VIJAVA INSTITUTE OF TECHNOLOGY FOR WOMEN VIJAVAWADA

VIJAYA INSTITUTE OF TECHNOLOGY FOR WOMEN

An ISO 9001:2015 Certified Institute, Approved by AICTE, Affiliated to JNTU Kakinada, AP Phone: 0866-2844444, Email: wijayatechfw@gmail.com Website: www.vitw.edu.in College Code: NP, Enikepadu, Vijayawada-521108

Department of Information Technology

List of Course Outcomes Batch: 2019

Year & Sem	Subject Code	Course Code	Course Name	At the end of the course, the student will be able to
I-I	R19HS11	HS1101	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	R19BS11	BS1101	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.
I-I	R19BS11	BS1106	Applied Chemistry	CO1: Outline the properties of polymers and various additives added and different methods of forming plastic materials. Explain the preparation, properties and applications of some plastic materials. Interpret the mechanism of conduction in conducting polymers. Discuss natural and synthetic rubbers and their applications. CO2: Explain the theory of construction of battery and fuel cells and can categorize the reasons for corrosion and study some methods



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				of corrosion control.
				CO3: Analyze the liquid crystals,
				superconductors and the preparation of
				semiconductors.
				CO4: Analyze the importance of materials like
				Nanomaterials and fullerenes and their uses.
				CO5: Obtain the knowledge of computational
				chemistry and analyze the importance of
				molecular machines.
				CO6: Explain the different applications of
				analytical instruments and design sources of
				energy by different natural sources and analyze
				the principles of different analytical instruments.
				CO1: Illustrate the concept of input and output
				devices of Computers and how it works and
				recognize the basic terminology used in
				computer programming.
			Fundamentals of	CO2: Problem solving and programming.
I-I	R19ES11	ES1112	Computer Science	CO3: Recognize the Computer networks,
			_	types of networks and topologies.
				CO4: Evolution of operating systems.
				CO5: Summarize the concepts of Operating
				Systems and Databases.
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				Technologies like Distributed Computing &
				Wireless Networks.
I-I	R19ES11	ES1103	Engineering Drawing	CO1: The student will learn how to visualize 2D
				& 3D objects.
				CO1: Basic concepts of environmental studies.
				CO2: Define natural and associated problems.
			Environmental	CO3: Learn about concepts of biodiversity.
I-I	R19MC1	MC1101	Science	CO4: Conservation of biodiversity
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				CO5: Able to learn about environmental
				pollutions and life studies
				CO6: Describe social issues and the
				environment
				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
	D40D2122	201202		by Cayley Hamilton theorem.
I-II	R19BS1202	BS1202	Mathematics – II	CO3: Evaluate the approximate roots of
				polynomial and transcendental equations by
				different algorithms(L5)
				_
				CO4: Solve system of linear algebraic equations
				using Gauss Jacobi, Gauss seidel (L3)



				CO5: Apply Newton's forward & backward
				interpolation and Lagrange's formulae for equal and unequal intervals (L3)
				CO6: Apply different algorithms for
				approximating the solution of Ordinary differential Equations with initial conditions to
				its analytical computations(L3)
				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
7 77	D10DG1202	DG1202		differential equations (L3)
I-II	R19BS1203	BS1203	Mathematics – III	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: Elucidate the need of coherence and the
				conditions for sustained interference. Analyse
				the differences between interference and diffraction with applications. Illustrate the
				resolving power of various optical instruments.
				CO2: Explain the fundamentals of quantum
				mechanics. analyse the Physical significance of
				wave function. Apply Schrodinger wave
				equation for energy values of a free particle.
			4 1' 1791 '	CO3: Explain the various electron theories and calculate the Fermi energy.
I-II	R19BS1204	BS1204	Applied Physics	CO4: Interpret the effects of temperature on
				Fermi-Dirac distribution function. summarise
				various types of solids based on Band Theory.
				CO5: Classify the energy bands of semiconductors. Outline the properties of n-type
				& p-type semiconductors. Identify the types of
				semiconductors using Hall effect.
				CO6: Explain the concepts of polarisation and
				summarise various types of polarisation of
				dielectrics. Interpret Lorentz field and Clausius- Mossotti relation in dielectrics. Classify the
				magnetic materials based on susceptibility and
				their temperature dependence. Explain the
				applications of dielectric and magnetic
				materials.
				CO1: To write algorithms and to draw



