



VIJAYA INSTITUTE OF TECHNOLOGY FOR WOMEN

An ISO 9001:2015 Certified Institute, Approved by AICTE, Affiliated to JNTU Kakinada, AP

Phone: 0866-2844444, Email: vijayatechfw@gmail.com Website: www.vitw.edu.in

College Code: NP, Enikepadu, Vijayawada-521108

Department of Information Technology

List of Course Outcomes

Batch: 2020(R20)

Year/Sem	Subject Code	Course Code	Course Name	At the end of the course, the student will be able to
I-I	R201102	HS1101	Communicative English	CO1: Ask and answer general questions on familiar topics and introduce oneself/others
				CO2: Recognize paragraph structure and be able to match beginnings/endings/headings with paragraphs
				CO3: To help and improve speaking skills through participation in activities such as role plays, discussions and structured talks /oral presentations
				CO4: Discuss specific topics in pairs or in groups for Functional English
				CO5: Understand social or transactional dialogues spoken by native speakers of English and identify the context, topic, and pieces of specific information
				CO6: Form sentences using proper grammatical structures and correct word forms
I-I	R201101	BS1102	Mathematics - I	CO1: Utilize mean value theorems to real life problems (L3)
				CO2: Solve the differential equations of first order and their applications
				CO3: Solve the differential equations of second and higher order and applications.
				CO4: Solve the differential equations related to various engineering fields(L3)
				CO5: Familiarize with functions of several variables which is useful in optimization(L3)
				CO6: Apply double integration techniques in evaluating areas bounded by region and triple integral techniques over volume.
				CO1: Realize the need of coherent sources, engineering applications of interference, differences between interference and diffraction, the concept



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I-I	R201117	BS1103	Applied Physics	of polarization in the design of various optical instruments.
				CO2: Enable to understand the concepts of LASER light sources, types of lasers, Engineering applications of lasers, Working principle of optical fibres, classification of optical fibres.
				CO3: Interpret the dual nature of matter, significance of wave function.
				CO4: Elucidate the classical and quantum free electron theories, K-P model, classification of materials, effective mass of electron.
				CO5: Explain the dielectric constant and polarization, various types of polarization, Lorentz field and Clausius –Mosotti relation in dielectrics, classification of magnetic materials.
				CO6: Provide vivid comprehension on the classification of energy bands of semiconductors, Hall effect, Meissner effect, BCS theory & Josephson effect in superconductors.
I-I	R201110	ES1104	Programming for Problem Solving using C	CO1: To write algorithms and to draw flowcharts for solving problems
				CO2: To convert flowcharts/algorithms to C Programs, compile and debug programs
				CO3: To use different operators, data types and write programs that use two-way/ multi-way selection•
				CO4: To select the best loop construct for a given problem
				CO5: To design and implement programs to analyze the different pointer applications
				CO6: To decompose a problem into functions and to develop modular reusable code
I-II	R201201	BS1201	Mathematics – II	CO1: Develop the use of matrix algebra techniques that is needed by engineers for practical applications and solve system of linear algebraic equations by Gauss elimination method.
				CO2: Find the inverse and powers of matrices by Cayley Hamilton theorem.
				CO3: Evaluate the approximate roots of polynomial and transcendental equations by different algorithms(L5)



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				<p>CO4: Solve system of linear algebraic equations using Gauss Jacobi, Gauss seidel (L3)</p> <p>CO5: Apply Newton's forward & backward interpolation and Lagrange's formulae for equal and unequal intervals (L3)</p> <p>CO6: Apply different algorithms for approximating the solution of Ordinary differential Equations with initial conditions to its analytical computations(L3)</p>
I-II	R201215	BS1202	Applied Chemistry	<p>CO1: Analyze the different types of composite plastic materials and interpret the mechanism of conduction in conducting polymers.</p> <p>CO2: Utilize the theory of construction of electrodes, batteries and fuel cells in redesigning new engineering products and categorize the reasons for corrosion and study methods to control corrosion</p> <p>CO3: Summarize the preparation of semiconductors; analyze the applications of liquid crystals and superconductors.</p> <p>CO4: Synthesize Nanomaterials for modern advances of engineering technology.</p> <p>CO5: Analyze the principles of different analytical instruments and their applications, Design models for energy by different natural sources.</p> <p>CO6: Obtain the knowledge of computational chemistry and molecular machines.</p>
I-II	R201216	ES1203	Computer Organization	<p>CO1: Demonstrate and understanding of the design of the functional units of a digital computer system.</p> <p>CO2: Relate Postulates of Boolean algebra and minimize combinational functions</p> <p>CO3: Recognize and manipulate representations of numbers stored in digital computers</p> <p>CO4: Build the logic families and realization of logic gates.</p> <p>CO5: Design and analyze combinational and sequential circuits</p> <p>CO6: Recall the internal organization of computers, CPU, memory unit and Input/Outputs and the relations between its main components</p>



