SILVER JUBILEE GOVERNMENT COLLEGE(A), KURNOOL
A.Y:2021-22

COURSE OUTCOMES						
S.No	**Semester**	**Paper**	**Course Code**	**Course Name**	**CO Number**	**Course Outcome**
Mathematics						
1	I	I	MAT-11	Differential Equations	CO1	Student will be able to : Understand how to find the integrating factors for various types of linear equations
					CO2	to apply different methods for solving DEs of first order but not of first degree .
					CO3	To find the solution of higher-order linear differential equations with constant coefficients and various techniques i.e. Solution of f(D)y=0General Solution of f(D)y=Q when Q is a function of x. is Expressed as partial fractions.P.I. of f(D)y = Q , Q is b sin ax or b cos ax
					CO4	Solution of the non-homogeneous linear differential equations with constant coefficients. ,Method of variation of parameters;
					CO5	To make diffrentiate the Ordinary and Partial Differential equations..Lagrange's equations-Type I and II .
2	II	II	MAT-12	Solid Geometry	CO1	To understand the equation of planes and various types and Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane
					CO2	To find the equation of a line; Angle between a line and a plane; some conditions; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line;

					CO3	To definition and equation of the sphere; Plane sections of a sphere; Intersection of two spheres; Equation of a circle; Sphere through a given circle; Intersection of a sphere and a line; Power of a point; Tangent plane; Plane of contact; Polar plane; Pole of a Plane; Conjugate points; Conjugate planes;
					CO4	To Angle of intersection of two spheres; To know the definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; Enveloping cone of a sphere and others

					CO5	To undersatnd the Intersection of a line and a quadric cone; Tangent lines and tangent plane at a point; varoius Condition that a plane may touch a cone;Definition of a cylinder; Enveloping cylinder of a sphere; The right circular cylinder; Equation of the right circular cylinder with a given axis and radius.
3	III	III	MAT-21	Abstract Algebra & Real Analysis-I	CO1	To review Algebraic structure – Group definition and elementary properties Finite and Infinite groups – examples – order of a group. Composition tables with examples.
					CO2	To the significance of the notions of cosets, normal subgroups, and factor group, Lagrange's Theorem -Analyze consequences of Lagrange's theorem
					CO3	To know definition of normal subgroup – various normal subgroups– Hamilton group – quotient group – criteria for the existence of a quotient group and related theorems
					CO4	To attain the knowledge of real numbers and sequences-related theorems
					CO5	To attain the knowledge series and various tests to find their convergence
4	IV	IV	MAT-22	Abstract Algebra & Real	CO1	To know about the structure preserving maps between groups and their consequences - homomorphisms-fundamental theorem on Homomorphism and applications

				Analysis-II	CO2	Definition of permutation groups and Cyclic Groups and properties – Cayley's theorem.
					CO3	Understanding the concepts of Limits and types Continuous functions
					CO4	To know the calculus tools- differntiation - related theorems
					CO5	To knw the another tool like Riemann Integral, Fundamental theorem of integral calculus, integral as the limit of a sum, Mean value Theorems.
5	V	V	MAT-31	Ring Theory and Vector Calculus (Commaon Paper Core))	CO1	To attain knowledge in Rings, Sub rings, Ideals
					CO2	Further learning of homomorphisms and polynomial rings
					CO3	To learnVector differential operators and related topics
					CO4	To understand line, surface and volume integrals
					CO5	To know the theorems of Gauss and Stokes, Green's and applications
6	V	VI	MAT-32	Linear Algebra (Commaon Paper Core)	CO1	To understand real vector spaces, subspaces, , Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors basis, dimension and their properties.
					CO2	To know basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of a Vector space, , subspace, Quotient space and Dimension of Quotientspace
					CO3	To Linear transformations-,Rank and Nullity- Rank Nullity Theorem
					CO4	To recognize consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix, using rank. Cayley – Hamilton Theorem.
					CO5	Inner product spaces, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process. Bessel's inequality and Parseval's Identity

7	V	VII	MAT-33	Cluster Elective-VI (A)- Laplace Transform	CO1	To know about piecewise continuous functions, Dirac delta function, Laplace transforms and its properties.
					CO2	To know Shifting Theorems, Laplace Transform of the derivative of f(t), Initial Value theorem and Final Value theorem.
					CO3	To know Laplace transforms of Bessel' functions, error function sine and cosine integrals
					CO4	to learn the process of Inverse Laplace Transform. -related theorems- use of partial fractions, Examples
					CO5	To understand the convolution Theorem – proof and Applications – Heaviside's Expansion theorem and its Applications.
8	VI	VIII(A)1	MAT-34	Integral Transforms-Paper	CO1	To know about piecewise continuous functions, Dirac delta function, Laplace transforms and its properties.Understanding how to apply LTto DE's
				VIII(A)-1 (Cluster elective)	CO2	Solution of simultaneous ordinary Differential Equations.Solutions of partial Differential Equations
					CO3	Equations-Abel's, Integral Equation-Integral Equation of Convolution Type, Integral Differential Equations. Application of L.T. to Integral Equations.
					CO4	To familiarize with Fourier transforms of functions belonging to between Laplace and Fourier transforms.Class-relation
					CO5	To know Finite Fourier tranforms and its techniques
9	VI	VIII(A)2	MAT-35	Advanced Numerical AnalysisPaper VIII(A)-2	CO1	To know what is Curve fitting and its applications
					CO2	To know Newton's forwardand backward difference formula, Central difference formula, Stirling's interpolation formula, divided difference formula.
					CO3	To know Numerical Integration- Euler transformation.

