VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

I YEAR - I SEM

C101	ENGLISH	C101.1	Apply technical vocabulary in professional correspondence .
		C101.2	Develop speaking skills through participation in role plays and discussions .
		C101.3	Choose grammatically correct sentences in speech and in writing .
		C101.4	Show good understanding of academic lectures and English spoken by native speakers.
		C101.5	Demonstrate effective writing strategies for organized essays record and report useful information .
		C101.6	Outline summaries based on global comprehension of reading / listening texts .
C102	MATHEMATIC-1	C102.1	Solve sequences and series problems.
		C102.2	Understand and apply the mean value theorems for a given function.
		C102.3	Apply first order and first-degree ODE techniques in engineering problems.
		C102.4	Solve higher order differential equations.
		C102.5	Examine given function of two variables for its extreme values.
		C102.6	Evaluate double and triple integrals.
C103	APPLIED PHYSICS	C103.1	Apply the wave nature of light to various optical phenomena and related engineering applications. .
		C103.2	Explain the working principle and use of laser in engineering science, Medicines & Industry and apply the concepts of optical fiber in communication systems. .
		C103.3	Analyze the quantum mechanical model of electrons confined in a potential well or box including energy quantization and wave functions..
		C103.4	Classify the materials based on band theory of solids..
		C103.5	Explain the properties of dielectric and magnetic materials and their application in energy storage devices. .
		C103.6	Classify types of semiconductors , role of carrier concentration in conductivity and Explain the behavior of materials at low temperatures and the applications of superconductivity.
C104	PPS USING C	C104.1	Demonstrate algorithms and to draw flowcharts for solving problems and to convert flowcharts/algorithms to C Programs, compile and debug programs.
		C104.2	Explain different operators, data types and deveolp programs that use two-way/ multi-way selection and to select the best looping structure for a given problem.
		C104.3	Make use of arrays and to design programs to perform operations on arrays.
		C104.4	Build programs to know different pointer applications that use dynamic memory allocation.
		C104.5	develop programs on functions and to develop modular reusable code..
		C104.6	Apply File I/O operations and apply file handling functions to access contents of files..

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

C105	COMPUTER ENGINEERING WORKSHOP	C105.1	Understand the procedure for disassemble and assemble a personal computer.
		C105.2	Demonstrate the procedure for interconnection of two or more computers
		C105.3	Design slide presentation ,document & spreadsheet preparation
		C105.4	Interpret various antivirus software tools and its features ,Use internet and browse it to obtain the required information
C106	ENGLISH COMMUNCATIONS LAB	C106.1	Explain English speech sounds and accent neutralization.
		C106.2	Identify context and extract specific details of brief audio recordings to answer speaking questions
		C106.3	Interpret newspapers to understand key terminology and structures for effective report writing
		C106.4	Apply knowledge of English pronunciation with accurate stress, intonation, and rhythm
C107	APPLIED PHYSICS LAB	C107.1	Apply the principle of interference in thin film to determine the thickness of given spacer, radius of curvature of lens with the use of optical instruments travelling microscope .
		C107.2	Examine the spectra formed by polychromatic light to determine the wavelength of light with the use of spectrometer..
		C107.3	Evaluate the energy band gap of a semiconductor and study temperature resistance characteristics of a given thermistor. .
C108	PPS USING C LAB	C108.1	Build flowcharts for solving problems and to convert flowcharts to C Programs, compile and debug programs.
		C108.2	Apply different operators, data types and write programs that use two-way/ multi-way selection and to select the best looping structure for a given problem.
		C108.3	Build programs on arrays and to perform operations on arrays.
		C108.4	Develop programs that use dynamic memory allocation, structures , unions and apply file handling functions to access contents of files..