				flowcharts for solving problems
I-II	R19ES1201	ES1201	Programming for Problem Solving using C	CO2: To convert flowcharts/algorithms to C Programs, compile and debug programs · To use different operators, data types and write programs that use two-way/ multi-way selection to select the best loop construct for a given problem CO3: · To decompose a problem into functions and to develop modular reusable code. CO4: To solve array applications. CO5: To design and implement programs to analyze the different pointer applications. CO6: To apply file, I/O operations.
I-II	R19ES1213	ES1213	Digital Logic Design	CO1: An ability to define different number systems, binary addition and subtraction, 2's complement representation and operations with this representation. CO2: An ability to understand the different switching algebra theorems and apply them for logic functions. CO3: An ability to define the Karnaugh map for a few variables and perform an algorithmic reduction of logic functions. CO4: Students will be able to design various logic gates starting from simple ordinary gates to complex programmable logic devices & arrays. CO5: Students will be able to design various sequential circuits starting from flip-flop to registers and counters. CO6: Study about registers and counters.
II-I	R1921121	IT2101	Discrete Mathematical Structures	CO1: Comprehend mathematical Principles and logic 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 modeling and proficiency in using mathematical software CO5: Demonstrate skills in solving mathematical problems CO6: Manipulate and analyze data numerically and graphically using appropriate software CO1: Transform an Object-Oriented Design into
				high quality, executable code CO2: Skills to design, implement, and execute test cases at the Unit and Integration level



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II-I	D1021122	IT2102	Principles of Software	CO3: Compare conventional and agile software
11-1	R1921122	112102	Engineering	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.
				CO1: Develop essential programming skills in
				computer programming concepts like data types,
				containers
				CO2: Apply the basics of programming in the
II-I	R1921053	ES2101	Python Programming	Python language
				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.
				CO1: Summarize the properties, interfaces, and
				behaviors of basic abstract data types
				CO2: Discuss the computational efficiency of
				the principal algorithms for sorting & searching
II-I	R1921054	IT2103	Data Structures	CO3: linked structures, stacks, queues, trees
				in writing programs
				CO4: Discuss Use arrays, records, and
				expressions
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				CO5: Demonstrate different methods for
				traversing trees
				CO6: Discuss the representations of graphs
				and algorithms.
				CO1: Develop a detailed understanding of
				computer systems
				CO2: Cite different number systems, binary
				addition and subtraction, standard, floating-
				point, and micro-operations
				CO3: Develop a detailed understanding of
				architecture and functionality of central
				processing unit
			Computer	CO4: Derived microprogrammed control
II-I	R1921056	IT2104	Organization	memory COS: Everalify in a better way the I/O and
				CO5: Exemplify in a better way the I/O and
				memory organization
				CO6: Illustrate the concepts of parallel