				(Cluster elective)	CO4	Learning the Solutions of simultaneous Linear Systems of Equations: Method of factorization, Solution of Tridiagonal Systems,. Iterative methods. Jacobi's method, Gauss-siedal method
					CO5	To find numerical solution of first order ordinary differential equations: by Taylor's Series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge – Kutta methods
10	VI	VIII(A)3	MAT-36	Cluster Elective Paper VIII(A)-3: Project Work-(Integral Transforms and Advanced Numerical Analysis)	CO1	To know to the methods to initiate any project
					CO2	Group wise selecting some theme and anylize method to form project
					CO3	Tis project work involving applications of theory to assimilate basic concepts of mathematics.
					CO4	To solve complex problems by identifying feasible divisions into simpler sub-problems;
					CO5	Learning skills for final submssion of project work and analyzing the results in group manner and presenting the same in viva voce

PHYSICS

1	I	I	111-PHY	Mechanics and properties of matter	CO1	Acquire Knowledge about the scal and vector fields. Gradient of a scalar field, Divergence and curl of vector field, different types of integrals stokes and Guss theorem
					CO2	Understand the variable mass and motion of the rocket, collisions in two and three dimensions, solve the problems on Rutherford scattering
					CO3	Provide a theoretical basis for doing experiments in compound pendulum and torsional pendulum,understand the mechanics of Rigid bodies. Describe elastic nature of the materials, types of beams,loads, supports and bending moment

					CO4	Gain knowledge on Central forces and its conservative nature, Kepler's laws and their verification useful to understand the motion of the planets
					CO5	Students will get knowledge on Galilean and Lorentz transformations, Michelson-Morley experiment, Postulates of special theory of relativity and applications
2	II	II	212-PHY	Waves and Oscillations	CO1	Learn about physical properties of Simple Harmonic Motion (SHM), Combination of two mutually perpendicular S.H.M, Lissajous figures.
					CO2	Describe equation and solution of damped harmonic and Forced oscillators, Energy and Power dissipation ,concept of resonance.students can analyse different types of complex vibrations using Fourier's theorem
					CO3	Can derive the General Solution of Longitudinal vibrations in , Derive the equation for the frequency of Longitudinal Vibrations in a bar in different cases, working principle of Tuning fork
					CO4	Develope Clear understanding about the different cases of modes of vibrations of stretched string, harmonics, overtones and mechanical impedance, Power dissipation.
					CO5	Get the knowledge about the properties, production ,detection and applications of Ultrasonics
3	III	III	313-PHY	wave optics	CO1	Caluculation of image formed by optical systems and the defects involved.
					CO2	Understanding the wave nature of light through the phenomenon of interference and diffraction
					CO3	Confirmation of transverse nature of light through phenomenon of polarisation.Appilications of polarization in different fields.
					CO4	Gain Fundamental knowledge in lasers, holography.

					CO5	Use of Optical fiber communication in information and technology

4	IV	IV	414-PHY	Thermodynamics and Radiation physics	CO1	Learning and analysis of various thermodynamic process and calculation of work done in each of these process
					CO2	Understanding the reversible and irreversible process, working of a Carnot engine, and knowledge of calculating change in entropy for various process.
					CO3	Realize the importance of potential(energy) functions to describe thermodynamical systems and applications of Maxwell's relations.
					CO4	Use of experimental tools to produce low temperatures and their application in superconductivity
					CO5	Understanding the thermal radiation-Black body and its theoritical explanation by Quantum mechanics.
5	V	V	515-PHY	Electricity,Magnetism and Electronics	CO1	Understanding the fundamental law of nature-Coulombs law and Principle of superposition.Calculation of Electric field and Potentials.Appilications and Importance of Gauss law.Energy storage in Capacitors.
					CO2	Calculate the magnitude and direction of the magnetic field due to a current distributions using the Biot-Savart law and Ampere's Law for symmetric current distributions.
					CO3	Describe and analyze electromagnetic wave propagation in freespace from Maxwell equations.Calculation of EM energy and mentum carried by a wave.
					CO4	Acquire knowledge and applications of Diode and Transistors.
					CO5	know about various number systems and their applications.Logic gates and their importance in information technology.

6	V	VI	516-PHY	Modern Physics	CO1	Gain Fundamental knowledge in various atomic models in understanding Hydrogen spectrum.For multi electron systemsVector atom model and L-S, J-J coupling schmes.
					CO2	Realize the importance of Raman effect,Zeeman effect and stark effect and their appilications in understanding various molecular phenomenon.
					CO3	Understand the basic postulates of quantum physics.Ability to construct and apply Schrodinger wave equation for free particle
						in a box.Also to understand free and bound states as well as to analyze and interpret the results
					CO4	Expected to gain knowledge of crystal structure.X-ray diffraction and superconductivity,its underlying principles and its applications in modern world .
					CO5	Acquire knowledge and deep understanding of Radio activity,nuclear Fission and Nuclear Fusion,the relevance of nuclear transformation.
7	VI	VII	617-PHY	Renewable energy	CO1	Recollects the knowledge on basic ideas about energy aspects.
					CO2	Awareness on environmental degradation due to production and utilization.
					CO3	Perception on solor energy and utilization
					CO4	Gains Knowlede on utilization of ocean,tidal and wave energy.
					CO5	Awareness on resources of energies from hydrogen and bio mass.
8	VI	VIII -A	618PHY-A1	Solar Thermal and Photovoltaic aspects	CO1	Basic idea of structure of sun,solar irradiance and solar radiation.
					CO2	Different laws related to solar irradiance.Various parameters related to solar irradiance and its measurment.

					CO3	Knowledge of Flat Plate Collector and receving efficiency.
					CO4	Understanding of construction and working of PVC and its types.
					CO5	Applications of solar cells in Demostic and industrial appliances.
9	VI	VIII -B	618PHY-A2	Wind,Hydro and Oceaan energies	CO1	Knowledge on basic principles of wind enery.
					CO2	Understanding of wind measurment tecgniques-types of animo meter.
					CO3	Applications of wind energy in different fields.
					CO4	Knowledge on conversion of ocean energy into electrical energy.
					CO5	Basic ideas on tidal energy,modes of operation of different tidal systems.Advantages and Disadvantages of tidal energy.
10	VI	VIII -C	618PHY-A3	Energy storage devices	CO1	Acquire the basic knowledge on Need of energy storage systems, different modes of energy storage systems and their applications.
					CO2	Describe the construction and working principle of different Batteries and Carbon nanotubes.
					CO3	Explain the construction, principle, applications, advantages and disadvantages of Electromagnetic energy storage systems
					CO4	Understand the components, construction, principle,advantages, disadvantages and applications of Fuel Cells
					CO5	Gain the knowledge on the construction and working of different types of fuel cells and their applications

CHEMISTRY						
1	I	I	111-CHE	Inorganic and Physical	CO1	Gain the knowledge of synthesis and applications of various compounds like Borazine, Diborane, Boron nitride, silicones and interhalogen compounds.

