



DR. V.R.K WOMEN'S COLLEGE OF ENGINEERING AND TECHNOLOGY

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Approved by AICTE & Permitted by Government of Telangana State
Affiliated to Jawaharlal Nehru Technological University Hyderabad
Aziznagar (V), Moinsabad (M), R.R. Dist. 500 075 - T.S.
Contact No. 7893044962 / 08413235962
Website : www.drvrkwomenscollege.com

DEPARTMENT : SCIENCE AND HUMANITIES(R22)

Course Outcomes(COs) :B.Tech I YEAR – I and II Semesters

Artificial Intelligence and Data Sciences

Academic Year : 2022 -2023

I Year – I Semester

Subject Code	Course Name	COs	Outcomes
MA101BS	Matrices And Calculus	CO1	Students are able to do the matrix representation of a set of linear equations and analyse the solution of the system of equations.
		CO2	Students are able to find the Eigenvalues and Eigen vectors and reduce the quadratic form to canonical form using orthogonal transformations.
		CO3	Students are able to do the applications on the mean value theorems and evaluate the improper integrals using Beta and Gamma functions.
		CO4	Students are trained to find the extreme values of functions of two variables with/ without constraints.
		CO5	Students are able to evaluate the multiple integrals and apply the concept to find areas, volumes.



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AZIZNAGAR, MOINSABAD, R.R. DIST.
HUMANITIES AND SCIENCE
HEAD OF THE DEPARTMENT



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Subject Code	Course Name	COs	Outcomes
CS103ES	Programming for Problem Solving	CO1	Students are trained to write algorithms and to draw flowcharts for solving problems.
		CO2	Students are able to use arrays, pointers, strings and structures to write C programs
		CO3	Students learned the syntax and semantics of the C programming language
		CO4	Students are able to decompose a problem into functions and to develop modular reusable code.
		CO5	Students are trained to search and sort problems.

Subject Code	Course Name	COs	Outcomes
PH202BS	Applied Physics	CO1	Students are able to understand the basic principles of quantum physics and band theory of solids.
		CO2	Students are able to understand the underlying mechanism involved in construction and working principles of various semiconductor devices.
		CO3	Students are able to explore the fundamental properties of dielectric, magnetic materials and energy for their applications
		CO4	Students are able to identify the importance of nanoscale, quantum confinement and various fabrications techniques.
		CO5	Students are able to understand various aspects of Lasers and Optical fiber and their applications in diverse fields.



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Subject Code	Course Name	COs	Outcomes
EN204HS	English for Skill Enhancement	CO1	Students are trained to develop study skills and communication skills in various professional situations.
		CO2	Students are able to understand the importance of vocabulary and sentence structures and choose appropriate vocabulary and sentence structures for their oral and written communication.
		CO3	Students are able to demonstrate their understanding of the rules of functional grammar.
		CO4	Students are trained to develop comprehension skills from the known and unknown passages and take an active part in drafting paragraphs, letters, essays, abstracts, précis and reports in various contexts.
		CO5	Students are able to acquire basic proficiency in reading and writing modules of English.

Subject Code	Course Name	COs	Outcomes
CS106ES	Elements of Computer Science & Engineering	CO1	Students learned the working principles of functional units of a basic computer.
		CO2	Students are able to understand program development, the use of data structures and algorithms in problem Solving.
		CO3	Students learned about need and types of operating system, database systems.
		CO4	Students are enabled to understand the significance of networks, internet, WWW and cyber security.
		CO5	Students are able to understand Autonomous systems, the application of artificial intelligence.



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Subject Code	Course Name	COs	Outcomes
CS108ES	Programming for Problem Solving Laboratory	CO1	Students are able to formulate the algorithms for simple problems and translate given algorithms to a working and correct program.
		CO2	Students are able to correct syntax errors as reported by the compilers and identify and correct logical errors encountered during execution.
		CO3	Students are able to represent and manipulate data with arrays, strings and structures.
		CO4	Students are able to use pointers of different types.
		CO5	Students are able to create, read and write to and from simple text and binary files and modularize the code with functions so that they can be reused.

Subject Code	Course Name	COs	Outcomes
PH207BS	Applied Physics Laboratory	CO1	Students gain the knowledge on the determination of the Planck's constant using Photo electric effect and identify the material whether it is n-type or p-type by Hall experiment.
		CO2	Students are able to appreciate quantum physics in semiconductor devices and optoelectronics.
		CO3	Students gain the knowledge of applications of dielectric constant.
		CO4	Students are able to understand the variation of magnetic field and behavior of hysteresis curve.
		CO5	Students are able to carry out data analysis.



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Subject Code	Course Name	COs	Outcomes
EN208HS	English Language and Communication Skills Laboratory	CO1	Students are enabled to develop their listening skills so that they may appreciate the role in the LSRW skills approach to language and improve their pronunciation.
		CO2	Students are able to understand the nuances of English language through audio- visual experience and group Activities.
		CO3	Students are able to neutralise their accent for intelligibility.
		CO4	Students are trained to use language appropriately for public speaking, group discussions and interviews□.
		CO5	Students are able to speak with clarity and confidence which in turn enhances their employability skills.

Subject Code	Course Name	COs	Outcomes
*MC210	Environmental Science	CO1	Students are able to understand the importance of ecological balance for sustainable development.
		CO2	Students are able to understand the impacts of developmental activities and mitigation measures.
		CO3	Students are able to understand the environmental policies and regulations
		CO4	Students will be evaluate technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development
		CO5	Students will be develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development



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Subject Code	Course Name	COs	Outcomes
ME203ES	Engineering Workshop	CO1	Students are provided with hands on experience about use of different engineering materials, tools, equipments and processes those are common in the engineering field.
		CO2	Students are enabled to study and practice on machine tools and their operations.
		CO3	Made students to practice on manufacturing components using workshop trades including carpentry and fitting.
		CO4	Students are able to apply basic electrical engineering knowledge for house wiring.
		CO5	Students are able to produce welding and joining processes.



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I Year – II Semester

Subject Code	Course Name	COs	Outcomes
MA201BS	Ordinary Differential Equations and Vector Calculus	CO1	Students learned to identify whether the given differential equation of first order is exact or not□.
		CO2	Students are able to solve higher differential equation and apply the concept of differential equation to real world problems.
		CO3	Students are enabled to solve ordinary differential equations using Laplace transforms techniques.
		CO4	Students are able to understand the physical quantities involved in engineering field related to vector valued functions.
		CO5	Students learned the basic properties of vector valued functions and their applications to line, surface and volume integrals

Subject Code	Course Name	COs	Outcomes
CH102BS	Engineering Chemistry	CO1	Students are able to understand the basic properties of water and its usage in domestic and industrial purposes.
		CO2	Students acquired the basic knowledge of electrochemical procedures related to corrosion and its control.
		CO3	Students learned the fundamentals and general properties of polymers and other engineering materials.
		CO4	Students imbibe the basic concepts of petroleum and its products and predict potential applications of chemistry and practical utility in order to become good engineers and entrepreneurs.
		CO5	Students are able to acquire required knowledge about engineering materials like cement, smart materials and Lubricants.