				processing, pipelining and inter processor communication
II-I	R1921123	IT2105	Object Oriented Programming through C++	CO1: Classify object-oriented programming and procedural programming CO2: Apply C++ features such as composition of objects, operator overloads, dynamic memory allocation, inheritance and polymorphism, file I/O, exception handling CO3: Build C++ classes using appropriate encapsulation and design principles CO4: Build C++ classes using inheritance CO5: Apply object oriented or non-object-oriented techniques to solve bigger computing problems. CO6: Use generic programming with templates.
II-II	R1922051	BS2201	Probability and Statistics	CO1: Classify the concepts of data science and its importance (L4) or (L2) CO2: Interpret the association of characteristics and through correlation and regression tools (L4) CO3: Make use of the concepts of probability and their applications (L3) CO4: Apply discrete and continuous probability distributions (L3) CO5: Design the components of a classical hypothesis test (L6) CO6: Infer the statistical inferential methods based on small and large sampling tests (L4)
II-II	R1922052	IT2201	Java Programming	CO1: Discuss and understand java programming constructs, Control structures CO2: Illustrate and experiment Object Oriented Concepts like classes, objects CO3: Apply Object Oriented Constructs such as Inheritance, interfaces, and exception handling CO4: Construct applications using multithreading and I/O CO5: Develop Dynamic User Interfaces using applets and Event Handling in java CO6: Develop Code Snippets using Abstract Window Toolkit and Swings
II-II	R1922121	IT2202	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: Describe the concept of memory management. CO4: Compare various Memory Management



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				Schemes especially paging and Segmentation in Operating System and apply various Page Replacement Techniques
				CO5: Able to know deadlocks and file systems.
				CO6: Outline File Systems in Operating System like UNIX/Linux and Windows
				CO1: Describe a relational database and object- oriented database
				CO2: Create, maintain and manipulate a relational database using SQL
II-II	R1922054	IT2203	Database Management Systems	CO3: Describe ER model and normalization for database design
			Management Systems	CO4: Examine issues in data storage and query processing and can formulate appropriate solutions
				CO5: Outline the normalization and 1NF, 2NF, 3NF and 4NF.
				CO6: Describe transaction and indexing techniques.
				CO1: Classify machines by their power to recognize languages
				CO2: Describe regular expressions and its rules.
II-II	R1922122	IT2204	Theory of	CO3: Employ finite state machines to solve problems in computing
11-11	K1922122	112204	Computation	CO4: Attain the knowledge of language classes & grammars relationship among them with the help of Chomsky hierarchy
				CO5: Illustrate deterministic and non-deterministic machines
				CO6: Able to know about turning machine.
				CO1: Illustrate several sub-quadratic sorting algorithms.
				CO2: Demonstrate recursive methods
				CO3: Apply advanced data structures such as
111 1	D1021121	IT 2101	A 1 1 1 1 1 7 1	balanced search trees, hash tables, priority
III-I	R1931121	IT3101	Advanced Data Structures	queues and the disjoint set union/find data
			Structures	structure
				CO4: Describe Red Black Trees and AVL.
				CO5: Define M – way search tress and B+ tree
				CO6: Digital search structures, binary tries and multi-way tries.
				CO1: Illustrate the OSI and TCP/IP reference
				model
				CO2: Analyze MAC layer protocols and LAN
III-I	R1931125	IT3102	Computer Networks	technologies
111-1	K1931123	113102	Computer Networks	CO3: Design Data link layer and its types.
	CO4: Describe CRC and Checksum.			



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				CO5: Able to know about ALOHA and
				CSMA/CD.
				CO6: Define Ethernet protocols and V-Lans.
				CO1: Design, develop, and implement a
				compiler for any language
				CO2: Use of syntax analysis and LR parsing.
				CO3: Design and implement SDD and
				applications.
III-I	R1931123	IT3103	Compiler Design	CO4: Design intermediate code generation.
				CO5: Apply algorithms to generate machine
				code and Run time environments.
				CO6: Able to learn about machine independent
				optimizations.
				CO1: Outline problems that are amenable to
				solution by AI methods, and which AI methods
				may be suited to solving a given problem
				CO2: Apply the language/framework of
				different AI methods for a given problem
III-I	R1931054	IT3104	Artificial Intelligence	CO4: Design and court out an ampirical
				CO4: Design and carry out an empirical
				evaluation of different algorithms on problem formalization and state the conclusions that the
				evaluation supports
				CO5: To get Knowledge Representation and CYC theory.
				CO6: Design a system applications and fuzzy
				model.
				CO1: Identify and understand various software
				testing problems, apply software testing
				knowledge and engineering methods and solve
				these problems by designing and selecting software test models, criteria, strategies, and
				methods
			Software Testing	
III-I	R1931	PE3101	Methodologies	CO2: Design and conduct a software test
111 1	Rijoi	123101	, inclination gres	process for a software project
				CO3: Analyze the needs of software test
				automation
				CO4: Use various communication methods and
				skills to communicate with their teammates to
				conduct their practice-oriented software testing
				projects
				CO5: Basic understanding and knowledge of
				contemporary issues in software testing, such as
				component-based, web based and object-
				oriented software testing problems
				CO6: Write test cases for given software to test
				it before delivery to the customer and write test
				scripts for both desktop and web-based