				Chemistry	CO2	One can understand the classification, synthesis and application of Organometallic compounds in synthetic organic chemistry especially in carboncarbon bond (C-C) bond formation reactions.
					CO3	Able to differentiate both the crystalline and amorphous solids. Claasify the crystal systems based on the arrangement of particles (atoms) in a cube. Can study the diffraction pattern of X-rays also gain the knowledge of semiconductors and its applications.
					CO4	Able to define the ideal and real gases by using ideal gas equation, derive the gas equation at different conditions like low, high pressure and volume. Understand the Andrews isotherms of CO2 gas. Able to derive the vander waals gas equation for real gases by using ideal gas equation also can derive the relationship between Vander-Waals gas constants and critical constants.
					CO5	Can understand the importance of liquid crystals, Able to define the ideal and non ideal solutions, can classify the solutions wrt critical solution temperature eg.phenol-water, acetone-ater and ethanol-water systems.
2	II	II	212-CHE	Organic and General Chemistry	CO1	Able to understand the fundamentals in organic chemistry like types of reagents, intermediates and reactions encountered in synthetic organic chemistry.
					CO2	Gained the knowlwgwde of synthesis and applications of acyclic and alicyclic compounds.

					CO3	Can understand the concept of resonance, resonance energy and resonance hybrid wrt benzene. Also understand the various electrophilic substitution reactions of aromatic compounds.
					CO4	Able to define the colloids, gels and emulsions. Also gain the knowledge of physical and chemical adsorptions. Can apply the Valence Bond theory and Molecular Orbital theory to simple homo and hetero nuclear di atomic molecules.

					CO5	Gained the knowledge of representing organic molecules like wedge, Fischer, Newmann and Sawhorse formulae. Also understand the concept of chirality, stereoisomerism and optical activity. Can apply the CIP rules in the D,L and R,S nomenclature of organic compounds.
3	III	III	313-CHE	Inorganic and Physical Chemistry	CO1	Can understand the characteristics of d- and f-block elements like electronic configuratioin, oxidation states, magnetic properties, catalytic properties and ability to form complexes with various ligands.
					CO2	Can understand the theories of bonding in metals. Able to distinguish and apply the knowlwdge of the conductors, semiconductors and insulators using Band theory. Able to apply the EAN rule to the various metal carbonyls.
					CO3	Able to define and derive the Raoults law euqtion, also apply for the calculation of terms involved in the formula. Can able to intereralte all the colligative properties such as Lowering of vapour pressure, elevation in boiling point, depression in freezing point and the Osomotic pressure.
					CO4	Able to understand and calculate the conductivity values and determine the conductivities of the different samples of solutions.
					CO5	Can apply the knowledge of phase rule to various systems in industries.
4	IV	IV	414-CHE		CO1	Able to understand the terminology in spectroscopy. Also can draw the block diagrams of single and double beam spectrophotometers.
					CO2	Can determine the structure of unknown organic compound using electronic, vibrational and NMR spectroscopy.
					CO3	Able to assign the nomenclature and classification of organic compounds.
				Spectroscopy and Organic Chemistry	CO4	Able to synthesize various organic compounds such a s Hydroxy, Carbonyl and Carboxylic acids.

					CO5	Can apply the synthetic procedures for the preparation of various organic compounds in many pharamaceutical industries.

5	V	V	515-CHE	Inorganic, Physical and Organic Chemistry	CO1	Acquire the knowledge of Werners theory, Sidgwick theory, VBT and CFT for different geometrical Co-ordination compounds..
					CO2	Able to identify and calculate the magnetic moment of several metal complexes. Can distinguish the concept of thermodynamic and kinetic stability.
					CO3	Can apply the knowledge to synthesize various N-Compounds.
					CO4	Can derive the temperature dependence of enthalpy of formation of Kirchoff's equation and Carnots theorem.
					CO5	Able to identify the spontnity of chemical reactions by using various thermodynamic paramaeters such as Internal energy, Enthalpy, Gibbs free energy and Entropy.
6	V	VI	516-CHE	Inorganic, Physical and Organic Chemistry	CO1	Can understand the substitution reactions in metal complexes. Acquire the knowledge of biological significance of essential elements.
					CO2	Can able to derive and determine the various order of reactions.
					CO3	Able to understand and calculate the efficiency of the photochemical reactions.
					CO4	Can acquire the knowledge of synthesis and applications of heterocyclic compounds such as pyrrole, furan, thiophene and pyridine.
					CO5	Can able to determine the structure of monosaccharides and interconversions encountered in carbohydrates. Gain the knowledge of synthesis and applications of aminoacids.
7	VI	VII	617-CHE	Environmental Chemistry	CO1	Able to distinguish the renewable and non-renewable energy sources.
					CO2	Able to suggest the methods of reduction for the air and soil pollution.
					CO3	Acquire the knowledge of softening of water.
					CO4	Understand the toxic effects of Hg, Pb, As and Cd.
					CO5	Able to understand the mechanism of bio-geo-chemical cycles.
8	VI		618-		CO1	Able to understand the basic knowlwdge regarding polymers.

		VIII A1	CHE-A1	Polymer Chemistry	CO2	Can apply the number and weight average molecular weight determination methods to different polymers.
					CO3	Able to understand the concept of glass transition temperature.
					CO4	Gain the knowlwdge and usage of plastic additives such as fillers, Plasticizers, softmners and Lubricants.
					CO5	Can explain the applications of various polymers such as PE, PVC, Teflon, PAN, Terelene, Nylon 6,6 and silicones in industries.
9	VI	VIII A2	618-CHE-A2	Instrumental Methods of Analysis	CO1	Recall and remembering the various analytical methods.
					CO2	Able to understand the various components present in the IR, FTIR, UV-Visible and NMR spectrophotyometers.
					CO3	Can determine the structure of unknown organic compounds.
					CO4	Can understand and impliment the various chromatographic techniques.
					CO5	Able to understand the elemental analysis, atomic absorption , atomic emission and X-ray spectroscopic techniques.
10	VI	VIII A3	618-CHE-A3	Analysis of Drugs, Foods, Dairy Products and Biochemical analysis	CO1	Gain the knowledge of structure and medicinal activity of antipyretics, antianalgesic, antimalarial and antituberculosis.
					CO2	Gain the knowledge of structure and medicinal activity of antihistamine and sedative drugs sucha as citrizine, alprazolam, lorazepem, zolpidem.
					CO3	Gain the knowledge of structure and medicinal activity of anti epileptic, anti convulsant drugs and anti cardiovascular drugs.
					CO4	Able to analyse the milk and milk products in daily life.
					CO5	Able to estimate the blood cholesterol, RBC and WBC.