I YEAR - II SEM

C111	MATHEMATICS II	C111.1	Solve linear system of equations
		C111.2	Examine the eigen values and eigen vectors.
		C111.3	Obtain the canonical form to quadratic form.
		C111.4	Identify the approximate roots of algebraic and transcendental equations.
		C111.5	Summarise the concept of interpolation using various methods
		C111.6	Solve ordinary differential equations by using various numerical methods
C112	APPLIED CHEMISTRY	C112.1	Utilize knowledge of different polymer types to choose suitable materials for engineering applications based on their properties. .
		C112.2	Identify the various types of electrochemical cells, corrosion and its control methods. .
		C112.3	Summarize the preparation, types and application of semiconductors .
		C112.4	Utilize various materials for modern advances of engineering technology. .
		C112.5	Apply analytical instruments to identify various organic compounds and develop diverse renewable energy sources .
		C112.6	Identify different computational chemistry methods and molecular machines. .

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

C113	COMPUTER ORGANIZATION	C113.1	Understand the design of the functional units of a digital computer system..
		C113.2	Analyze the Postulates of Boolean algebra and minimize combinational functions..
		C113.3	Create and manipulate representations of numbers stored in digital computers..
		C113.4	Build the logic families and realization of logic gates and design, analyze combinational .
		C113.5	Remember the internal organization of computers and the relations..
		C113.6	Analyze elementary problems by assembly language programming..
C114	PYTHON PROGRAMMING	C114.1	Interpret the concepts of data types, expressions and decision structures of Python Programming. .
		C114.2	Apply the basics of python programming in implementing control statements, strings and text files. .
		C114.3	Build Applications using the concepts of Lists, Dictionaries. .
		C114.4	Make use of functions, modules and packages of python programming. .
		C114.5	Analyze coding tasks related to File operations, OOP principles. .
		C114.6	Design and develop exceptions and GUI based applications. .
C115	**DATA STRUCTURES**	C115.1	Summarize the properties, interfaces, and behaviors of basic Abstract Data Types .
		C115.2	Analyze the computational efficiency of the principal algorithms for sorting & searching .
		C115.3	Make use of arrays, records, linked structures, stacks, queues, trees, and Graphs in writing programs .
		C115.4	Build linear and nonlinear data structures using linked list. .
		C115.5	Demonstrate different methods for traversing trees and Graphs. .
		C115.6	Apply suitable data structures to solve different problems. .
C116	**CHEMISTRY LAB**	C116.1	Utilize the concept for quantitative analysis in volumetric titrations to determine the concentration/amount of analyses
		C116.2	Apply various analytical techniques, and interpret the results for quantitative analysis.
		C116.3	Determine water quality parameters, such as hardness and alkalinity
C117	PP LAB	C117.1	Demonstrate proficiency in understanding and using various data types and containers, essential for foundational programming skills..
		C117.2	Apply basic Python programming concepts, including syntax, variables, and functions, to develop simple applications.
		C117.3	Design and implement solutions to coding problems by effectively using conditional statements and loops for control flow..
		C117.4	Apply object-oriented programming principles, such as classes, inheritance, and polymorphism, to develop and solve complex coding tasks..

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

II YEAR – I SEM

C201	MATHEMATICS III	C201.1	Examine gradient of a scalar function, divergence and curl of a vector function.
		C201.2	Determine Laplace transform and inverse Laplace transform of a function.
		C201.3	Examine the Fourier series of a given function
		C201.4	solve problems related to Fourier integral theorem and summarize Fourier transform and inverse Fourier transform of a function
		C201.5	solve linear and non-linear Partial Differential equations
C202	OOPS CPP	C202.1	Classify object oriented programming and conventional programming.
		C202.2	Apply C++ features such as composition of classes and objects and constructors and destructors .
		C202.3	Build C++ classes using operator overloading and inheritance .
		C202.4	Build C++ classes using pointers ,binding polymorphism and virtual functions.
		C202.5	Apply object oriented techniques using Generic Programming with templates and exception handling to solve bigger computing problems .
		C202.6	Solve real-world problems using object-oriented techniques.
C203	**OPERATING SYSTEM**	C203.1	Explain the basic components of an operating system and their role in implementation for different computer architectures..
		C203.2	Outline the concept of process, threads and CPU Scheduling algorithms for multitasking..
		C203.3	Identify mutual exclusion principles and their use in cooperating environment using semaphores and monitors.
		C203.4	Explain various memory management techniques and the concept of virtual memory.
		C203.5	Analyze various methods for handling deadlocks..
		C203.6	Analyze various file system implementations, and Disk scheduling algorithms..
C204	**SOFTWARE ENGINEERING**	C204.1	Understand software engineering principles involved in building large software programs and process of requirements specification and requirements validation..
		C204.2	Understand the concepts of object orientation and development of class models..
		C204.3	Analyze system models for designing patterns..
		C204.4	Determine the importance of software maintenance and complexities involved in software evolution..
		C204.5	Apply estimation techniques, schedule project activities and compute pricing..
		C204.6	Analysing Agile process methodologies ..

