

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

**Department of BS&H - CSE**

**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 develop 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 BS&H - CSE**

**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 COMMUNICATIONS 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. .

**Department of BS&H - CSE****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..

## 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 spoken by native speakers.
		C101.5	Demonstrate effective writing strategies for organized essays and report useful information.
		C101.6	Outline summaries based on global comprehension of reading / listening texts
C102	MATHEMATIC-I	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	P P S USING C	C104.1	Explain about the algorithms and to draw flowcharts for solving problems.
		C104.2	Apply different operators, data types and write programs that use two-way/multi-way selection.
		C104.3	Analyze the best loop construct for a given problem.
		C104.4	design and develop programs for developing different pointer applications.
		C104.5	Analyze a problem into functions and to develop modular reusable code.
		C104.6	apply File I/O operations for developing the applications.

**Department of BS&H -IT**

**R20 –Course Outcomes**

C105	COMPUTER ENGINEERING	C105.1	Understand the procedure for disassemble and assemble a personal computer.
		C105.2	Describe 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.
C106	ENGLISH COMMUNICATIONS LAB	C106.1	Explain English speech sounds and word stress.
		C106.2	Apply knowledge of English pronunciation with intonation, and rhythm in speaking.
		C106.3	Interpret newspapers to understand key terminology and structures for effective report writing
		C106.4	Explain English speech sounds and word stress.
C107	APPLIED PHYSICS	C107.1	Operate optical instrument like Spectrometer & Travelling microscope.
		C107.2	Apply the concept of interference in thin film to determine the thickness of given spacer.
		C107.3	Make Use of Diffraction grating to form & analyze the spectra formed by Mercury Vapor lamp and determine its wavelengths.
C108	P P S USING C LAB	C108.1	Explain and Understanding Knowledge on various concepts of a C language.
		C108.2	Able to Develop flowcharts and write algorithms for the real world problems.
		C108.3	Analyze and decompose complex problems into modular components for effective design and development in programming.
		C108.4	Demonstrate the use of pointers and dynamic memory allocation (malloc, calloc) to manage memory in C programs.

**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.

**Department of BS&H -I T**

**R20 –Course Outcomes**

	C112.6	Identify different computational chemistry methods and molecular machines.
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**Department of BS&H -IT****R20 –Course Outcomes**

C113	COMPUTER ORGANIZATION	C113.1	Outline the various number systems and their conversions.
		C113.2	simplify the Boolean expressions and build the logic circuits.
		C113.3	Explain Combinational and Sequential Logic Circuits.
		C113.4	Apply Computer Arithmetic and floating point operations in algorithms.
		C113.5	Explain the use of Micro operations and other instructions in understanding the architecture of digital computer.
		C113.6	Compare the types of memories ,their mapping functions and different methods for computer I/O
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	Utilize lists, dectionaries, and functions, apply top-down and recursive design, manage namespaces, and analyze file system data in Python
		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	Compare the computational efficiency of the principal algorithms for sorting & searching.
		C115.3	Apply stacks to solve problems such as reversing a list, converting infix expressions to postfix, and evaluating postfix expressions.
		C115.4	Analyze the advantages and limitations of different queue implementations and their suitability for specific problem domains.
		C115.5	Compare binary trees, binary search trees, and balanced trees.
		C115.6	Analyze the time and space complexity of graph algorithms, gaining insights into algorithmic optimization techniques.
C116	CHEMIST BY	C116.1	Utilize the concept for quantitative analysis in volumetric titrations to determine the concentration/amount of analytes
		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.
C118	DS LAB	C118.1	Apply basic data structures such as Arrays, stack, queues to solve the problems.
		C118.2	Build programs to demonstrate fundamental algorithmic problems including Tree Traversals, Graph traversals, and shortest paths.
		C118.3	Implement various searching and sorting algorithms.

VIGNAN'S NIRULA INSTITUTE OF TECHNOLOGY AND SCIENCE FOR WOMEN

**Department of BS&H -IT**

**R20 –Course Outcomes**

## I YEAR-I SEM

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		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 spoken by native speakers.
		C101.5	Demonstrate effective writing strategies for organized essays and report useful information.
		C101.6	Outline summaries based on global comprehension of reading / listening texts
C102	MATHEMATIC-1	C102.1	Apply various tests to determine the convergence or divergence of infinite series.
		C102.2	Understand and apply the mean value theorems for a given function.
		C102.3	Solve the first order differential equations and apply differential equations to find temperature, quantity, orthogonal trajectories and electrical circuits.
		C102.4	Understand the fundamental concepts and solutions of linear differential equations of higher order
		C102.5	Apply techniques to find partial derivatives of functions of multiple variable.
		C102.6	Apply techniques to evaluate double and triple integrals in Cartesian, polar, cylindrical, and spherical coordinates.
C103	APPLIED CHEMISTRY	C103.1	Utilize knowledge of different polymer types to choose suitable materials for engineering applications based on their properties.
		C103.2	Identify the various types of electrochemical cells, corrosion and its control methods.
		C103.3	Summarize the preparation, types and application of semiconductors
		C103.4	Utilize various materials for modern advances of engineering technology.
		C103.5	Apply analytical instruments to identify various organic compounds and develop diverse renewable energy sources .
		C103.6	Identify different computational chemistry methods and molecular machines.
C104	PPSC	C104.1	To write algorithms and to draw flowcharts for solving problems and to convert flowcharts/algorithms to C Programs, compile and debug programs
		C104.2	To use 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
		C104.3	To know the usage of arrays and to design programs to perform operations on arrays
		C104.4	To design and implement programs to know different pointer applications that use dynamic memory allocation
		C104.5	To develop programs on functions and to develop modular reusable code.
		C104.6	To apply File I/O operations and apply file handling functions to access contents of files.