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I-II	R201225	ES1204	Python Programming	CO1: Apply the basics of programming in the Python language
				CO2: Develop essential programming skills in computer programming concepts like data types, containers
				CO3: Solve coding tasks related conditional execution, loops
				CO4: Solve coding tasks related to the fundamental notions and techniques used in object-oriented programming
				CO5: Solve file operations and design with classes
				CO6: Apply errors and exceptions of Programs.
I-II	R201218	ES1205	Data Structures	CO1: Summarize the properties, interfaces, and behaviours of basic abstract data types
				CO2: Discuss the computational efficiency of the principal algorithms for sorting & searching
				CO3: linked structures, stacks, queues, trees in writing programs
				CO4: Discuss Use arrays, records, and expressions
				CO5: Demonstrate different methods for traversing trees
				CO6: Discuss the representations of graphs and algorithms
II-I	R2021011	BS2101	Mathematics - III	CO1: Interpret the physical meaning of different operators such as gradient, curl and divergence and estimate the work done against a field, circulation and flux using vector calculus (L5)
				CO2: Apply the Laplace transform for solving differential equations (L3)
				CO3: Find or compute the Fourier series of periodic signals (L3)
				CO4: Apply integral expressions for the forwards and inverse Fourier transform to a range of non-periodic waveforms (L3)
				CO5: Identify solution methods for partial differential equations that model physical processes (L3)
				CO6: Classify and solve the different types of partial differential equations.
				CO1: Classify object-oriented programming and procedural programming
				CO2: Apply C++ features such as composition of objects, operator



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II-I	R2021055	IT2102	Object Oriented Programming through C++	overloads, dynamic memory allocation, inheritance and polymorphism, file I/O, exception handling
				CO3: Build C++ classes using appropriate encapsulation and design principles
				CO4: Apply object oriented or non-object-oriented techniques to solve bigger computing problems
				CO5: Evaluate operators and type conversions
				CO6: Discusses the generic programming with templates and exception Handling.
II-I	R2021052	IT2103	Operating Systems	CO1: Describe various generations of Operating System and functions of Operating System
				CO2: Describe the concept of program, process and thread and analyze various CPU Scheduling Algorithms and compare their performance
				CO3: Solve Inter Process Communication problems using Mathematical Equations by various methods
				CO4: Compare various Memory Management Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques
				CO5: Overview of disk and deadlocks.
				CO6: Outline File Systems in Operating System like UNIX/Linux and Windows
II-I	R2021121	IT2104	Database Management Systems	CO1: Describe a relational database and object-oriented database
				CO2: Create, maintain and manipulate a relational database using SQL
				CO3: Describe ER model and normalization for database design
				CO4: Examine issues in data storage and query processing and can formulate appropriate solutions
				CO5: Outline the role and issues in management of data such as efficiency, 1NF, 2NF, 3NF.
				CO6: Able to learn transactions and failure techniques.
				CO1: Comprehend mathematical Principles and logic



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II-I	R2021122	IT2105	Discrete Mathematics and Graph Theory	CO2: Communicate effectively mathematical ideas/results verbally/in writing
				CO3: Apply the Knowledge of Number Theory in the areas of such cryptography
				CO4: Demonstrate knowledge of mathematical modelling and proficiency in using mathematical software
				CO5: Demonstrate skills in solving mathematical problems
				CO6: Manipulate and analyze data numerically and graphically using appropriate software
II-II	R2022121	BS2201	Statistics with R	CO1: List motivation for learning a programming language
				CO2: Access online resources for R and import new function packages into the R workspace
				CO3: Import, review, manipulate and summarize data-sets in R
				CO4: Explore data-sets to create testable hypotheses and identify appropriate statistical tests
				CO5: Perform appropriate statistical tests using R, Create and edit visualizations with R
CO6: Able to learn different regressions.				
II-II	R2022122	IT2202	Principles of Software Engineering	CO1: Basic nature of software.
				CO2: Agility and its requirements.
				CO3: Compare conventional and agile software methods
				CO4: Design behavioural models.
				CO5: Skills to design, implement, and execute test cases at the Unit and Integration level
CO6: Design different types of testing.				
II-II	R2022053	IT2203	Automata Theory and Compiler Design	CO1: Ability to design, develop, and implement a compiler for any language
				CO2: Able to use LEX and YACC tools for developing a scanner and a parser
				CO3: Able to design and implement LL and LR parsers
				CO4: Able to design algorithms to perform code optimization in order to improve the performance of a program in terms of space and time complexity
				CO5: Discusses run time storage and code optimization.
CO6: Ability to design algorithms to generate machine code				