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

C205	**MFCS**	C205.1	Develop skills in solving mathematical problems..
		C205.2	Illustrate the basic application of set theory and relations..
		C205.3	Understanding of the basic concepts of Combinatorics..
		C205.4	Understanding the basic concepts of Number theory.
		C205.5	Solve the recurrence relations..
		C205.6	Apply the graph theory concepts..
C206	**OOPS CPP LAB**	C206.1	Apply the various OOPs concepts with the help ofprograms..
		C206.2	Evaluate basic data structures such as arrays andl inked list..
		C206.3	Develop Programs to demonstrate fundamental algorithmic problems including Tree Traversals, Graph traversals, and short test paths..
		C206.4	Make Use various searching and sorting algorithms..
C207	**OS LAB**	C207.1	Make use of Unix utilities and perform basic shell control of the utilities.
		C207.2	Make use of the Unix file system and file access control .
		C207.3	Experiment with UNIX operating system to develop software .
		C207.4	Take part in Linux environment efficiently .
C208	**SE LAB**	C208.1	Analyze and specify software requirements through a productive working relationship.
		C208.2	Develop function oriented and object oriented software design using tools like rational rose.
		C208.3	Make use of modern engineering tools necessary for software project management.
		C208.4	Develop the ability to write good technical document.
C209	**SOC I - LAB**	C209.1	Explain how data is collected, managed, and stored for processing..
		C209.2	Analyze the workings of various numerical techniques, different descriptive measures of statistics, correlation, and regression to solve engineering problems..
		C209.3	Make use of some linear algebra operations to n-dimensional arrays..
		C209.4	Choose NumPy to perform common data wrangling and computational tasks in Python.

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

II YEAR – II SEM

C211	PROBABILITY & STATISTICS	C211.1	Identify the measures of central tendencies for grouped and ungrouped data..
		C211.2	Construct required curve for the given data and to analyze the relation between variables..
		C211.3	Solve the problems related to discrete and continuous probability distributions. .
		C211.4	Find the mean, standard deviations of sampling distributions and estimate errors of sampling. .
		C211.5	Test for the hypothesis of large samples using appropriate tests..
		C211.6	Test for the hypothesis of small samples using appropriate tests..
C212	DBMS	C212.1	Apply the knowledge of fundamental concepts and basic principles of database management systems to identify the real world database applications .
		C212.2	Design conceptual schema using relational data model and the basic SQL commands .
		C212.3	Create the databases using SQL from conceptual schema designed using ER model .
		C212.4	Evaluate the design of the given database application scenario and apply normalization techniques to improve the database design.
		C212.5	Analyze transaction processing, concurrency control and recovery protocols in DBMS.
		C212.6	Analyze the physical design of a database system by examining database indexing techniques and evaluating storage technique.
C213	FLAT	C213.1	Apply theoretical knowledge of automata to real-world scenarios to construct a minimal finite state machine.
		C213.2	Demonstrate the proficiency in applying theoretical representations of properties of regular expressions and grammars into equivalent practical automaton models.
		C213.3	Distinguish Regular languages, context-free languages, and context free grammars.
		C213.4	Develop context-free grammars (CFGs) and context-free languages (CFLs) for the given language .
		C213.5	Design and develop minimal pushdown automata (PDA) and Turing machines to accurately model specified languages.
		C213.6	Apply theoretical principles of automata to classify problems in formal languages as decidable or undecidable.
C214	JAVA PROGRAMMING	C214.1	Interpret the concepts of Object-Oriented Programming and the Java Programming Constructs .
		C214.2	Demonstrate the concepts of Object Orientation like Objects, Classes, Methods, Constructors alongside the usage of various keywords .
		C214.3	Apply the concepts of Array operations .
		C214.4	Apply the concepts of Inheritance and Interfaces to solve the real-world problem.
		C214.5	Examine the usage of Packages and Exception handling to build the Java Applications.
		C214.6	Analyze the methods of String handling, Survey the techniques of Multithreading and the front-end , back end through Java Database Connectivity. .