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Subject Code	Course Name	COs	Outcomes
EE104ES	Basic Electrical Engineering	CO1	Students are able to understand and analyze basic Electrical circuits.
		CO2	Students are able to understand Single & Three phase AC circuits.
		CO3	Students studied the construction and working principle of Transformers.
		CO4	Students studied the construction and working principle of different type of DC Machines and AC Machines.
		CO5	Students gained the knowledge of various electrical installations and the concept of power, power factor and its improvement.

Subject Code	Course Name	COs	Outcomes
ME105ES	Computer Aided Engineering Graphics	CO1	Students are able to apply computer aided drafting tools to create 2D and 3D objects.
		CO2	Students are able to sketch conics and different types of solids.
		CO3	Students are able to appreciate the need of Sectional views of solids and Development of surfaces of solids.
		CO4	Students are able to read and interpret engineering drawings□.
		CO5	Students are enabled to do the Conversion of orthographic projection into isometric view and vice versa manually and by using computer aided drafting.



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Subject Code	Course Name	COs	Outcomes
EC205ES	Electronic Devices and Circuits	CO1	Students are able to understand the characteristics of Diodes
		CO2	Students acquired the knowledge on applications of Diodes.
		CO3	Students learned the principle of operations and different types of configuration of Bipolar Junction Transistors(BJT)
		CO4	Students learned the principle of operations and different types of configuration of JFET.
		CO5	Students acquired the knowledge about the role of special purpose devices and their applications.

Subject Code	Course Name	COs	Outcomes
CH107BS	Engineering Chemistry Laboratory	CO1	Students are able to estimate the hardness of water to check its suitability for drinking purpose.
		CO2	Students are able to perform estimations of acids and bases using conductometry, potentiometry and pH metry methods.
		CO3	Students will learn to prepare polymers such as Bakelite and nylon-6 in the laboratory.
		CO4	Students are able to determine the parameters of rate of corrosion of mild steel in various conditions.
		CO5	Students will learn skills related to the lubricant properties such as saponification value, surface tension and viscosity of oils.



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Subject Code	Course Name	COs	Outcomes
EE109ES	Basic Electrical Engineering Laboratory	CO1	To measure the electrical parameters for different types of DC and AC circuits using conventional and theorems approach.
		CO2	Students are able to understand the response of different types of Electrical circuits for different excitations.
		CO3	Students are able to determine the performance of DC Shunt Machine.
		CO4	Students are able to determine the performance of Three phase induction motors.
		CO5	Students are able to understand basic characteristics of Transformers and its calculations.

Subject Code	Course Name	COs	Outcomes
CS206ES	Python Programming Laboratory	CO1	Students are able to install and run the Python interpreter and learn control structures.
		CO2	Students are able to develop the application specific codes using python.
		CO3	Students are able to understand Strings, Lists, Tuples and Dictionaries in Python
		CO4	Students are able to verify programs using modular approach, file I/O, Python standard library.
		CO5	Students are able to implement Digital Systems using Python.



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Subject Code	Course Name	COs	Outcomes
CS209ES	IT Workshop	CO1	Students learn to perform Hardware troubleshooting.
		CO2	Students are able to understand Hardware components and inter dependencies.
		CO3	Students learn to safeguard computer systems from viruses/worms□.
		CO4	Students are able to do Document/ Presentation preparation.
		CO5	Students are able to perform calculations using spreadsheets.



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**DEPARTMENT : ARTIFICIAL INTELLIGENCE AND DATA
SCIENCES(CSE)(R22)**

Course Outcomes(COs) :B.Tech II YEAR – I Semester

Academic Year : 2022 -2023

Subject Code	Course Name	COs	Outcomes
AD301PC	Mathematical and Statistical Foundations	CO1	Students are able to understand the Number Theory basic concepts useful for cryptography etc
		CO2	Students are able to apply the number theory concepts to cryptography domain
		CO3	Students are able to apply the concepts of probability and distributions to some case studies
		CO4	Students learn to correlate the material of one unit to the material in other units
		CO5	Students are able to resolve the potential misconceptions and hazards in each topic of study

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Subject Code	Course Name	COs	Outcomes
AD302PC	Digital Electronics	CO1	Students learn the fundamental concepts of digital system design and common forms of number representations and their conversions
		CO2	Students are enabled to implement and design logical operations using combinational logic circuits and sequential logic circuits.
		CO3	Students are able to understand the working of logic families and logic gates
		CO4	Students learn to design and implement Combinational and Sequential logic circuits
		CO5	Students are able to implement the given logical problems using programmable logic devices.

Subject Code	Course Name	COs	Outcomes
AD303PC	Data Structures	CO1	Students are able to select the data structures that efficiently model the information in a problem.
		CO2	Students are able to assess efficiency trade-offs among different data structure implementations or combinations.
		CO3	Students are enabled to implement and know the application of algorithms for sorting and pattern matching.
		CO4	Students are able to design programs using a variety of data structures, including hash tables, binary and general tree structures, search trees, trie, heap, graph and AVL trees
		CO5	Students are able to understand Autonomous systems, the application of artificial intelligence.



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Subject Code	Course Name	COs	Outcomes
AD304PC	Object Oriented Programming Through JAVA	CO1	Students are able to demonstrate the behavior of programs involving the basic programming constructs like control structures, constructors, string handling and garbage collection.
		CO2	Students are able to demonstrate the implementation of inheritance (multilevel, hierarchical and multiple) by using extend and implement keywords
		CO3	Students are able to use multithreading concepts to develop inter process communication.
		CO4	Students are able to understand the process of graphical user interface design and implementation using AWT or swings
		CO5	Students are enabled to develop applets that interact abundantly with the client environment and deploy on the server

Subject Code	Course Name	COs	Outcomes
AD305PC	Computer Organization and Architecture	CO1	Students are able to understand the basics of instruction sets and their impact on processor design.
		CO2	Students learn to demonstrate an understanding of the design of the functional units of a digital computer system.
		CO3	Students are able to evaluate cost performance and design trade-offs in designing and constructing a computer processor including memory.
		CO4	Students are enabled to design a pipeline for consistent execution of instructions with minimum hazards.
		CO5	Students are able to recognize and manipulate representations of numbers stored in digital computers.



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Subject Code	Course Name	COs	Outcomes
AD306PC	Digital Electronics Laboratory	CO1	Students learn the basic techniques for the design of digital circuits and number conversion systems.
		CO2	Students learn to implement simple logical operations using combinational logic circuits.
		CO3	Students are able to understand the working of logic families and logic gates.
		CO4	Students learn to design and implement Combinational and Sequential logic circuits.
		CO5	Students are able to analyze different types of semiconductor memories.

Subject Code	Course Name	COs	Outcomes
AD307PC	Introduction to Data Structures Lab	CO1	Students are able to develop C programs for computing and real-life applications using basic elements like control statements, arrays, functions, pointers and strings, and data structures like stacks, queues and linked lists.
		CO2	Students are able to Implement searching and sorting algorithms
		CO3	Students learn the various concepts of C programming language
		CO4	Students are able to understand searching and sorting algorithms.
		CO5	Students are able to understand the data structures such as stacks and queues.