**Department of BS&H - ECE**

**R20 –Course Outcomes**

C105	ENGINEERING GRAPHICS	C105.1	Construct the various types of polygons, engineering curves and scales
		C105.2	Apply the orthographic principle and draw the orthographic projections of points and lines in any position
		C105.3	Apply the orthographic principle and draw orthographic projections of simple planes perpendicular/parallel and inclined to one reference plane.
		C105.4	Apply the orthographic principle and draw orthographic projections of simple planes inclined to both the reference planes
		C105.5	Apply the orthographic principle and draw orthographic projections of regular solids in any position
		C105.6	Analyze the views to convert orthographic views from isometric views and vice versa.
C106	CE LAB	C106.1	Explain English speech sounds and word stress
		C106.2	Apply knowledge of English pronunciation with intonation, and rhythm in speaking
		C106.3	Interpret newspapers to understand key terminology and structures for effective report writing
C107	AC LAB	C107.1	Utilize the concept for quantitative analysis in volumetric titrations to determine the concentration/amount of analyses
		C107.2	Apply various analytical techniques, and interpret the results for quantitative analysis.
		C107.3	Determine water quality parameters, such as hardness and alkalinity
C108	PPS CLAB	C108.1	To draw flowcharts for solving problems and to convert flowcharts to C Programs, compile and debug programs
		C108.2	To use 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	To write programs on arrays and to perform operations on arrays
		C108.4	To design programs that use dynamic memory allocation

**IYEAR-II SEM**

C110	MATHEMATICS II	C110.1	solve linear system of equations
		C110.2	Examine the eigen values and eigen vectors.
		C110.3	Obtain the canonical form to quadratic form.
		C110.4	Identify the approximate roots of algebraic and transcendental equations.
		C110.5	Summarise the concept of interpolation using various methods
		C110.6	Solve ordinary differential equations by using various numerical methods.
C111	APPLIED PHYSICS	C111.1	Apply the wave nature of light to various optical phenomena and related engineering applications.
		C111.2	Explain the working principle and use of laser in engineering science, Medicines & Industry and apply the concepts of optical fiber in communication systems.
		C111.3	Analyze the quantum mechanical model of electrons confined in a potential well or box including energy quantization and wave functions.
		C111.4	Classify the materials based on band theory of solids.

**Department of BS&H - ECE**

**R20 –Course Outcomes**

		C111.5	Explain the properties of dielectric and magnetic materials and their application in energy storage devices.
		C111.6	Classify types of semiconductors , role of carrier concentration in conductivity and Explain the behavior of materials at low temperatures and the applications of superconductivity
C112	OOPJAN	C112.1	Interpret the concepts of Object-Oriented Programming and the Java Programming Constructs
		C112.2	Demonstrate the concepts of Object Orientation like Objects, Classes, Methods, Constructors alongside the usage of various keywords
		C112.3	Apply the concepts of Array operations
		C112.4	Apply the concepts of Inheritance and Interfaces to solve the real-world problem
		C112.5	Examine the usage of Packages and Exception handling to build the Java Application
		C112.6	Analyze the methods of String handling, Survey the techniques of Multithreading and the front-end , back end through Java Database Connectivity.
C113	NA	C113.1	Explain the basic circuit elements, fundamental laws applied for circuits. Apply various transformation techniques, Mesh & Nodal methods to solve network problems
		C113.2	Utilize Laplace Transform and differential approaches to examine the transients in RLC circuits with DC and AC inputs
		C113.3	Understand the concept of phasor representations of voltages and currents for different RLC circuits in single phase AC circuits
		C113.4	Understand the concept of coupled circuits.
		C113.5	Understand the concept of resonant theory and application of various network theorems to solve network problems
		C113.6	Classify the two port network parameters and solve the parameters for different two port network.
C114	BEE	C114.1	Explain the operation of DC generator and analyze the characteristics of DC generator.
		C114.2	Analyze the Operating Principle and design aspects of Single-phase transformers.
		C114.3	Explain the operation of synchronous generator and regulation of alternator.
		C114.4	Explain the operation of synchronous motor and its operating principle.
		C114.5	Analyze the performance and speed – torque characteristics of a 3-phase induction motor and understand starting methods of 3-phase induction motor.
		C114.6	Interpret the principle, constructional features of different special machines.
C115	EWL	C115.1	Explain the working function of basic Electronic Components
		C115.2	Demonstrate the basic Passive, Active components used in Electronic circuit
		C115.3	Make use of basic electronics components perform various applications
C116	BEE LAB	C116.1	Experiment with DC machines and Analyze their performance.
		C116.2	Compare the performance characteristics of DC Shunt and Series generators
		C116.3	Evaluate the Efficiency and voltage regulation of 1-phase transformers.

**Department of BS&H - ECE****R20 –Course Outcomes**

C117	AP LAB	C117.1	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
		C117.2	Examine the spectra formed by polychromatic light to determine the wavelength of light with the use of spectrometer.
		C117.3	Evaluate the energy band gap of a semiconductor and study temperature resistance characteristics of a given thermistor.