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

C215	**MEFA**	C215.1	Define about Managerial Economics & different types of demand.
		C215.2	Explain different types of Production functions &Cost Concepts.
		C215.3	Recall the nature of Markets and different Pricing methods.
		C215.4	Define different forms of Business phases & Cycles.
		C215.5	Summarize the concepts of Accounting.
		C215.6	Analyze the Financial position of a company by using different techniques.
C216	**DBMS LAB**	C216.1	Apply the database concepts, technology and create the relations and, implement basic SQL commands.
		C216.2	Apply Queries using Advanced Concepts of SQL.
		C216.3	Apply constraints and joins to implement advanced SQL features.
		C216.4	Develop and execute PL/SQL programs.
C217	**RP LAB**	C217.1	Import, review, manipulate and summarize data-sets in R..
		C217.2	Explore data-sets to create testable hypotheses and identify appropriate statistical tests.
		C217.3	Perform appropriate statistical tests using R.
		C217.4	Create and edit visualizations with R.
C218	**JP LAB**	C218.1	Develop Java applications using command line arguments, arrays and control structures and solve real word problems using OOP's Concepts.
		C218.2	Build Java applications by handling exceptions..
		C218.3	Construct concurrent applications by applying Multithreading, AWT concepts in java..
		C218.4	Construct Threads, Event Handling, implement packages, developing applets.
C219	**SOC II - LAB**	C219.1	Create and manipulate Pandas Series and DataFrames, enabling efficient organization, transformation, and management of data.
		C219.2	Explain in handling arrays and performing complex queries on DataFrames, including data retrieval, filtering, and modification..
		C219.3	Evaluating in querying DataFrames to clean and process data, including managing missing values, applying transformations, and preparing data for further analysis..
		C219.4	Understand and apply best practices for creating basic charts using Pandas and Matplotlib, effectively visualizing data and communicating insights.