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Subject Code	Course Name	COs	Outcomes
AD308PC	Java Programming Lab	CO1	Students are able to understand Java collection framework.
		CO2	Students are able to write the programs for solving real world problems using Java OOP principles.
		CO3	Students are enabled to write programs using Exceptional Handling approach.
		CO4	Students are able to write multithreaded applications
		CO5	Students are able to write GUI programs using swing controls in Java.

Subject Code	Course Name	COs	Outcomes
AD309PC	Data visualization- R Programming/ Power BI	CO1	Understand How to import data into Tableau
		CO2	Understand Tableau concepts of Dimensions and Measures.
		CO3	Develop Programs and understand how to map Visual Layouts and Graphical Properties
		CO4	Create a Dashboard that links multiple visualizations
		CO5	Use graphical user interfaces to create Frames for providing solutions to real world problems.



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Subject Code	Course Name	COs	Outcomes
*MC310	Constitution of India	CO1	Students will be able to understand the premises informing the twin themes of liberty and freedom from a civil rights perspective.
		CO2	Students will be able to discuss the growth of the demand for civil rights in India for the bulk of Indians before the arrival of Gandhi in Indian politics.
		CO3	Students are able to discuss the intellectual origins of the framework of argument that informed the conceptualization of social reforms leading to revolution in India.
		CO4	Students will be able to discuss the circumstances surrounding the foundation of the Congress Socialist Party [CSP] under the leadership of Jawaharlal Nehru and the eventual failure of the proposal of direct elections through adult suffrage in the Indian Constitution
		CO5	Students will be able to address the growth of Indian opinion regarding modern Indian intellectuals' constitutional role and entitlement to civil and economic rights as well as the emergence of nationhood in the early years of Indian nationalism



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II YEAR – II SEMESTER

Subject Code	Course Name	COs	Outcomes
AD401PC	Discrete Mathematics	CO1	Students are able to understand and construct precise mathematical proofs
		CO2	Students are able to apply logic and set theory to formulate precise statements
		CO3	Students are able to analyze and solve counting problems on finite and discrete structures
		CO4	Students are able to describe and manipulate sequences
		CO5	Students learn to apply graph theory in solving computing problems

Subject Code	Course Name	COs	Outcomes
AD402PC	Introduction to Artificial Intelligence	CO1	Students are able to apply AI techniques to solve problems of game playing, theorem proving, and machine learning.
		CO2	Students are able to learn different knowledge representation techniques
		CO3	Students are able to understand the concepts of state space representation, exhaustive search, heuristic search together with the time and space complexities.
		CO4	Students are able to comprehend the applications of Probabilistic Reasoning and Bayesian Networks
		CO5	Students are enabled to analyze Supervised Learning Vs. Learning Decision Trees.



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Subject Code	Course Name	COs	Outcomes
AD403PC	Database Management Systems	CO1	Students are able to gain knowledge of fundamentals of DBMS, database design and normal form
		CO2	Students are able to understand the basics of relational model, relational algebra and calculus
		CO3	Students are able to master the basics of SQL for retrieval and management of data
		CO4	Students are able to understand basics of transaction processing and concurrency control.
		CO5	Students learn to learn familiarity with database storage structures and access techniques

Subject Code	Course Name	COs	Outcomes
AD404PC	Operating systems	CO1	Students are able to control access to a computer and the files that may be shared
		CO2	Students are able to demonstrate the knowledge of the components of computers and their respective roles in computing
		CO3	Students are able to recognize and resolve user problems with standard operating environments
		CO4	Students are able to gain practical knowledge of how programming languages, operating systems, and architectures interact and how to use each effectively.
		CO5	Students learn to understand various file system interface and operations



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Subject Code	Course Name	COs	Outcomes
AD405PC	Software Engineering	CO1	Students are able to translate end-user requirements into system and software requirements, using e.g. UML
		CO2	Students are able to structure the requirements in a Software Requirements Document (SRD)
		CO3	Students are able to identify and apply appropriate software architectures and patterns to carry out high level design of a system
		CO4	Students are able to critically compare alternative choices
		CO5	Students will have experience and/or awareness of testing problems and will be able to develop a simple testing report

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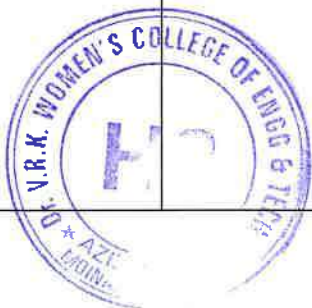


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Subject Code	Course Name	COs	Outcomes
AD406PC	Operating Systems Lab	CO1	Students are able to simulate a program for various cpu scheduling algorithm
		CO2	Students are able to simulate bankers algorithm for dead lock avoidance and prevention
		CO3	Students are able to implement various system call functions and inter process communication mechanisms
		CO4	Students are able to simulate memory management techniques
		CO5	Students are able to simulate page replacement policies

Subject Code	Course Name	COs	Outcomes
AD407PC	Database Management Systems Lab	CO1	Students are able to implement the concept design with ER and relational model
		CO2	Students are able to design database schema for a given application and apply normalization
		CO3	Students are able to acquire skills in using SQL commands
		CO4	Students are able to develop solutions for database applications using procedures, cursors and triggers
		CO5	Students learn to design a data base for a given real time problem.



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Subject Code	Course Name	COs	Outcomes
AD409PC	NODE JS/ REACT JS/ DJANGO	CO1	Students are able to build a custom website with HTML, CSS, and Bootstrap and little Java Script
		CO2	Students are able to demonstrate advanced features of JavaScript and learn about JDBC
		CO3	Students are able to develop Server – side implementation using Java technologies like
		CO4	Students are able to develop the server – side implementation using Node JS.
		CO5	Students are able to design a Single Page Application using React.

Subject Code	Course Name	COs	Outcomes
*MC410	Gender sensitization lab	CO1	Students are able to develop students' sensibility with regard to issues of gender in contemporary India.
		CO2	Students are able to provide a critical perspective on the socialization of men and women
		CO3	Students are able to introduce students to information about some key biological aspects of genders.
		CO4	Students are able to expose the students to debates on the politics and economics of work.
		CO5	Students learn to help students reflect critically on gender violence and to expose students to more egalitarian interactions between men and women



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**DEPARTMENT: COMPUTER SCIENCE AND ENGINEERING
COURSE OUTCOME'S (CO's): M.Tech I YEAR I AND II SEMESTERS**

ACADEMIC YEAR: 2022-2023

I YEAR: I SEMESTER

Subject Code	Course Name	CO's	Outcomes
	Mathematical Foundations of Computer Science	CO1	Ability to understand and construct precise mathematical proofs.
		CO2	Ability to use logic and set theory to formulate precise statements.
		CO3	Ability to analyze and solve counting problems on finite and discrete structures.
		CO4	Ability to describe and manipulate sequences.
		CO5	Ability to apply graph theory in solving computing problems.