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II-II	R2022054	ES2204	Java Programming	CO1: Able to realize the concept of Object-Oriented Programming & Java Programming Constructs
				CO2: Able to describe the basic concepts of Java such as operators, classes, objects, inheritance, packages, Enumeration and various keywords
				CO3: Apply the concept of exception handling and Input/ Output operations
				CO4: Able to design the applications of Java & Java applet
				CO5: Able to Analyze & Design the concept of Event Handling and Abstract Window Toolkit
				CO6: Able to learn string handling in java and multithread.
II-II	R2022055	HS2205	Managerial Economics and Financial Accountancy	CO1: The Learner is equipped with the knowledge of estimating the Demand and demand elasticities for a product
				CO2: The knowledge of understanding of the Input-Output-Cost relationships and estimation of the least cost combination of inputs
				CO3: The pupil is also ready to understand the nature of different markets and Price Output determination under various market conditions and also to have the knowledge of different Business Units
				CO4: The Learner is able to prepare Financial Statements and the usage of various Accounting tools for Analysis
				CO5: The Learner can able to evaluate various investment project proposals with the help of capital budgeting techniques for decision making
				CO6: Able to learn capital budgeting and modern methods.
III-I	R2031051	PC3101	Computer Networks	CO1: Demonstrate different network models for networking links OSI, TCP/IP, B-ISDN, N-BISDN and get knowledge about various communication techniques, methods and protocol standards.
				CO2: Discuss different transmission media and different switching networks.
				CO3: Analyze data link layer services, functions and protocols like HDLC and PPP.
				CO4: Compare and classify medium access control protocols like ALOHA, CSMA, CSMA/CD, CSMA/CA,



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				<p>Polling, Token passing, FDMA, TDMA, CDMA protocols</p> <p>CO5: Suggest appropriate routing algorithm for the network</p> <p>CO6: Determine application layer services and client server protocols working with the client server paradigms like WWW, HTTP, FTP, e-mail and SNMP etc.</p>
III-I	R2031052	PC3102	Design and Analysis of Algorithms	<p>CO1: Analyze the performance of a given algorithm, denote its time complexity using the asymptotic notation for recursive and non-recursive algorithms</p> <p>CO2: List and describe various algorithmic approaches and Solve problems using divide and conquer & greedy Method</p> <p>CO3: Synthesize efficient algorithms dynamic programming approaches to solve in common engineering design situations.</p> <p>CO4: Dynamic programming approaches to solve in the traveling salesperson problem</p> <p>CO5: Organize important algorithmic design paradigms and methods of analysis: backtracking, branch and bound algorithmic approaches.</p> <p>CO6: Demonstrate NP- Completeness theory, lower bound theory and String Matching.</p>
III-I	R2031121	PC3103	Data Mining Techniques	<p>CO1: Illustrate the importance of Data Warehousing, Data Mining and its functionalities and Design schema for real time data warehousing applications.</p> <p>CO2: Demonstrate on various Data Preprocessing Techniques viz. data cleaning, data integration, data transformation and data reduction and Process raw data to make it suitable for various data mining algorithms.</p> <p>CO3: Choose appropriate classification technique to perform classification.</p> <p>CO4: Drive the model building and evaluations.</p> <p>CO5: Make use of association rule mining techniques viz. apriori and FP Growth algorithms and analyze on frequent item sets generation.</p>



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				CO6: Identify and apply various clustering algorithm (with open-source tools), interpret, evaluate and report the result.
III-I	R203105D	PE3104	Advanced Unix Programming	CO1: Gain good knowledge on Unix commands
				CO2: Gain good awareness of shell programming, x Know about different system calls for files
				CO3: Know about different system calls for directories
				CO4: Able to know process control and signals.
				CO5: Application of client server program for IPC
				CO6: Knowledge about socket programming.
III-I	R203104Q	OE3105	Digital Logic Design	CO1: Classify different number systems and apply to generate various codes.
				CO2: Use the concept of Boolean algebra in minimization of switching functions
				CO3: Design different types of combination all logic circuits.
				CO4: Apply knowledge flip-flops in designing of Registers and counters
				CO5: The operation and design methodology for synchronous sequential circuits and algorithmic state machines
				CO6: Produce innovative designs by modifying the traditional design techniques
III-II	R2032051	PC3201	Machine Learning	CO1: Explain the fundamental usage of the concept Machine Learning system
				CO2: Demonstrate on various regression Technique
				CO3: Analyze the Ensemble Learning Methods.
				CO4: Able to learn SVM and regression
				CO5: Illustrate the Clustering Techniques and Dimensionality Reduction Models in Machine Learning.
				CO6: Discuss the Neural Network Models and Fundamentals concepts of Deep Learning
				CO1 Illustrate big data challenges in different domains including social media, transportation, finance and medicine