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

III YEAR – I SEM

C301	COMPUTER NETWORKS	C301.1	Illustrate the OSI and TCP/IP reference model.
		C301.2	Analyze data link layer services, functions and protocols like HDLC and PPP..
		C301.3	Analyze medium access control protocols like ALOHA, CSMA, CSMA/CD, CSMA/CA, Polling, Token passing, FDMA, TDMA, CDMA protocols .
		C301.4	Identify a suitable roting model with congesition control mechanism .
		C301.5	Apply ethernet protocals for data trasmissions.
		C301.6	Determine application layer services and client server protocols working with the client server paradigms like WWW, HTTP, FTP, e-mail and SNMP etc. .
C302	DAA	C302.1	Analyze the performance of a given algorithm and denote its time complexity using the asymptotic notation for recursive and non-recursive algorithms.
		C302.2	Identify and describe various algorithmic approaches .
		C302.3	Synthesize efficient algorithms using dynamic programming approaches to solve in common engineering design situations .
		C302.4	Solve problems using divide and conquer, greedy, dynamic programming, backtracking and branch and bound algorithmic approaches. .
		C302.5	Apply graph search algorithms to real world problems..
		C302.6	Demonstrate an understanding of NP-Completeness theory and lower bound theory. .
C303	DWDM	C303.1	Identify the stages involved in building a data warehouse, including design, implementation, and maintenance..
		C303.2	Identify the techniques of data preprocessing to ensure data quality and prepare data for analysis..
		C303.3	Apply similarity and dissimilarity measures to compare and classify data points effectively..
		C303.4	Analyze and assess the performance of algorithms used for generating and evaluating association rules in data mining..
		C303.5	Evaluate and compare various classification algorithms to understand their strengths, weaknesses, and suitability for different types of data..
		C303.6	Evaluate and compare clustering algorithms to understand their effectiveness in grouping data points and uncovering patterns..
C304	DLD	C304.1	Make use of different number systems and apply to generate various codes.
		C304.2	Apply the concept of Boolean algebra in minimisation of switching functions..
		C304.3	Utilize different types of combinational logic circuits..
		C304.4	Apply knowledge of flip-flops in designing registers and counters..
		C304.5	Make use of the methodology for synchronous sequential circuits and algorithmic state machines..
		C304.6	Build innovative designs by modifying the traditional design techniques. .

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

C305	ARTIFICIAL INTELLIGENCE	C305.1	Understand the fundamental concepts in Artificial Intelligence..
		C305.2	Analyze the applications of search strategies and problem reductions.
		C305.3	Make use the natural deduction system and axiomatic system for propositional logic..
		C305.4	Apply propositional calculus to analyze and solve problems in various domains.
		C305.5	Identify the strengths and limitations of different knowledge representation paradigms..
		C305.6	Analyze expert systems and traditional software systems..
C306	DWDM LAB	C306.1	Design a data mart or data warehouse for any organization .
		C306.2	Apply data mining techniques and enlist various algorithms used in information analysis of Data Mining Techniques.
		C306.3	Analyze the working of algorithms for data mining tasks such as association rule mining, classification for realistic data .
		C306.4	Apply and analyze on knowledge flow application on data sets and apply the suitable visualization techniques to output analytical results. .
C307	CN LAB	C307.1	Identify different network interfaces and routing protocols..
		C307.2	Choose various services offered by transport layer such as TCP and UDP..
		C307.3	Analyse the application layer protocol and network security issues..
		C307.4	Apply the basics of networking protocols for solving real life networking problems.
C308	SOC III LAB	C308.1	Identify the stages in the Software Development Lifecycle (SDLC) and the process models.
		C308.2	Apply agile principles and methodologies such as Extreme Programming (XP) in software development..
		C308.3	Analyzing DevOps practices including Continuous Integration (CI) and Continuous Delivery (CD)..
		C308.4	Choose tools like Git, Maven, Jenkins, and static code analyzers to automate and streamline software development.
C309	SUMMER INTERNSHIP I	C309.1	Apply theoretical concepts to real-world engineering problems and projects.(K3
		C309.2	Demonstrate enhanced technical skills through hands-on experience with industry-standard tools and technologies..
		C309.3	Understanding of professional work environments, organizational structures, and industry practices..
		C309.4	Improved communication, teamwork, and project management skills, adhering to professional ethics and responsibilities..