Subject Code	Course Name	CO's	Outcomes
	Advanced Data Structures	CO1	Understand Heap Structures, hashing and collisions
		CO2	Understand search structures like OBST, AVL Trees, Red-Black Trees and Splay Trees.
		CO3	Ability to select the data structures that efficiently model the information in a problem
		CO4	Ability to understand how the choice of data structures impact the performance of programs
		CO5	Design programs using a variety of data structures, including hash tables, search structures and digital search structures

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DEPARTMENT: ARTIFICIAL INTELLIGENCE AND DATA SCIENCES

COURSE OUTCOME'S (CO's): B.Tech I YEAR I AND II SEMESTERS

ACADEMIC YEAR: 2018 – 2019/2019 – 2020/2020 – 2021/2021 – 2022

I YEAR: I SEMESTER

Subject Code	Course Name	CO's	Outcomes
MA101BS	Mathematics - I	CO1	Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations
		CO2	Find the Eigen values and Eigen vectors
		CO3	Reduce the quadratic form to canonical form using orthogonal transformations.
		CO4	Analyse the nature of sequence and series. Solve the applications on the mean value theorems.
		CO5	Evaluate the improper integrals using Beta and Gamma functions. Find the extreme values of functions of two variables with/ without constraints.

Subject Code	Course Name	CO's	Outcomes
CH102BS	Chemistry	CO1	The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
		CO2	The required principles and concepts of electrochemistry, corrosion and in understanding the problem of water and its treatments.
		CO3	The required skills to get clear concepts on basic spectroscopy and application to medical and other fields.
		CO4	The knowledge of configurational and conformational analysis of molecules and reaction mechanisms.
		CO5	The knowledge of Spectroscopic techniques and applications

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Subject Code	Course Name	CO's	Outcomes
EE103ES	Basic Electrical Engineering	CO1	To analyze and solve electrical circuits using network laws and theorems.
		CO2	To understand and analyze basic Electric and Magnetic circuits
		CO3	To study the working principles of Electrical Machines
		CO4	To introduce components of Low Voltage Electrical Installations
		CO5	To understand the types of Batteries and Important Characteristics for Batteries.

Subject Code	Course Name	CO's	Outcomes
ME105ES	Engineering Workshop	CO1	Study and practice on machine tools and their operations.
		CO2	Practice on manufacturing of components using workshop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
		CO3	Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
		CO4	Explains the construction, function, use and application of different working tools, equipment and machines.
		CO5	Apply basic electrical engineering knowledge for house wiring practice.



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Subject Code	Course Name	CO's	Outcomes
EN105HS	English	CO1	Use English Language effectively in spoken and written forms.
		CO2	Comprehend the given texts and respond appropriately.
		CO3	Communicate confidently in various contexts and different cultures.
		CO4	Acquire basic proficiency in English including reading and listening comprehension,
		CO5	Acquire basic proficiency in English for writing and speaking skills.

Subject Code	Course Name	CO's	Outcomes
CH106BS	Engineering Chemistry Lab	CO1	Determination of parameters like hardness and chloride content in water.
		CO2	Estimation of rate constant of a reaction from concentration – time relationships.
		CO3	Determination of physical properties like adsorption and viscosity.
		CO4	Calculation of R _f values of some organic molecules by TLC technique.
		CO5	Understand the Spectroscopic techniques and applications for important organic compounds.



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Subject Code	Course Name	CO's	Outcomes
EN107HS	English Language and Communication Skills Lab	CO1	Better understanding of nuances of English language through audio- visual experience and group activities
		CO2	Neutralization of accent for intelligibility
		CO3	Speaking skills with clarity and confidence which in turn enhances their employability skills
		CO4	Able to spoken English and neutralize their mother tongue influence
		CO5	able to use language appropriately for public speaking and interviews

Subject Code	Course Name	CO's	Outcomes
EE108ES	Basic Electrical Engineering Lab	CO1	Get an exposure to basic electrical laws.
		CO2	Understand the response of different types of electrical circuits to different excitations.
		CO3	Understand the measurement, calculation and relation between the basic electrical parameters.
		CO4	Understand the basic characteristics of transformers and electrical machines.
		CO5	Understand No-Load Characteristics of a Three-phase Alternator



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I YEAR: II SEMESTER

Subject Code	Course Name	CO's	Outcomes
MA201BS	Mathematics - II	CO1	Identify whether the given differential equation of first order is exact or not
		CO2	Solve higher differential equation and apply the concept of differential equation to real world Problems.
		CO3	Evaluate the multiple integrals and apply the concept to find areas, volumes, centre of mass and Gravity for cubes, sphere and rectangular parallelopiped.
		CO4	Evaluate the line, surface and volume integrals and converting them from one to another.
		CO5	Knowledge in Vector Integration

Subject Code	Course Name	CO's	Outcomes
AP202BS	Applied Physics	CO1	The student would be able to learn the fundamental concepts on Quantum behaviour of matter in its micro state.
		CO2	The knowledge of fundamentals of Semiconductor physics, Optoelectronics, Lasers and fibre Optics enable the students to apply to various systems like communications, solar cell, photo cells and so on.
		CO3	Knowledge in Optoelectronics ,
		CO4	Design, characterization and study of properties of material help the students to prepare new materials for various engineering applications.
		CO5	The course also helps the students to be exposed to the phenomena of electromagnetism and also to have exposure on magnetic materials and dielectric materials



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Subject Code	Course Name	CO's	Outcomes
CS203ES	Programming for Problem Solving	CO1	To write algorithms and to draw flowcharts for solving problems.
		CO2	To convert the algorithms/flowcharts to C programs.
		CO3	To code and test a given logic in C programming language.
		CO4	To decompose a problem into functions and to develop modular reusable code.
		CO5	To use arrays, pointers, strings and structures to write C programs. Searching and sorting problems.

Subject Code	Course Name	CO's	Outcomes
ME204ES	Engineering Graphics	CO1	Preparing working drawings to communicate the ideas and information.
		CO2	Read, understand and interpret engineering drawings
		CO3	Development of Surfaces of Right Regular Solids, Prism, Cylinder, Pyramid and Cone,
		CO4	Understand the Principles of Isometric Projection.
		CO5	Knowledge to CAD Software Package Commands

Subject Code	Course Name	CO's	Outcomes
AP205BS	Applied Physics Lab	CO1	Understand the V-I Characteristics of solar cell
		CO2	determine magnetic field along the axis of a current carrying coil.
		CO3	determine Hall co-efficient of a given semiconductor
		CO4	determine the bending losses of Optical fibres.□
		CO5	determine the Quality factor of LCR Circuit.



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Subject Code	Course Name	CO's	Outcomes
CS206ES	Programming for Problem Solving Lab	CO1	formulate the algorithms for simple problems
		CO2	translate given algorithms to a working and correct program.
		CO3	correct syntax errors as reported by the compilers. Identify and correct logical errors encountered during execution.
		CO4	represent and manipulate data with arrays, strings and structures and use pointers of different types
		CO5	□create, read and write to and from simple text and binary files and modularize the code with functions so that they can be reused

Subject Code	Course Name	CO's	Outcomes
MC209ES	Environmental Science	CO1	understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development
		CO2	Classify Living and Non-Living resources
		CO3	Define Biodiversity and Biotic Resources
		CO4	Understand the Environmental Pollution and Control Technologies
		CO5	Understand Environmental Policy, Legislation & EIA



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DEPARTMENT: ARTIFICIAL INTELLIGENCE AND DATA SCIENCE

COURSE OUTCOME'S (CO's): B.Tech.