Computer Science						
1	I	I		Computer Fundamentals	CO1	To understand the working of a computer, data representation in various number systems.
					CO2	To demonstrate the basic parts of a computer and basics of windows operating system

				and Photoshop	CO3	To demonstrate the process of image editing using Photoshop.
					CO4	To construct artistic images, image backgrounds,colour manipulations using Photoshop tool box.
					CO5	To construct presentations and adds using layer styles, opacity layers and various filters.
2	II	II		Programming in C	CO1	To describe the basic terminology used in computer programming.To explain the different data types in a computer program.
					CO2	To design programs involving decision structures, loops and using recursive and non recursive functions with call by value and call by reference mechanisms..
					CO3	To construct C programs using multidimensional arrays and strings.
					CO4	To apply the dynamics of memory by the use of pointers.
					CO5	To use different data structures and functions for creating , modifying text files and binary files.
3	III	III		Object Oriented Programming using java	CO1	To demonstrate the concept and underlying principles of OOP.
					CO2	To illustrate simple java primitives and problem solving using OOP concept.
					CO3	To implement java programs using runtime polymorphism, multiple inheritance using interfaces
					CO4	To Analyze the behaviour of Threads and to manage the errors and exceptions
					CO5	To create java applications using applets and packages and I/O streams
4	IV	IV		Data structures	CO1	To demonstrate the concept of Abstract data type , data structures and taxonomy of data structures
					CO2	To use data structures stacks, queues and variants of queues in the construction of linear data structures
					CO3	To demonstrate the construction of binary trees and their operations
					CO4	To construct the grpahs and minimal spanning trees.
					CO5	To implement searching and sorting of elements in a data structure.

5	V	V		Database Management Systems	CO1	To demonstrate the advantages , limitations of database management system and Concept of data model
					CO2	To construct concpetual data model(E-R Model) of a database for any organization.
					CO3	To discuss about relational datamodel, design of relational algebra and relational calculus queries
					CO4	To demonstrate the SQL sub languages and to implement SQL queries for various real world transactions using different SQL constructs.
					CO5	To implement stored procedures and construct active databases
6	V	VI		Software Engineering	CO1	To acquire the knowledge of basic software engineering methods, processes and their appropriate applications.
					CO2	To apply requirements gathering methods to create a SRS document for a defined problem.
					CO3	To discuss about software architecture and effective modular using by incorporating coupling and cohesion
					CO4	To demonstrate and design effective user interfaces
					CO5	To demonstrate software quality metrics and software reliability using various testing methods and standards.
7	VI	VII		Web Technologies	CO1	To create web pages using XHTML and Cascading style sheets
					CO2	To build dynamic web pages using dynamic HTML
					CO3	To create dynamic web applications through XML
					CO4	To create web applications through Ruby
					CO5	To develop Java server faces web applications and to demonstrate webservices.
8	VI	VIII-A		Distributed Systems	CO1	To demonstrate the models for distributed systems.
					CO2	To discuss about the implementation of Remote Procedure Call(RPC)
					CO3	To understand the design and implementation Distributed shared memory system.
					CO4	To describe the load balancing approach and load sharing approach in distributed systems
					CO5	To describe file sharing and authentication, access control of data files in a distributed environment

9	VI	VIII -B		Cloud computing	CO1	To compare the strengths and limitations of cloud computing
					CO2	To identify the core issues of cloud computing such as security, privacy and interoperability
					CO3	To Identify the architecture, infrastructure and delivery models of cloud computing
					CO4	To understand public and private clouds and to disinguish infrastructure as a service(Iaac) clouds.
					CO5	To apply suitable virtualization concept in cloud computing
10	VI	VIII -C		Grid computing	CO1	To understand the genesis of grid computing
					CO2	To describe grid monitoring systems and service level agreements.
					CO3	To learn the technology and tool kits for facilitating grid computing
					CO4	To understand the data management challenges and collective datamanagement services in grid computing
					CO5	To understand the list of globally available middleware for grid computing

Web Technology						
1	I	I		Fundamentals of computers, web, Internet & Python programming	CO1	To understand the working of a computer
					CO2	To demonstrate disk operating system, windows operating system commands
					CO3	To create MS word documents by applying various styles
					CO4	To use python language constructs such as control structures, functions,lists.tuples,dictionaries, arrays, string for implementing programs in python
					CO5	To use various python modules and packages to develop programs in python language
2	II	II		HTML,CSS, Java Script	CO1	To implement web pages using HTML, CSS

					CO2	To design a responsive web pages using HTML forms and by incorporating audio, video plugins
					CO3	To apply styles for webpages using CSS forms and to demonstrate CSS3
					CO4	To understand the dynamic html and use of java script in html pages
					CO5	To implement client side validation using java script
3	III	III		Graphic Designing	CO1	To identify and specify file formats and image resolution for print and web.
					CO2	To use image sharpening techniques.
					CO3	To apply layers and filters in image editing
					CO4	To demonstrate GUI of illustrator and transforming and moving of objects
					CO5	To create a story board using animation
4	IV	IV		PHP & MySql, Wordpress	CO1	To demonstrate installation of PHP and Apache web server, MySQL on Windows and Linux platforms.
					CO2	To write PHP Script with functions and Arrays.
					CO3	To create forms and access the input from forms using Super Globals
					CO4	To construct PHP and MySQL database connectivity for data retrieval and manipulation through webpages.
					CO5	To create customized Wordpress website
5	V	V		Advanced Java Script JQUERY/AJAX/JSON/Angular JS	CO1	To understand basics of jQuery, jQuery attributes and DOM methods
					CO2	To implement Event handling in jQuery
					CO3	To customize jQuery UI widgets
					CO4	To understand the need of Ajax in real websites