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

III YEAR – II SEM

C311	MACHINE LEARNING	C311.1	Illustrate the concepts of computational intelligence like machine learning .
		C311.2	Choose machine learning techniques suitable for a given problem.
		C311.3	Analyze the Ensemble Learning Methods and classification models.
		C311.4	Develop support vector machines..
		C311.5	Analyze the Clustering Techniques and Dimensionality Reduction Models in Machine Learning.
		C311.6	Make use of Neural Network Models and Fundamentals concepts of Deep Learning.
C312	COMPILER DESIGN	C312.1	Identify knowledge of the various phases of a compiler, including lexical analysis, syntax analysis, semantic analysis, optimization, and code generation..
		C312.2	Apply compiler construction tools such as LEX and YACC for lexical analysis and syntax parsing..
		C312.3	Experiment with differentiate between top-down and bottom-up parsing techniques, and their associated parsing strategies..
		C312.4	Develop LL, SLR, CLR, and LALR parse tables for different types of grammars and parsing requirements..
		C312.5	Build syntax-directed translation schemes, including the use of synthesized and inherited attributes in the translation process..
		C312.6	Make use of various code optimization techniques to improve the efficiency and performance of generated code..
C313	CNS	C313.1	Evaluate different security threats and countermeasures and foundation course of cryptography mathematics..
		C313.2	Apply the principles of symmetric key algorithms and operations of some symmetric key algorithms and asymmetric key cryptography.
		C313.3	Revise the basic principles of Public key algorithms and Working operations of some Asymmetric key algorithms such as RSA, ECC and some more
		C313.4	Apply number theory and applies knowledge in public key cryptographic algorithms.
		C313.5	Select key management model with digital signature schemes to maintain data integrity.
		C313.6	Determine the knowledge of Application layer, Transport layer and Network layer security Protocols such as PGP, S/MIME, SSL,TSL, and IPsec ..
C314	OOAD	C314.1	Develop solutions to the complex problems using object-oriented approach .
		C314.2	Build classes, responsibilities and states using UML notation .
		C314.3	Identify basic Interactions, Use cases of the problem domain .
		C314.4	Apply advanced behavioral modeling using UML notation .
		C314.5	Discover components of the problem domain .
		C314.6	Make use of components for case studies.

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

C315	**POC**	C315.1	Analyse the performance of analog modulation schemes in time and frequency domains.
		C315.2	Analyse the performance of angle modulated signals.
		C315.3	Explain analog signals in time domain as random processes and noise.
		C315.4	Analyse the influence of channel on analog modulated signals.
		C315.5	Examine the performance of analog communication systems in terms of SNR.
		C315.6	Analyse pulse amplitude modulation, pulse position modulation, pulse code modulation and TDM systems.
C316	**MLP LAB**	C316.1	Build procedures for the machine learning algorithms.
		C316.2	Utilize python's built-in functions to design and evaluate unsupervised models for tasks such as clustering and dimensionality reduction. ..
		C316.3	Inspect machine learning models pre-processed through various feature engineering algorithms using Python programming. .
		C316.4	Develop Machine Learning algorithms to solve real world problems.
C317	**CD LAB**	C317.1	Develop simple lexical analyzers.
		C317.2	Determine predictive parsing table for a CFG.
		C317.3	Apply Lex and Yacc tools.
		C317.4	Examine LR parser and generating SLR Parsing table.
C318	**CNS LAB**	C318.1	Apply the knowledge of symmetric cryptography to implement encryption and decryption .
		C318.2	Make use of the different algorithms like DES, BlowFish, and Rijndael.
		C318.3	Make use of Blowfish Algorithm to encrypt the text "Hello world" .
		C318.4	Analyze and implement public key algorithms .
C319	**SOC - IV LAB**	C319.1	Apply the fundamental concepts and components of the MEAN stack: MongoDB, Express.js, Angular, and Node.js..
		C319.2	Develop web applications using MEAN stack technologies..
		C319.3	Develop secure web applications by implementing authentication, authorization, and other security measures in the MEAN stack..
		C319.4	Create, maintain, and manage MEAN stack applications in a real-world environment..