ACADEMIC YEAR: 2018-2019/2019-2020/2020-2021/2021-2022

II YEAR: I SEMESTER

Subject Code	Course Name	CO's	Outcomes
CS310PC	Discrete Mathematics	CO1	Ability to understand and construct precise mathematical proofs
		CO2	Ability to use logic and set theory to formulate precise statements
		CO3	☑ Ability to analyze and solve counting problems on finite and discrete structures
		CO4	Ability to describe and manipulate sequences
		CO5	Ability to apply graph theory in solving computing problems

Subject Code	Course Name	CO's	Outcomes
CS302PC	Data Structures	CO1	Ability to select the data structures that efficiently model the information in a problem.
		CO2	Ability to assess efficiency trade-offs among different data structure implementations or combinations.
		CO3	Implement and know the application of algorithms for sorting and pattern matching.
		CO4	Design programs using a variety of data structures, including hash tables, binary and general tree structures, search trees, tries, heaps, graphs, and AVL-trees.
		CO5	Understand the Pattern matching algorithms.



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Subject Code	Course Name	CO's	Outcomes
CS304PC	Computer Organization and Architecture	CO1	Understand the basics of instructions sets and their impact on processor design.
		CO2	Demonstrate an understanding of the design of the functional units of a digital computer system.
		CO3	Evaluate cost performance and design trade-offs in designing and constructing a computer processor including memory.
		CO4	Design a pipeline for consistent execution of instructions with minimum hazards.
		CO5	Recognize and manipulate representations of numbers stored in digital computers

Subject Code	Course Name	CO's	Outcomes
CS313PC	Operating Systems	CO1	Will be able to control access to a computer and the files that may be shared.
		CO2	Demonstrate the knowledge of the components of computer and their respective roles in computing.
		CO3	Ability to recognize and resolve user problems with standard operating environments.
		CO4	Gain practical knowledge of how programming languages, operating systems, and architectures interact and how to use each effectively.
		CO5	Understand File System Interface and Operations



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Subject Code	Course Name	CO's	Outcomes
CS311PC	Python Programming	CO1	Examine Python syntax and semantics and be fluent in the use of Python flow control and functions.
		CO2	Demonstrate proficiency in handling Strings and File Systems.
		CO3	Create, run and manipulate Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions.
		CO4	Interpret the concepts of Object-Oriented Programming as used in Python.
		CO5	Implement exemplary applications related to Network Programming, Web Services and Databases in Python.

Subject Code	Course Name	CO's	Outcomes
SM306MS	Business Economics & Financial Analysis	CO1	understand the various Forms of Business and the impact of economic variables on the Business.
		CO2	The Demand, Supply, Production, Cost, Market Structure, Pricing aspects are learnt.
		CO3	The Students can study the firm's financial position by analysing the Financial Statements of a Company.
		CO4	Understand Production, Cost, Market Structures & Pricing
		CO5	Understand Financial Analysis through Ratios.

Subject Code	Course Name	CO's	Outcomes
CS307PC	Data Structures Lab	CO1	to develop C programs for computing and real-life applications using basic elements like control statements, arrays, functions, pointers, strings.
		CO2	create data structures using stacks, queues and linked lists.
		CO3	Able to implement the tree traversal methods.
		CO4	Ability to Implement searching and sorting algorithms
		CO5	Able to implement the graph traversal methods.



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Subject Code	Course Name	CO's	Outcomes
CS314PC	Operating Systems Lab	CO1	Simulate and implement operating system concepts of scheduling
		CO2	Simulate and implement operating system concepts of deadlock management.
		CO3	Simulate and implement operating system concepts of file management and memory management.
		CO4	Simulate and implement operating system concepts of memory management.
		CO5	Able to implement C programs using Unix system calls

Subject Code	Course Name	CO's	Outcomes
CS312PC	Python Programming Lab	CO1	able to understand the basic concepts scripting and the contributions of scripting language
		CO2	Ability to explore python especially the object-oriented concepts, and the built in objects of Python.
		CO3	Ability to create practical and contemporary applications such as TCP/IP network programming,
		CO4	Ability to create practical and contemporary applications such as Web applications.
		CO5	Ability to create practical and contemporary applications such as discrete event simulations.



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Subject Code	Course Name	CO's	Outcomes
MC309	Gender Sensitization Lab	CO1	Able to better understanding of important issues related to gender in contemporary India.
		CO2	Able to sensitized to basic dimensions of the biological, sociological, psychological and legal aspects of gender. This will be achieved through discussion of materials derived from research, facts, everyday life, literature and film.
		CO3	Students will attain a finer grasp of how gender discrimination works in our society and how to counter it.
		CO4	Students will acquire insight into the gendered division of labour and its relation to politics and economics. Men and women students and professionals will be better equipped to work and live together as equals.
		CO5	Able to develop a sense of appreciation of women in all walks of life.



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II YEAR: II SEMESTER

Subject Code	Course Name	CO's	Outcomes
MA413BS	Mathematical and Statistical Foundations	CO1	Apply the number theory concepts to cryptography domain
		CO2	Apply the concepts of probability and distributions to some case studies
		CO3	Correlate the material of one unit to the material in other units
		CO4	Resolve the potential misconceptions and hazards in each topic of study.
		CO5	Understand Stochastic Processes and Markov Chains.

Subject Code	Course Name	CO's	Outcomes
CS424PC	Automata Theory and Compiler Design	CO1	Able to employ finite state machines for modeling and solving computing problems.
		CO2	Able to design context free grammars for formal languages.
		CO3	Able to distinguish between decidability and undecidability.
		CO4	Demonstrate the knowledge of patterns, tokens & regular expressions for lexical analysis.
		CO5	Acquire skills in using lex tool and design LR parsers



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Subject Code	Course Name	CO's	Outcomes
CS404PC	Database Management Systems	CO1	Gain knowledge of fundamentals of DBMS, database design and normal forms.
		CO2	Understand the Relational Model:
		CO3	Master the basics of SQL for retrieval and management of data.
		CO4	Be acquainted with the basics of transaction processing and concurrency control.
		CO5	Familiarity with database storage structures and access techniques

Subject Code	Course Name	CO's	Outcomes
CS420PC	Introduction to Artificial Intelligence	CO1	Learn the distinction between optimal reasoning Vs human like reasoning and formulate an efficient problem space for a problem expressed in natural language. Also select a search algorithm for a problem and estimate its time and space complexities.
		CO2	Apply AI techniques to solve problems of game playing, theorem proving, and machine learning.
		CO3	Learn different knowledge representation techniques.
		CO4	Understand the concepts of state space representation, exhaustive search, heuristic search together with the time and space complexities.
		CO5	Comprehend the applications of Probabilistic Reasoning and Bayesian Networks. Analyze Supervised Learning Vs. Learning Decision Trees



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Subject Code	Course Name	CO's	Outcomes
CS412PC	Object Oriented Programming using Java	CO1	Able to solve real world problems using OOP techniques.
		CO2	Able to understand the use of abstract classes.
		CO3	Able to solve problems using java collection framework and I/o classes.
		CO4	Able to develop multithreaded applications with synchronization.
		CO5	Able to develop applets for web applications. Able to design GUI based applications

Subject Code	Course Name	CO's	Outcomes
CS407PC	Database Management Systems Lab	CO1	Design database schema for a given application and apply normalization
		CO2	Acquire skills in using SQL commands for data definition and data manipulation.
		CO3	Develop solutions for database applications using procedures.
		CO4	Develop solutions for database applications using cursors.
		CO5	Develop solutions for database applications using triggers



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Subject Code	Course Name	CO's	Outcomes
CS408PC	Java Programming Lab	CO1	Able to write java compiler and eclipse platform.
		CO2	Able to write programs for solving real world problems using java collection frame work.
		CO3	Able to write programs using abstract classes.
		CO4	Able to write multithreaded programs.
		CO5	Able to write GUI programs using swing controls in Java.