				applications
III-I	R1931124	IT3105	Design and Analysis of Algorithms	applications CO1: Describe asymptotic notation used for denoting performance of algorithms CO2: List and describe various algorithmic approaches and Solve problems using divide and conquer &greedy Method CO3: Synthesize efficient algorithms dynamic programming approaches to solve in common engineering design situations. CO4: Dynamic programming approaches to solve in the traveling salesperson problem CO5: Organize important algorithmic design paradigms and methods of analysis: backtracking, branch and bound algorithmic approaches. CO6: Demonstrate an understanding of NP-
				Completeness theory and lower bound theory
III-II	R1932121	IT3201	Data Warehousing and Data Mining	CO1: Design a Data warehouse system and perform business analysis with OLAP tools CO2: Apply suitable pre-processing and visualization techniques for data analysis CO3: Apply frequent pattern and association rule mining techniques for data analysis CO4: Drive the model building and pattern evaluations. CO5: Apply appropriate classification techniques for data analysis. CO6: Apply appropriate clustering techniques for data analysis.
III-II	R193204J	OE3201	Principles of Communication	CO1: Analyze the performance of analog modulation schemes in time and frequency domains. CO2: Analyze the performance of angle modulated signals. CO3: Characterize analog signals in time domain as random processes and noise. CO4: Characterize the influence of channel on analog modulated signals CO5: Determine the performance of analog communication systems in terms of SNR CO6: Analyze pulse amplitude modulation, pulse position modulation, pulse code modulation and TDM systems.
				CO1: Illustrate the basic concepts of HTML and CSS & apply those concepts to design static web pages CO2: Identify and understand various concepts



III-II	R1932122	IT3202	Web Technologies	related to dynamic web pages and validate them using JavaScript CO3: Outline the concepts of Extensible markup language & AJAX CO4: Describe the working with XML. CO5: Develop web Applications using Scripting Languages & Frameworks. CO6: Create and deploy secure, usable database driven web applications using PHP and RUBY.
III-II	R1932054	HS3201	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: Able to learn about firm and pricing policies. CO5: The Learner is able to prepare Financial Statements and the usage of various accounting tools for Analysis. CO6: The Learner can able to evaluate various investment project proposals with the help of capital budgeting techniques for decision making.
IV-I	R1941051	IT4101	Cryptography and Network Security	CO1: Identify information security goals, classical encryption techniques and acquire fundamental knowledge on the concepts of finite fields and number theory CO2: Compare and apply different encryption and decryption techniques to solve problems related to confidentiality and authentication CO3: Apply the knowledge of cryptographic checksums and evaluate the performance of different message digest algorithms for verifying the integrity of varying message sizes CO4: Apply different digital signature algorithms to achieve authentication and create secure applications CO5: Apply network security basics, analyze different attacks on networks and evaluate the performance of firewalls and security protocols like SSL, IPsec, and PGP CO6: Apply the knowledge of cryptographic utilities and authentication mechanisms to