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

IV YEAR – I SEM

C401	**CLOUD COMPUTING**	C401.1	Identify the key dimensions of the challenges of Cloud Computing .
		C401.2	Classify the Levels of Virtualization and mechanism of tools.
		C401.3	Analyze inter cloud resource management in Google Cloud and Amazon Cloud..
		C401.4	Identify the ' needs for capacity building and training in cloud computing-related IT areas.
		C401.5	Apply Combinatorial Auctions for cloud resource and design scheduling algorithms for computing cloud..
		C401.6	Analyse control storage systems and cloud security, the risks involved its impact and develop cloud application .
C402	**DEEP LEARNING TECHNIQUES**	C402.1	Utilize the fundamental concepts learning techniques of Artificial Intelligence, Machine Learning and Deep Learning .
		C402.2	Build Neural Network and train various random models.
		C402.3	Make Use of the Techniques of Kera's, TensorFlow.
		C402.4	Make Use of the Techniques of Theano and CNTK.
		C402.5	Analyse the Concepts of CNN and RNN .
		C402.6	List Interactive Applications of Deep Learning..
C403	**BLOCK CHAIN TECHNOLOGIES**	C403.1	Apply the block chain basics, Crypto currency..
		C403.2	Compare and contrast the use of different private vs. public block chain and use cases..
		C403.3	Analyze the concepts of Bitcoin and their usage. .
		C403.4	Design an innovative Bit coin Block chain and scripts, Block chain Science on varies coins.
		C403.5	Classify Permission Block chain and use cases – Hyper ledger, Corda. .
		C403.6	Make Use of Block-chain in E-Governance, Land Registration, Medical Information Systems and others.
C404	**BASIC ELECTRONICS**	C404.1	Interpret the concepts of the operation of DC generator and analyse the characteristics of DC generator..
		C404.2	Apply the concepts of principle of operation of DC motor and analyse their characteristics and analyse the starting and speed control methods of DC motors..
		C404.3	Analyse the performance and speed – torque characteristics of a 3- phase induction..
		C404.4	Analyse the operation of Synchronous Machines.
		C404.5	Analyze the operations of various special machines..
		C404.6	Apply the principles and operations of different transformers and working principles..

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

C405	**INTERNET OF THINGS**	C405.1	Identify the design, characteristics, and technologies of Internet of Things. [K3]
		C405.2	Make use of the different hardware and software components for IoT. [K3]
		C405.3	Analyze and implement the technologies required for the development of IoT applications. [K4]
		C405.4	Identify the device control for data management[K3]
		C405.5	Identify the ability to upload/download sensor data on cloud and server. [K3]
		C405.6	Build cloud based IoT applications in real-time. [K6]
C406	**UNDERSTANDING HARMONY**	C406.1	Understand and analyze the essentials of human values and skills, self exploration, happiness and prosperity ..
		C406.2	Evaluate coexistence of the "I" with the body ..
		C406.3	Identify and explain core universal human values and their significance in personal and social contexts.
		C406.4	Identify and evaluate the role of harmony in family, society and universal order ..
		C406.5	Build and associate the holistic perception of harmony at all levels of existence .
		C406.6	Develop appropriate technologies and management patterns to create harmony in professional and personal lives ..
C407	**SOC-V LAB**	C407.1	Make use of Neural Network training and various random models..
		C407.2	Use optimization algorithms to analyze activation functions and enhance hyper parameter tuning..
		C407.3	Build a convolutional neural network, then a recurrent neural network, and use these to understand auto encoders. .
		C407.4	Build a Neural network on capstone project.
C408	**INTERNSHIP-V**	C408.1	Apply theoretical concepts to real-world engineering problems and projects.
		C408.2	Build enhanced technical skills through hands-on experience with industry-standard tools and technologies.
		C408.3	Analyze of professional work environments, organizational structures, and industry practices.
		C408.4	Improved communication, teamwork, and project management skills, adhering to professional ethics and responsibilities.

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

Department of Computer Science & Engineering

R 20 - Course Outcomes

IV YEAR – II SEM

C411	**MAJOR PROJECT WORK**	C411.1	Build the technical knowledge to identify problems in the field of Computer Science and Engineering and its allied areas..
		C411.2	Develop the skills of independent and collaborative learning, alongside acquiring the expertise and awareness needed to implement designs that are both cost-effective and environmentally friendly..
		C411.3	Evaluate different solutions, considering factors such as efficiency, scalability, and maintainability.
		C411.4	Design and development of applications using modern tool usage.
		C411.5	Develop the ability to write technical report and to make oral presentation of the work carried out..