Subject Code	Course Name	CO's	Outcomes
CS421PC	Artificial Intelligence Lab	CO1	Able to implement simple facts and Queries
		CO2	Able to solve 8 Puzzle problems
		CO3	Apply basic principles of AI in solutions that require problem solving, knowledge representation, and learning.
		CO4	Possess the skill for representing knowledge using the appropriate technique
		CO5	Possess the ability to apply AI techniques to solve problems of Game Playing

Subject Code	Course Name	CO's	Outcomes
MC409	CONSTITUTION OF INDIA	CO1	Understand constitution law and constitutionalism
		CO2	Understand Scheme of the fundamental rights
		CO3	Understand the Directive Principles of State Policy – Its importance and implementation
		CO4	Understand Parliamentary Form of Government in India – The constitution powers and status of the President of India
		CO5	Understand The historical perspectives of the constitutional amendments in India



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III YEAR: I SEMESTER

Subject Code	Course Name	CO's	Outcomes
	Machine Learning	CO1	Understand the concepts of computational intelligence like machine learning.
		CO2	Ability to get the skill to apply machine learning techniques to address the real time problems in different areas.
		CO3	Understand the Neural Networks and its usage in machine learning application.
		CO4	Understand Genetic Algorithms.
		CO5	Understand combining Inductive and Analytical Learning.

Subject Code	Course Name	CO's	Outcomes
	Design and Analysis of Algorithms	CO1	Ability to analyze the performance of algorithms.
		CO2	Ability to choose appropriate data structures and algorithm design methods for a specified Application.
		CO3	Ability to understand how the choice of data structures and the algorithm design methods impact the performance of programs
		CO4	Understand the Greedy method.
		CO5	Understand Branch and Bound.

Subject Code	Course Name	CO's	Outcomes
	Big Data Technologies	CO1	Ability to explain the foundations, definitions, and challenges of Big Data
		CO2	Understand various Analytical tools.
		CO3	Ability to program using HADOOP and Map reduce, NOSQL
		CO4	Understand Mobile Analytics and tools.
		CO5	Ability to understand the importance of Big Data in Social Media and Mining.



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Subject Code	Course Name	CO's	Outcomes
	Software Engineering	CO1	Ability to understand the software engineering process.
		CO2	Ability to translate end-user requirements into system and software requirements, using e.g. UML, and structure the requirements in a Software Requirements Document (SRD).
		CO3	Identify and apply appropriate software architectures and patterns to carry out high level design of a system and be able to critically compare alternative choices.
		CO4	Will have experience and/or awareness of testing problems and will be able to develop a simple testing report
		CO5	Ability to check the software quality.

Subject Code	Course Name	CO's	Outcomes
	Pattern Recognition	CO1	Understand the theory, benefits, inadequacies and possible applications of various machine learning and pattern recognition algorithms
		CO2	Identify and employ suitable machine learning techniques in classification
		CO3	Identify and employ suitable machine learning techniques in pattern recognition,
		CO4	Identify and employ suitable machine learning techniques in clustering
		CO5	Identify and employ suitable machine learning techniques in decision problems.



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Subject Code	Course Name	CO's	Outcomes
	Computer Vision and Robotics	CO1	Implement fundamental image processing techniques required for computer vision.
		CO2	Implement boundary tracking techniques.
		CO3	Apply chain codes and other region descriptors, Hough Transform for line, circle, and ellipse detections.
		CO4	Apply 3D vision techniques and Implement motion related techniques.
		CO5	Develop applications using computer vision techniques.

Subject Code	Course Name	CO's	Outcomes
	Information Retrieval Systems	CO1	understand the data/file structures
		CO2	Ability to apply IR principles to locate relevant information large collections of data
		CO3	Ability to design different document clustering algorithms
		CO4	Implement retrieval systems for web search tasks.
		CO5	Design an Information Retrieval System for web search tasks.

Subject Code	Course Name	CO's	Outcomes
	Software Testing Methodologies	CO1	Understand the necessity of testing
		CO2	Understand Transaction Flow Testing
		CO3	Understand testing process, criteria, strategies, and methodologies
		CO4	Understand Logic Based Testing.
		CO5	Able to develop skills in software test automation and management using latest tools.



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Subject Code	Course Name	CO's	Outcomes
	DATA WAREHOUSING AND BUSINESS INTELLIGENCE	CO1	Understand architecture of data warehouse and OLAP operations.
		CO2	Understand Fundamental concepts of BI and Analytics
		CO3	Application of BI Key Performance indicators
		CO4	Design of Dashboards, Implementation of Web Analytics
		CO5	Understand Utilization of Advanced BI Tools and their Implementation. Implementation of BI Techniques and BI Ethics.

Subject Code	Course Name	CO's	Outcomes
	Big Data Technologies Lab	CO1	knowledge of Big data Analytics principles and techniques
		CO2	Use Excel as an Analytical tool and visualization tool.
		CO3	Ability to program using HADOOP and Map reduce.
		CO4	Ability to perform data analytics using ML in R.
		CO5	Use cassandra to perform social media analytics.

Subject Code	Course Name	CO's	Outcomes
	Advanced Communication Skills Lab	CO1	Able to improve the students' fluency in English, through a well-developed vocabulary
		CO2	able to listen to English spoken at normal conversational speed by educated English speakers and respond appropriately in different socio-cultural and professional contexts.
		CO3	Able to transferring information from non-verbal to verbal texts and vice-versa.
		CO4	Able to write project/research reports/technical reports.
		CO5	Able to communicate their ideas relevantly and coherently in writing.



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Subject Code	Course Name	CO's	Outcomes
	Intellectual Property Rights	CO1	Able to understand the Intellectual property
		CO2	Understand the trade marks.
		CO3	Understand the law of copy rights.
		CO4	Understand the trade secrets.
		CO5	Able to develop new Intellectual property.

III YEAR II SEMESTER

Subject Code	Course Name	CO's	Outcomes
	KNOWLEDGE REPRESENTATION AND REASONING	CO1	Analyze and design knowledge-based systems intended for computer implementation.
		CO2	Acquire theoretical knowledge about principles for logic-based representation and reasoning.
		CO3	Ability to understand knowledge-engineering process
		CO4	Ability to implement production systems, frames, inheritance systems and approaches
		CO5	handle uncertain or incomplete knowledge.

