOTECHNOLOGY**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C617.1** | Understand the fundamental concepts of Nano science and Nanotechnology. |
| **C617.2** | Prepare nanomaterials by using various synthesis techniques. |
| **C617.3** | Understand the different characterization techniques of the nanomaterials. |
| **C617.4** | Analyze the properties of the nanomaterials. |
| **C617.5** | Undertake the mini projects on variety of Nanomaterials and Nano fluids based on various engineering applications. |

**B.TECH (CSE) III YEAR II SEMESTER: NUTRITIONAL & BIOLOGICAL CHEMISTRY**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C618.1** | Understand the importance of nutrients and their effects of deficiency in the diet. |
| **C618.2** | Classify the carbohydrates in to mono, di and polysaccharides. |
| **C618.3** | Describe the structure and function of proteins, vitamins and nucleic acids. |
| **C618.4** | Interpret the uses and effects of antibiotics and Anti tubercular drugs. |
| **C618.5** | Analyze the importance and the negative impacts of using pesticides. |

# VIDYA JYOTHI INSTITUTE OF TECHNOLOGY

## *Department of Computer Science & Engineering*
## *R18 Course outcomes*

**B.TECH (CSE) IV YEAR I SEMESTER: OPTIMIZATION TECHNIQUES**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C619.1** | Model the real life situations with mathematical models. Understand the concept of linear programming. |
| **C619.2** | Solve transportation and assignment problems. |
| **C619.3** | Apply theory of games and queuing concepts for optimization. |
| **C619.4** | Formulate the sequencing of jobs on machines. Understand the various replacement concepts. Identify and apply various inventory models. |
| **C619.5** | Appraise dynamic programming models and simulation principles. |

**B.TECH (CSE) III YEAR II SEMESTER: MAINTAINANCE & SAFETY ENGINEERING**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C620.1** | Understand the need for maintenance in an industry and know about Maintenance Management and Control. |
| **C620.2** | Appreciate and implement various types of maintenance. |
| **C620.3** | Know the concept of inventory control in maintenance. |
| **C620.4** | Evaluate the quality and cost of safety and maintenance. |
| **C620.5** | Appraise the concepts of reliability and maintainability with reference to the maintenance of equipment. |

**B.TECH (CSE) III YEAR II SEMESTER: DATA MINING & CASE TOOLS LAB**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C621.1** | Demonstrate frequent pattern algorithms. |
| **C621.2** | Explore Weka environment. |
| **C621.3** | Apply data mining techniques for realistic data. |
| **C621.4** | Design various UML diagrams for ATM application. |
| **C621.5** | Design Unified Library application. |
| **C621.6** | Explore real time applications. |

**B.TECH (CSE) III YEAR II SEMESTER: ADVANCED COMMUNICATION SKILLS LAB**

| After completing this course the student must demonstrate the knowledge and ability to | |
|---|---|
| **C622.1** | Develop sound communication skills in various situations with the help of enriched vocabulary. |
| **C622.2** | Practice reading techniques for a faster and better comprehension. |
| **C622.3** | Exhibit strong writing skills to express ideas effectively. |

| | |
|---|---|
| **C622.4** | Demonstrate effective presentation skills. |
| **C622.5** | Use appropriate verbal and non-verbal skills for a successful career. |

**B.TECH (CSE) III YEAR II SEMESTER: PERSONALITY DEVELOPMENT & BEHAVIOURAL SKILLS**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C623.1** | Practice optimistic attitude for an efficient, socially viable and multi-faceted personality. |
| **C623.2** | Demonstrate functions of non-verbal communication in formal context. |
| **C623.3** | Build effective individual & team dynamics for professional accomplishments. |
| **C623.4** | Analyze appropriate strategic Interpersonal Skills for productive workplace relationships. |
| **C623.5** | Correspond in multiple contexts, for varied audiences, across genres and modalities. |

**B.TECH (CSE) III YEAR II SEMESTER: QUANTITATIVE METHODS & LOGICAL REASONING**

| **After completing this course the student must demonstrate the knowledge and ability to** | |
|---|---|
| **C624.1** | To perform well in various competitive exams and placement drives. |
| **C624.2** | To solve basic and complex mathematical problems in short time. |
| **C624.3** | To become strong in Quantitative Aptitude and Reasoning which can be applied for GRE, GATE, GMAT or CAT exam also. |
| **C624.4** | To develop problem solving skills and analytical abilities, which play a great role in corporate and industry, set up. |
| **C624.5** | To perform well in various competitive exams and placement drives. |