					CO5	To understand the design of single-page applications and how AngularJS facilitates their development.
6	V	VI			CO1	To understand objectives and functions of operating system
				Mobile Application Development	CO2	To understand the installation and running of applications on Eclipse platform.
					CO3	To demonstrate best practices in android programming
					CO4	To construct user interfaces using android programming
					CO5	To describe intents and broadcasts, launching activities in mobile applications
7	VI	VII		OOP Using Java	CO1	To implement Object Oriented programming concepts using basic syntaxes of controls Structures, strings and function for developing skills of logic building activity.
					CO2	To identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
					CO3	To demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
					CO4	To demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development
					CO5	To Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events
8	VI			Java Servlets	CO1	To understand Servlet life cycle and Java servlet API

		VIII-A			CO2	To deploy the Servlet application using a web server.
					CO3	To implement ServletRequest Interface and handle Servlet initialization
					CO4	To implement HttpServletRequest and HttpServletResponse interfaces and to deomonstrate managing of sessions and cookies.
					CO5	To construct Web.Xml file and implement the communication between application, applet to servlet.
9	VI	VIII-B		JSP(Java Server Pages)	CO1	To demonstrate the JSP lifecycle, JSP tags.
					CO2	To demonstrate working of Java Beans and Action tags in JSP
					CO3	To use JSP exception handling in the development of JSP programming
					CO4	To understand JSP Expression language
					CO5	To work with JSP standard tag library to create effective web applications
10	VI				CO1	To understand various JDBC drivers and their API.
		VIII-C		JDBC(Java Database Connectivity)	CO2	To describe JDBC statements and work with Resultset and meta data
					CO3	To use Advanced JDBC Concepts in database connectivity
					CO4	To construct Transactions that use SQL/XML support for retrieving auto generated keys
					CO5	To discuss ACID properties of database transactions and to demonstrate wrapper interfaces

COMMERCE

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1	I	I	141-F.A	Fundamentals of Accounting- I	CO1	The students will get conceptual understanding of fundamentals of financial accounting system and will be imparted with skills in accounting for various kinds of business transactions.
					CO2	The students will understand the rules in preparing the subsidiary Books like cash book and other books
					CO3	The students will gain knowledge in the preparation of Bank Reconciliation statement for monthly or as and when requires. They can also find the errors and can also rectify them.
					CO4	They can also gain knowledge in Depreciation methods of Accounting
					CO5	They can also know the procedure for the preparation of final statements of the business organizations
2	I	I	142-B.O	Business Organization	CO1	The students will gain knowledge in the nature and scope of business organization, concepts and functions of Business
					CO2	They can acquire the knowledge in the forms of Business Organizations and procedure of establishment of Business organizations
					CO3	They can get awareness about different forms Companies and can prepare the documents required before and after the formation of Companies.
					CO4	They can understand the importance of Entrepreneurship .
					CO5	The students will understand the quilities of an Entrepreneur.
3	I	I	143-B.E	Business Economics - I	CO1	Students will be able to know the nature and scope of the Business Economics .
					CO2	Students will be acquainted with the demand and supply analysis .
					CO3	Students will be able to know the Production analysis and returns to scale of production
					CO4	Students will understand the production costs .
					CO5	The students will gain knowledge in Break even analysis.

4	I	I	143-F.C.P	Computer Fundamentals and photoshop	CO1	The students can understand the concept of input and output devices of Computers and how it works and understand the concepts, structure, types and design of operating Systems.
					CO2	The can understand the concept of input and output devices of Computers in detail.
					CO3	The students can get knowledge in Adobe Photoshop.
					CO4	The students will get an awareness about the images and Layers working with Tool Box.
					CO5	The Students know how to apply filters and lighting effects and different types of filters applying the images.
5	II	II	244- F.A	Fundamentals of Accounting- II	CO1	The students will understand concept ,meaning and defination and causes of depreciation and methods of recording depreciation
					CO2	The students can distinguish between provision and reserve and preparation of bad debts of A/c ,provision for doubtful debts A/c ,provision for discount on Debtors and reserve for discount on creditors
					CO3	The students will understand the need for negotiable instruments and procedure of Accounting for bills honoured and dishonoured.
					CO4	The students can understand need and meaning of consignment, distingish between a consignment and a sale, types of commission,accounting treatment in the books of consignor and consignee.
					CO5	The students can understand the meaning of joint venture, dstinguish between joint venture and consinment and methods of recording joint venture transaction.
6	II	II	245-P.M	Principles of management	CO1	The students will get knowledge about evolution of management thoughts and Principles of Management
					CO2	They can get better understanding of planning and decision making process.

					CO3	They can get an idea about organization structure, different types of organizations
					CO4	They will be familiarized with recruitment and selection process and stages in selection and also know about the effective guidelines of delegation of Authority
					CO5	They will also know the effective guidelines of delegation of Authority.
7	II	II	246-B.E	Business Economics - II	CO1	The students get knowledge in Cobb-Douglas Production function
					CO2	They will also get knowledge regaurding market structure and types of markets.
					CO3	They will get knowledge regurding Trade Cycles
					CO4	They will understand the concept of National income and its Measurements
					CO5	They will also understand Economics systems and Structural Reforms.
8	II	II	246-C	Programming in C	CO1	Students can understand how to create algorithm and flow charts
					CO2	**The students will understand how to create a program using control statements and how to execute a program.**
					CO3	Students will know functions and types of functions
					CO4	The students will gain knowledge in an Array and also know types of arrays and example programs.
					CO5	The students will understand the pointer and use of address variables to store the data in to the memory.
9	III	III	347-C.A	Corporate Accounting	CO1	The students will get awareness about the conceptual aspect of corporate accounting and Company final Accounts.
					CO2	The students will understand the issue of shares and redemption of shares in the Corporate Sector.
					CO3	They will understand the issue of debentures to the public.