Subject Code	Course Name	CO's	Outcomes
	Data Analytics	CO1	Understand the impact of data analytics for business decisions and strategy
		CO2	Carry out data analysis/statistical analysis
		CO3	To carry out standard data visualization and formal inference procedures
		CO4	Design Data Architecture
		CO5	Understand various Data Sources



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Subject Code	Course Name	CO's	Outcomes
	Computer Networks	CO1	Gain the knowledge of the basic computer network technology.
		CO2	Gain the knowledge of the functions of each layer in the OSI and TCP/IP reference model.
		CO3	Obtain the skills of subnetting and routing mechanisms.
		CO4	Familiarity with the essential protocols of computer networks, and how they can be applied in network design and implementation.
		CO5	Understand the communication between machines in a network and the protocols of the various layers.

Subject Code	Course Name	CO's	Outcomes
	Data Analytics Lab	CO1	Understand linear regression and logistic regression.
		CO2	Understand the functionality of different classifiers.
		CO3	Implement visualization techniques using different graphs.
		CO4	Apply descriptive and predictive analytics for different types of data.
		CO5	understand the various search methods and visualization techniques.

Subject Code	Course Name	CO's	Outcomes
	COMPUTER NETWORKS LAB	CO1	Implement data link layer framing methods.
		CO2	Analyze error detection and error correction codes.
		CO3	Implement and analyze routing and congestion issues in network design.
		CO4	Implement Encoding and Decoding techniques used in presentation layer
		CO5	To be able to work with different network tools



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Subject Code	Course Name	CO's	Outcomes
	Environmental Science	CO1	Able to understand Ecosystems
		CO2	Able to understand Classification of Resources
		CO3	Understand Environmental Pollution and Control Technologies
		CO4	Understand Environmental Policy, Legislation & EIA
		CO5	understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development

IV YEAR I SEMESTER

Subject Code	Course Name	CO's	Outcomes
	Deep Learning	CO1	Understand the concepts of Deep Learning
		CO2	Implement deep learning algorithms, understand neural networks and traverse the layers of data
		CO3	Learn topics such as convolutional neural networks, recurrent neural networks, training deep networks and high-level interfaces
		CO4	Understand applications of Deep Learning to Computer Vision
		CO5	Understand and analyze Applications of Deep Learning to NLP



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Subject Code	Course Name	CO's	Outcomes
	DATA WRANGLING AND DATA VISUALIZATION	CO1	Perform data wrangling
		CO2	Explain principles of visual perception
		CO3	Apply core skills for visual analysis
		CO4	Apply visualization techniques for various data analysis tasks
		CO5	Evaluate visualization techniques

Subject Code	Course Name	CO's	Outcomes
	Internet of Things	CO1	Interpret the impact and challenges posed by IoT networks leading to new architectural models.
		CO2	Compare and contrast the deployment of smart objects and the technologies to connect them to network.
		CO3	Appraise the role of IoT protocols for efficient network communication.
		CO4	Elaborate the need for Data Analytics and Security in IoT.
		CO5	Illustrate different sensor technologies for sensing real world entities and identify the applications of IoT in Industry.

Subject Code	Course Name	CO's	Outcomes
	Web Technologies	CO1	gain knowledge of client-side scripting, validation of forms and AJAX programming
		CO2	understand server-side scripting with PHP language
		CO3	understand what is XML and how to parse and use XML Data with Java
		CO4	To introduce Server-side programming with Java Servlets and JSP
		CO5	Able to write Client-side Scripting.



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Subject Code	Course Name	CO's	Outcomes
	Natural Language Processing	CO1	Show sensitivity to linguistic phenomena and an ability to model them with formal grammars.
		CO2	Understand and carry out proper experimental methodology for training and evaluating empirical NLP systems
		CO3	Able to manipulate probabilities, construct statistical models over strings and trees, and estimate parameters using supervised and unsupervised training methods.
		CO4	Able to design, implement, and analyze NLP algorithms
		CO5	Able to design different language modeling Techniques.

Subject Code	Course Name	CO's	Outcomes
	Mobile Application Development	CO1	understanding of the fundamentals of Android operating systems.
		CO2	Understand Android software development tools.
		CO3	ability to debug programs running on mobile devices.
		CO4	Student will be able to develop Android user interfaces
		CO5	Student will be able to develop, deploy and maintain the Android Applications.

Subject Code	Course Name	CO's	Outcomes
	Data Mining	CO1	Ability to understand the types of the data to be mined and present a general classification of tasks and primitives to integrate a data mining system.
		CO2	Apply preprocessing methods for any given raw data. Extract interesting patterns from large amounts of data.
		CO3	Discover the role played by data mining in various fields.
		CO4	Choose and employ suitable data mining algorithms to build analytical applications
		CO5	Evaluate the accuracy of supervised and unsupervised models and algorithms.



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Subject Code	Course Name	CO's	Outcomes
	Industrial Oriented Mini Project/ Summer Internship	CO1	Students will be able to practice acquired knowledge within the chosen
		CO2	area of technology for project development.
		CO3	Identify, discuss and justify the technical aspects of the chosen project with a comprehensive and systematic approach.
		CO4	Reproduce, improve and refine technical aspects for engineering projects.
		CO5	Work as an individual or in a team in development of technical projects.

Subject Code	Course Name	CO's	Outcomes
	Seminar	CO1	Establish motivation for any topic of interest and develop a thought process for technical presentation.
		CO2	Organize a detailed literature survey and build a document with respect to technical publications.
		CO3	Analysis and comprehension of proof-of-concept and related data
		CO4	Effective presentation and improve soft skills.
		CO5	Make use of new and recent technology (e.g. Latex) for creating technical reports

Subject Code	Course Name	CO's	Outcomes
	Project Stage - I	CO1	Demonstrate a sound technical knowledge of their selected project topic.
		CO2	Undertake problem identification, formulation and solution.
		CO3	Design engineering solutions to complex problems utilising a systems approach
		CO4	Conduct an engineering project
		CO5	Communicate with engineers and the community at large in written and oral forms



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IV YEAR II SEMESTER

Subject Code Course Name	COs	Outcomes
Organizational Behaviour	CO1	Understand the Organizational Behaviour.
	CO2	Understand conceptual framework and the theories underlying Organizational Behaviour.
	CO3	Understand strategies to improve the follow of communication
	CO4	Understand Job design and Goal setting for High performance
	CO5	Know the Activities and skills of Great leaders.

Subject Code	Course Name	CO's	Outcomes
	Cognitive Computing	CO1	Understand the concepts of cognitive science.
		CO2	Understand what cognitive computing is, and how it differs from traditional approaches.
		CO3	Plan and use the primary tools associated with cognitive computing.
		CO4	Plan and execute a project that leverages cognitive computing.
		CO5	Understand and develop the business implications of cognitive computing.