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III-II	R2032121	PC3202	Big Data Analytics	CO2: Use various techniques for mining data stream
				CO3: Design and develop Hadoop
				CO4: Drive the map reduce technique
				CO5: Identify the characteristics of datasets and compare the trivial data and big data for various applications
				CO6: Explore the various search methods and visualization techniques
III-II	R2032053	PC3203	Cryptography and Network Security	CO1: Explain different security threats and countermeasures and foundation course of cryptography mathematics.
				CO2: Classify the basic principles of symmetric key algorithms and operations of some symmetric key algorithms and asymmetric key cryptography
				CO3: Revise the basic principles of public key algorithms.
				CO4: Working operations of some Asymmetric key algorithms such as RSA, ECC and some more.
				CO5: Design applications of hash algorithms, digital signatures and key management techniques
III-II	R203212B	PE3204	Design Patterns	CO6: Determine the knowledge of Application layer, Transport layer and Network layer security Protocols such as PGP, S/MIME, SSL, TSL, and IPsec.
				CO1: Construct a design consisting of a collection of modules
				CO2: Examine well-known design patterns (such as Iterator, Observer, Factory and Visitor)
				CO3: Distinguish between different categories of design patterns
				CO4: Ability to understand and apply common design patterns to incremental /iterative development
				CO5: Identify appropriate patterns for design of given problem
III-II	R203204Q	3205	Data Communications	CO6: Design the software using Pattern Oriented Architectures
				CO1: Know the Categories and functions of various Data communication Networks
				CO2: Design and analyze various error detection techniques.
				CO3: Demonstrate the mechanism of routing the data in network layer.



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				CO4: Know the significance of various Flow control and Congestion control Mechanisms.
				CO5: Able to learn about transport layer.
				CO6: Principles of applications layers
IV-I	R2041	PE4101	Cloud Computing	CO1: Illustrate the key dimensions of the challenge of Cloud Computing
				CO2: Classify the Levels of Virtualization and mechanism of tools.
				CO3: Analyze Cloud infrastructure including Google Cloud
				CO4: Analyze cloud platform architecture.
				CO5: Create Combinatorial Auctions for cloud resource and design scheduling algorithms for computing cloud
				CO6: Assess control storage systems and cloud security, the risks involved its impact and develop cloud application
IV-I	R2041	PE4102	Deep Learning Techniques	CO1: Demonstrate the fundamental concepts learning techniques of Artificial Intelligence, Machine Learning and Deep Learning.
				CO2: Discuss the Neural Network training, various random models.
				CO3: Explain the Techniques of Keras, TensorFlow, Theano and CNTK
				CO4: Classifying movie reviews.
				CO5: Classify the Concepts of CNN and RNN.
				CO6: Implement Interactive Applications of Deep Learning.
IV-I	R2041	PE4103	Ethical Hacking	CO1: Explain the concepts related to hacking, ports and protocols, pen testing and virtualization
				CO2: Determine the applicable foot printing techniques and scanning methods
				CO3: Explain the process of system hacking.
				CO4: Explain the concepts Trojans, backdoors, worms and virus and its countermeasures.
				CO5: Demonstrate systematic understanding of the concepts of Sniffing and Social Engineering and its attacks
				CO6: Determine the applicable methods of cryptography, steganography and Vulnerability Assessment



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IV-I	R2041	HS4104	Universal Human Values 2: Understanding Harmony	CO1: Students are expected to become more aware of themselves, and their surroundings (family, society, nature).
				CO2: They would become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
				CO3: They would have better critical ability.
				CO4: Establishment of total harmony in relationship based on values.
				CO5: They would also become sensitive to their commitment towards what they have understood.
				CO6: it is hoped that they would be able to apply what they have learnt to their own self in different day-to-day settings in real life, at least a beginning would be made in this direction.
IV-I	R2041	4105	Environmental management	CO1: Plan and design the water and waste water system
				CO2: Identify the source of emissions and select proper control systems.
				CO3: Design and estimation of water supply system for a city.
				CO4: Able to know managing water diseases.
				CO5: To get knowledge about various environmental aspects.
				CO6: Selection of suitable treatment flow for raw water treatments.
IV-I	R2041	4106	Disaster Management	CO1: Affirm the usefulness of integrating management principles in disaster mitigation work
				CO2: Distinguish between the different approaches needed to manage pre-during and post-disaster periods.
				CO3: Explain the process of risk management
				CO4: Able to learn about vulnerability.
				CO5: Relate to risk transfer.
				CO6: Illustrate multi sectional issues.
IV-II	R2041	P4201	Project	Engineering is the practice of using natural science and the engineering design process to solve technical problems, increase efficiency and productivity, and improve systems.