					CO4	They will understand the valuation of Goodwill
					CO5	The students will get the knowledge in the Draft Final Accounts of companies according to section 128 of the companies Act,2013
10	III	III	348-B.T.P	Banking theory and Practice	CO1	The Students will be acquainted with the fundamentals of banking and functions of Banks.
					CO2	Students will acquire knowledge in respect of Online services like ATMs – RTGS .
					CO3	The studentswill acquire knowledge with regard to Development Banking like- SIDBI-NABARD-EXIM Bank
					CO4	The students will be enlightened regarding the General and Special relationship between the Customer and Banker.
					CO5	The students will understand the duties and responsibilities of Collecting and Paying Banker.
11	III	III	349-B.S	Business Statistics	CO1	The students will understand the Importance of Statistics in the Business Organizations
					CO2	The students will understand that how to show the business data in a Graphic presentation using Computer
					CO3	The students will understand usage of the methods of Central tendency in the business requirements
					CO4	They will also know about the measures of Dispersion and Skewness
					CO5	The Students will know the types of measures of co-relation and regression its helps to students to analyses & calculate in future research work.
12	III	IV	4410-B.L	Business Laws	CO1	The students will understand Indian companies Act and Indian Contract Act.
					CO2	The students will know about essentials of Offer and Acceptance

					CO3	The students will also understand the concept of capacity of parties like Minor .
					CO4	They will be enable to know the Sale of Goods Act and the Information & Technology Act, 2000.
					CO5	Students will easily understand the information technology act 2000.
13	III	IV	4411-I.T	INCOME TAX	CO1	The students will acquire knowledge in basic concepts like Assessee,Assessment Year,Previous year.
					CO2	The students will get an awareness on the Residential Status of an Individual,firm,company etc.
					CO3	The students will get knowledge with regard to Income from salaries and can apply the knowledge they gained in practical way.
					CO4	The students will get an awareness with regard to income from House property.
					CO5	The students will get knowledge in Capital gains.
14	III	IV	4412-ASO	Accounting for Service Organizations	CO1	To know the Accounting Procedures in Non-trading Organizations.
					CO2	To understand the accounting system in Electricity Companies.
					CO3	To understand the accounting procedures in Banking Companies
					CO4	To know the types of Insurance Companies and the accounting procedures in Insurance Companies.
					CO5	The students will know the types of Insurance Companies and the accounting procedures in Insurance Companies.
15	IV	IV	4412-OAT	Office automation Tools	CO1	The students will get knowledge features of Ms word. Students can understand How to create a documents and printing a document. Creating aMacro, creating a mail merge.
					CO2	The students will know how to create a Presentation using Ms power point with animation effects.

					CO3	They will Understand how to create a excel sheet, applying formulas and functions, filters etc.,
					CO4	They will also create different types of charts and chart parts and converting charts.
					CO5	The students will understand how to create tables ,forms, query's and reports in Ms access.
16	IV	IV	403-EPS		CO1	The studentswill know about Entrepreneurship development
				Entrepreneurship Education	CO2	The students will get an awareness on various Entrepreneurship Development Programmes and project formulation
					CO3	The students will be familiarized with the EDP schemes
					CO4	The students will gain knowledge about MSME
					CO5	The students will get knowledge in latest techniques with reguard to EDP.
17	V	V	5413-CG	Commercial Geography	CO1	The students will understand the Geography and the structure of the earth interior system.
					CO2	The students will get knowledge reguarding Agriculture crops and distribution.
					CO3	The students will understand Rivers Drainage system and Interlinking rivers.
					CO4	They also will understand the Mining and Minerals resources in India. Forests and its importance and the role of the forests in the development of Industries.
					CO5	They will get knowledge reguarding the role of Forests and its importance and the role of the forests in the development of Industries.
18	V	V	5414-CA	Cost Accounting	CO1	The students will get knowledge of cost accounting and to provide knowledge about the ascertainment of cost and profitability of each of the products and advise the management to maximize its profits.

					CO2	They will get awareness about Material control and methods of pricing issues
					CO3	They will also know Labour Cost ,Methods of wage payment methods and Overhead distribution
					CO4	Thei will Prepare the process cost accounts, treatment of normal and abnormal process lossess.
					CO5	They will understand various techniques and methods of cost accounting and standard costing using variance analysis.
19	V	V	5415-AUD	Auditing	CO1	They will get knowledge of practical of auditing.
					CO2	Students will understand the audit process from the planning stage to completion of the audit, as well as the rendering of an audit opinion via the various report options.
					CO3	Students will understand auditors‟ legal liabilities, and be able to apply case law in making a judgment whether auditors might be liable to certain parties. Student will explain the internal audit process including the professional standards applicable to the internal audit profession.

					CO4	Students will understand to levels of persuasiveness of different types of audit evidence and explain the broad principles of audit sampling techniques.
					CO5	The student will understand the need for an independent or external audit and describe briefly the development of the role of the assurance provider and will apply professional ethics including Code of Conduct to specific scenarios describe the various.
20	V	V	5416-DBMS	DBMS	CO1	Students can understand about data, information and DBMSand file based systems and data models.
					CO2	students can understand about E-R models, relationships between entities .

					CO3	students can learn SQL and commands. How to create a tables in database.
					CO4	They will also learn about PL/SQL language,how to create a program and execute a program.
					CO5	The students will gain knowledge in functions ,arrays, procedures, packages and triggers.
21	V	V	5417-E-COM	E-Commerce	CO1	The students know about the E-commerce, Importance & Scope of Ecommerce. To learn the different types of online business in different ways that is through Business to Business, Business to Consumers, and Consumers to Consumers.
					CO2	The students know the evaluation of the internet,how to use for business and categories of networks, and each business is building their own web sites so customers can easily accesses to their business concerns.
					CO3	The students know about electronic market and how it is performing now a day's like internet shopping, web advertisements, ordering journals electronically, selling on web, E-commerce for services, travel and tourism and trading stock online.
					CO4	They also know how to get involved in security schemes of Electronic payment systems like credit card system, debit card system, value card systems, E-cash system, electronic fund transfer system.
					CO5	Students acquire skill in E-security, Internet protocol, Digital signatures, secure electronic Transactions and fire walls.
22	V	V	5416-AMP	Advertisement and Media Planning	CO1	The students know the importance of Advertisements, the role of Advertisements on the Indian economy.
					CO2	They also know the Consumer Behavior and Consumer decision making process.
					CO3	They will understand the Creativity Advertising Process and Slogan elements of design and principles of design.