Subject Code	Course Name	CO's	Outcomes
	Project Stage - II	CO1	Demonstrate a sound technical knowledge of their selected project topic.
		CO2	Undertake problem identification, formulation and solution.
		CO3	Design engineering solutions to complex problems utilizing a systems approach.
		CO4	Communicate with engineers and the community at large in written an oral forms
		CO5	Conduct an engineering project



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I YEAR: I SEMESTER

Subject Code	Course Name	CO's	Outcomes
MA101BS	Mathematics - I	CO1	Write the matrix representation of a set of linear equations and to analyse the solution of the system of equations
		CO2	Find the Eigen values and Eigen vectors
		CO3	Reduce the quadratic form to canonical form using orthogonal transformations.
		CO4	Analyse the nature of sequence and series. Solve the applications on the mean value theorems.
		CO5	Evaluate the improper integrals using Beta and Gamma functions. Find the extreme values of functions of two variables with/ without constraints.

Subject Code	Course Name	CO's	Outcomes
CH102BS	Chemistry	CO1	The knowledge of atomic, molecular and electronic changes, band theory related to conductivity.
		CO2	The required principles and concepts of electrochemistry, corrosion and in understanding the problem of water and its treatments.
		CO3	The required skills to get clear concepts on basic spectroscopy and application to medical and other fields.
		CO4	The knowledge of configurational and conformational analysis of molecules and reaction mechanisms.
		CO5	The knowledge of Spectroscopic techniques and applications



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Subject Code	Course Name	CO's	Outcomes
EN105HS	English	CO1	Use English Language effectively in spoken and written forms.
		CO2	Comprehend the given texts and respond appropriately.
		CO3	Communicate confidently in various contexts and different cultures.
		CO4	Acquire basic proficiency in English including reading and listening comprehension,
		CO5	Acquire basic proficiency in English for writing and speaking skills.

Subject Code	Course Name	CO's	Outcomes
ME105ES	Engineering Workshop	CO1	Study and practice on machine tools and their operations.
		CO2	Practice on manufacturing of components using workshop trades including plumbing, fitting, carpentry, foundry, house wiring and welding.
		CO3	Identify and apply suitable tools for different trades of Engineering processes including drilling, material removing, measuring, chiseling.
		CO4	Explains the construction, function, use and application of different working tools, equipment and machines.
		CO5	Apply basic electrical engineering knowledge for house wiring practice.

Subject Code	Course Name	CO's	Outcomes
EE103ES	Basic Electrical Engineering	CO1	To analyze and solve electrical circuits using network laws and theorems.
		CO2	To understand and analyze basic Electric and Magnetic circuits
		CO3	To study the working principles of Electrical Machines
		CO4	To introduce components of Low Voltage Electrical Installations
		CO5	To understand the types of Batteries and Important Characteristics for Batteries.



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Subject Code	Course Name	CO's	Outcomes
EN107HS	English Language and Communication Skills Lab	CO1	Better understanding of nuances of English language through audio- visual experience and group activities
		CO2	Neutralization of accent for intelligibility
		CO3	Speaking skills with clarity and confidence which in turn enhances their employability skills
		CO4	Able to spoken English and neutralize their mother tongue influence
		CO5	able to use language appropriately for public speaking and interviews

Subject Code	Course Name	CO's	Outcomes
CH106BS	Engineering Chemistry Lab	CO1	Determination of parameters like hardness and chloride content in water.
		CO2	Estimation of rate constant of a reaction from concentration – time relationships.
		CO3	Determination of physical properties like adsorption and viscosity.
		CO4	Calculation of Rf values of some organic molecules by TLC technique.
		CO5	Understand the Spectroscopic techniques and applications for important organic compounds.

Subject Code	Course Name	CO's	Outcomes
EE108ES	Basic Electrical Engineering Lab	CO1	Get an exposure to basic electrical laws.
		CO2	Understand the response of different types of electrical circuits to different excitations.
		CO3	Understand the measurement, calculation and relation between the basic electrical parameters.
		CO4	Understand the basic characteristics of transformers and electrical machines.
		CO5	Understand No-Load Characteristics of a Three-phase Alternator



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I YEAR: II SEMESTER

Subject Code	Course Name	CO's	Outcomes
MA201BS	Mathematics - II	CO1	Identify whether the given differential equation of first order is exact or not
		CO2	Solve higher differential equation and apply the concept of differential equation to real world Problems.
		CO3	Evaluate the multiple integrals and apply the concept to find areas, volumes, centre of mass and Gravity for cubes, sphere and rectangular parallelopiped.
		CO4	Evaluate the line, surface and volume integrals and converting them from one to another.
		CO5	Knowledge in Vector Integration

Subject Code	Course Name	CO's	Outcomes
AP202BS	Applied Physics	CO1	The student would be able to learn the fundamental concepts on Quantum behaviour of matter in its micro state.
		CO2	The knowledge of fundamentals of Semiconductor physics, Optoelectronics, Lasers and fibre Optics enable the students to apply to various systems like communications, solar cell, photo cells and so on.
		CO3	Knowledge in Optoelectronics
		CO4	Design, characterization and study of properties of material help the students to prepare new materials for various engineering applications.
		CO5	The course also helps the students to be exposed to the phenomena of electromagnetism and also to have exposure on magnetic materials and dielectric materials



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Subject Code	Course Name	CO's	Outcomes
CS203ES	Programming for Problem Solving	CO1	To write algorithms and to draw flowcharts for solving problems.
		CO2	To convert the algorithms/flowcharts to C programs.
		CO3	To code and test a given logic in C programming language.
		CO4	To decompose a problem into functions and to develop modular reusable code.
		CO5	To use arrays, pointers, strings and structures to write C programs. Searching and sorting problems.

Subject Code	Course Name	CO's	Outcomes
ME204ES	Engineering Graphics	CO1	Preparing working drawings to communicate the ideas and information.
		CO2	Read, understand and interpret engineering drawings
		CO3	Development of Surfaces of Right Regular Solids, Prism, Cylinder, Pyramid and Cone,
		CO4	Understand the Principles of Isometric Projection.
		CO5	Knowledge to CAD Software Package Commands

Subject Code	Course Name	CO's	Outcomes
AP205BS	Applied Physics Lab	CO1	Understand the V-I Characteristics of solar cell
		CO2	determine magnetic field along the axis of a current carrying coil.
		CO3	determine Hall co-efficient of a given semiconductor
		CO4	determine the bending losses of Optical fibres.□
		CO5	determine the Quality factor of LCR Circuit.



**DR. V.R.K WOMEN'S COLLEGE
OF ENGINEERING AND TECHNOLOGY**

ISO 9001:2015 CERTIFIED INSTITUTION
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Subject Code	Course Name	CO's	Outcomes
CS206ES	Programming for Problem Solving Lab	CO1	formulate the algorithms for simple problems
		CO2	translate given algorithms to a working and correct program.
		CO3	correct syntax errors as reported by the compilers. Identify and correct logical errors encountered during execution.
		CO4	represent and manipulate data with arrays, strings and structures and use pointers of different types
		CO5	□ create, read and write to and from simple text and binary files and modularize the code with functions so that they can be reused

Subject Code	Course Name	CO's	Outcomes
MC209ES	Environmental Science	CO1	understand /evaluate / develop technologies on the basis of ecological principles and environmental regulations which in turn helps in sustainable development
		CO2	Classify Living and Non-Living resources
		CO3	Define Biodiversity and Biotic Resources
		CO4	Understand the Environmental Pollution and Control Technologies
		CO5	Understand Environmental Policy, Legislation & EIA