				design secure applications
				CO1: Identify machine learning techniques
				suitable for a given problem
				CO2: Solve the problems using various machine
				learning techniques
IV-I	R1941053	IT4102	Machine Learning	CO3: Apply Dimensionality reduction
				techniques
				CO4: Design application using machine
				learning techniques
				CO5: Describe ANN and SVM.
				CO6: Bayesian and instance-based learning.
				CO1: Illustrate reference models with layers,
				protocols and interfaces
				CO2: Describe the routing algorithms, Sub
				netting and addressing of IP V4and IPV6
			Advanced Computer	CO3: Describe and Analysis of basic protocols
IV-I	R1941121	IT4103	Networks	of computer networks, and how they can be
				used to assist in network design and
				implementation
				CO4: Describe the concepts Wireless LANS,
				WIMAX, IEEE 802.11, Cellular telephony and
				Satellite networks
				CO5: Explain SCTP and QoS.
				CO6: Able to know about WWW, HTTP,
				SNMP and internet.
				CO1: Understand the basic concepts of an
				embedded system and able to know an
				embedded system design approach to perform a
				specific function.
IV-I	R194104K	OE4101	Embedded Systems	CO2: The hardware components required for an
1 V-1	K194104K	OL4101	Embedded Systems	embedded system and the design approach of an
				embedded hardware.
				CO3: The various embedded firmware design
				approaches on embedded environment.
				CO4: Understand how to integrate hardware and
				firmware of an embedded system using real
				time operating system.
				CO5: Able to know about real time operating
				and co-design systems.
				CO6: Describe Embedded System tools,
				implementation and testing.
				CO1: Interpret the key dimensions of the
				challenge of Cloud Computing
				CO2: Examine the economics, financial, and
				technological implications for selecting cloud computing for own organization
IV-I	R194105G	PE4101	Cloud Computing	CO3: Assessing the financial, technological, and
				organizational capacity of employer's for



				potivoly initiating and installing along the
				actively initiating and installing cloud-based
				applications CO4: Evaluate own organizations' needs for
				capacity building and training in cloud
				computing-related IT areas
				CO5: Illustrate Virtualization for Data-Center
				Automation
				CO6: Illustrate AWS and EC2, S3.
				CO1: Demonstrate knowledge and
				understanding of the security and ethical issues
				of the Internet of Things
				CO2: Conceptually identify vulnerabilities,
				including recent attacks, involving the Internet
				of Things
IV-I	R194112F	PE4102	Internet of Things	CO3: Develop critical thinking skills
		12.1102		CO4: Compare and contrast the threat
				environment based on industry and/or device
				CO5: Define the concepts of data link layer.
				CO6: Describe data acquiring and IoT/M2M.
IV-I	R1941123		Project - I	Defining the problem and know about the
1 4-1	K1941123		1 Toject - 1	Abstract.
				CO1: After completion of the Course the
				student will acquire the knowledge on
				management functions, global leadership and
				organizational structure CO2: Will familiarize with the concepts of
			Management and	functional management that is HRM and
IV-II	R1942051	HS4201	Organizational	Marketing of new product developments
			Behaviour	CO3: The learner is able to think in strategically
				through contemporary management practices
				CO4: Define SWOT, Business strategies.
				CO5: The learner can develop positive attitude
				through personality development and can equip
				with motivational theories
				CO6: The student can attain the group
				performance and grievance handling in
				managing the organizational culture
				CO1: Affirm the usefulness of integrating
				management principles in disaster
				mitigation work
				CO2: Distinguish between the different
IV-II	R194201M	OE4201	Disaster Management	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	R194212B	PE4201	Network Programming	CO1: Demonstrate functional layering of network software architectures
				CO2: Write your own socket-based network application programs
				CO3: Apply software tools for network troubleshooting
				CO4: Different kernel levels and API.
				CO5: Able to know about different memory and network IPC functions.
				CO6: Describe TCP and UDP functions, client and server applications.
IV-II	R1942121		Project – II	Engineering is the practice of using natural science and the engineering design process
				to solve technical problems.