					CO4	They make Media planning and strategies in designing Print Advertisements
					CO5	The students get knowledge in the strategies in designing PrintAdvertisements
23	V	V	5417-BM	Brand Management	CO1	The students will understand the Brand Concepts, significance of brand and loyalty.
					CO2	The students will know about Brand Equity -Cost, Price and Consumer Based methods and brand reinforcement
					CO3	The students will understand brand building and brand positioning.
					CO4	The students will acquire knowledge in Brand Segmentation , Portfolio.
					CO5	The students will know the evaluation of branding in different sectors.
24				Project Work/ Lab : DBMS, ECommerce		The students will get good practical knowledge.
25	VI	VI	6419-Mar	Marketing	CO1	The students will get knowledge reguarding an idea about marketing and its functions
					CO2	Thei will know about consumer behavior
					CO3	They will familiarize about product and its classifications ,product design, new product, product environment,
					CO4	They can understand pricing and introduce the concept of sales policies promotion
					CO5	The students will aware of on the Promotion Mix and distribution of products and services
26	VI	VI	6420-MA	Management Accounting	CO1	The students will understand about management accounting concepts related to the management functions of planning, control, and decision making and the ability to analysis interpret and use accounting information in managerial decision making.

					CO2	The student is expected to have analysis and interpretation of Accounting Ratios.
					CO3	They know the Funds flow in organization and to prepare and to submit the Funds flow statements to the management.
					CO4	They know the cash flow in organisation and prepare and submit the cash flow statement to the management
					CO5	The students will understand of Marginal Costing which relates the break even Analysis.
27	VI	VI	6421-DM	Direct Marketing	CO1	The Students know the Features and different strategies of Direct Marketing, mailing like SMS-MMS. And New channels of direct marketing.
					CO2	Students have to improve their marketing intelligence and creative process in marketing fields.
					CO3	Students will learn to produce advertisements through magazines, news papers, Radio/TV.
					CO4	In the same way students grasp to produce advertisements through social media and digital marketing like face book, twitter, E-mailing. Mobile Marketing- Integrating media and channels.
					CO5	Students will understand the role of Digital Marketing on the Indian Economy.
28	VI	VI	6422-GST	Goods and service Tax Fundamentals	CO1	The students will understand the GST concepts and the short comings and advantages by introducing the GST.
					CO2	The students will acquire knowledge with regard to the structure of GST .
					CO3	The students will get knowledge inrespect of various models of GST.
					CO4	The studens will get an awareness in respect ofInter-State transactions under IGST.
					CO4	The students will understand theApplication of the Input Tax Credit in respect of GST.

29	VI	VI	6423-SPM	Sales Promotion	CO1	Students will pursue different types of sales organization, Sales executive functions, Sales promotion and control.
					CO2	Students will analyze market potentials, sales potentials and sales forecasting methods.
					CO3	Students attain knowledge to prepare sales budget, sales territories, sales quotas, sales contest-coupons &discounts and free offers to promote marketers goods and services.
					CO4	Students will get to know the sales manager qualities and functions, types of sales man and they know different types of customer's psychology. So they can promote their sales according to customer's will.
					CO5	Students study about the sales force management-recruitment and how the selections were carried on, training, and how they motivate of sales personnel to the consumers.
30	VI	VI	6421-TLY	Tally	CO1	The students know the fundamentals of Tally and the Creation of Accounting in Masters in Tally.ERP 9
					CO2	They know how to create accounting masters in tally.ERP9
					CO3	They know about the software procedure in Inventory Master Creating, Altering, Displaying, Deleting Stock items .
					CO4	They know the Voucher Entry using in Tally software.
					CO5	They will understand the preparation of Reports like Trial Balance, Balance Sheet, Profit & Loss A/c, Cash Book, Bank Book - Inventory Books and Registers - Practice Exercises.
31	VI	VI	6423-WT	Web Technology	CO1	The students will understand the how to create a web pages using HTML different types of tags and execution of webpages.
					CO2	They will understand XML and advantages of XML.

					CO3	They also understand the Cascading Style Sheets like Introduction, using Styles, simple examples, your own styles
					CO4	They will understand the concept of JavaScript.
					CO5	They will understand Objects in JavaScript.
32	VI	VI		Project Work : Direct Marketing, Sales Promotion	CO1	The students will get good practical knowledge in preparing project report
					CO2	
					CO3	
					CO4	
					CO5	
33	VI	VI			CO1	The students will get good practical knowledge in preparing project report
				Project Work /Lab: Web technology, TallyPromotion	CO2	
					CO3	
					CO4	

					Political Science	
1	I	I	131-POL	Basic Concepts of Political Science	CO1	Acquiring the knowledge about Political science.
					CO2	Getting awareness about approaches to the study of politics.
					CO3	Getting information about origin and evolution of the modern state.
					CO4	Knowing about the rights and citizenship.
					CO5	To understand the freedom, equality and justice.

2	II	II	232-POL	Political Institutions (Concepts, Theories and Institutions)	CO1	To understand the concept of state, nation and civil society.
					CO2	To analyze the meaning of organs of government and theory of separation of power.
					CO3	To know about the meaning sovereignty, types and characteristics.
					CO4	To understand the forms of government in various countries and their working pattern
					CO5	To compare with procedure of various social institutions and government institutions.
3	III	III	333-POL	Indian Constituion	CO1	To understand the meaning, nature, and significance of the Indian Constitution.
					CO2	To understand the meaning, nature, and significance of the Indian Constitution.
					CO3	To provide insights into the philosophy of the Indian Constitution.
					CO4	To throw light on the making of the Constitution.
					CO5	To identify the sources that had inspired the framers of the Constitution to improvise and incorporate these into our Constitution.
4	IV	IV	434-POL	Indian Political Process	CO1	To acquire knowledge about caste system and communities in India.
					CO2	To understand the theory of modernization.
					CO3	To elucidate the role of state towards religion.

					CO4	To understand the electoral trends & voting behavior in India
					CO5	To understand the evolution of party systems in India.
5	V	V	535-POL	Indian Political Thought	CO1	To trace the evolution of Indian political thought from ancient India to modern India.
					CO2	To analyze the nationalist thought of Raja Rammohon Roy, Bankim, Vivekananda and Tagore.
					CO3	To discuss the nationalism of Gandhi, M. N. Roy, Narendra Deva and Syed Ahmed Khan.
					CO4	To understand the social and religious reforms during renaissance.
					CO5	To understand the Ambedkar's views on Social Justic, annihilation and the depressed classes.
6	V	VI	636-POL	Western Political Thought	CO1	To elucidate the richness and variations in the political perceptions of Western Thinkers.
					CO2	To provide a foundation to students of Political Science in familiarizing themselves to the Thought & Theory of Western Philosophy.
					CO3	To examine the features of Medieval Political Thought
					CO4	To provide an insight into the dominant features of Ancient Western Political Thought
					CO5	To emphasise on Ancient Greek political thought with focus on Aristotle and Plato
7	VI	VII	637-PS	Local Self - Government	CO1	To understand the constitutional provisions and their importance.

				in Andhra Pradesh	CO2	To analyse the structure and functions of Panchayat Raj.
					CO3	To elucidate the role of rural and urban local bodies.
					CO4	To provide insight to patterns of leadership and its emerging challenges.
					CO5	To understand the importance of committees in Local Self-Government.
8	VI	VIII -A	638-PSA1	International Relations	CO1	To analyze the history of international relational through the causes and phases of colonialism.
					CO2	To know the impact of first world war and second world war and its causes and consequences
					CO3	To criticize the various ideologies which lead to the destruction of world.
					CO4	To appreciates the post war developments through the emergence of third world.
					CO5	To understand the concept of power, national, regional, global and peace security.
9	VI	VIII -B	638-PSA2	Foreign Policy	CO1	To explain different theories of foreign policy analysis;
					CO2	To analyze strengths and weaknesses of different approaches to foreign policy analysis;
					CO3	To apply theories of foreign policy analysis to specific cases;
					CO4	To understand the issues and processes described and to relate them to current affairs and present-day issues of significance.
					CO5	To contrast and compare the strength of theoretical approaches used in foreign policy analysis.

10	VI	VIII -C	638-PSA3	Contemporary Global Issues	CO1	To identify key issues in global politics and understand their historical contexts;
					CO2	To develop the capacity to research key issues in ways that enable them to analyse different approaches to understanding and addressing these issues;
					CO3	To debate and evaluate different approaches to major issues;
					CO4	To write and present a political argument in a clear, coherent, and engaging manner.
					CO5	To understand the international organizations and their role in global issues.

Economics						
1	I	I	131 - ECO		CO1	Able to understand the nature and scope of Economics.
					CO2	To acquire knowledge on various methodologies adopted by various economists to analyse economics.
					CO3	To gain knowledge related to utility analysis.
					CO4	To acquire these skills in real life
					CO5	To understand the different courses analysis.
2	II	II	232 - ECO		CO1	Able to understand the concept of production function.
					CO2	To acquire knowledge on various types of the market structures and the role of markets in real life.
					CO3	To able to understand the marginal productivity theory of distribution theory of distribution.
					CO4	Able to understand the ease, rent, interest and profits.

					CO5	To the interest of the student.
3	III	III	333 - ECO		CO1	To understand the concepts of micro and macro economics.
					CO2	The dance of microeconomics and paradoxes of macroeconomics.
					CO3	To understand the consumption investment functions.
					CO4	To understand the classical and modern theories of employment.
					CO5	To acquire knowledge measuring functions and classification of money.
4	IV	IV	434 - ECO		CO1	To illustrate the meaning of inflation.
					CO2	To understand the causes, effects and measures to control inflation.
					CO3	To identify various types of banks, aquare knowledge on various functions of commercial banks.
					CO4	To understand the meaning of shares and debentures, functions of stock market.
					CO5	To know about the objectives and instruments of macroeconomic policy.
5	V	V	535 - ECO		CO1	To illustrate the meaning of economic growth and development to know the various theories.
					CO2	To understand the concepts of sustainable development.
					CO3	To understand the various choices of techniques.
					CO4	To understand the basic features of Indian economy.
					CO5	To assess the importance of national income in India.
6	V	VI	536 - ECO		CO1	To understand the importance and structure of Indian agriculture.
					CO2	The agricultural infrastructure and agricultural price policies.
					CO3	To know the structure and growth of Indian industry.
					CO4	To gain knowledge on disinvestment and foreign direct investment.

					CO5	To be aware of Andhra Pradesh economy.
7	VI	VII	637 - ECO		CO1	To understand the meaning and scope of public finance.
					CO2	To understand the difference between public and private finance.
					CO3	To assess the sources of public revenue.
					CO4	To acquire knowledge on public expenditure.
					CO5	To acquire knowledge on meaning and components of budget.
8	VI	VIII -A	638 - ECO - A1		CO1	To understand the nature and scope of statistics.
					CO2	To acquire knowledge on primary and secondary data.
					CO3	To acquire the skill of how to classify and tabulate the data.
					CO4	To acquire the skill of drawing various diagrams.
					CO5	To the interest of student.
9	VI	VIII -B	638 - ECO - A2		CO1	To understand the various methods of central tendency.
					CO2	To acquire the skill of various problems of Central tendency.
					CO3	To understand the various methods of dispersion.
					CO4	To acquire the skill of solving various problems of disperation.
					CO5	To interest of the student.
10	VI	VIII -C			CO1	To understand the concept of skewness.
			638 - ECO -		CO2	To acquire the skill of solving the problems.
			A3		CO3	To understand the concept of Correlation.
					CO4	To assess the role of time series in Indian economy.
					CO5	To know about the concept of index numbers, like laspeare, paasche, Fisher's.

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A.Y:2021-22

History						
1	I	I	131-HIS	Ancient Indian History & Culture upto 600 AD	CO1	By Studying this module Students will gain knowledge about indian history and culture and Diverse Geographycal features of India
					CO2	To understand the chronological events and changes that took in the time line of pre-historic to historic times
					CO3	Students can analyze the political systems, socio, religious and economic conditions right from vedic period to later guptas
					CO4	These conditions will give insides about the position of women, verna system and administrative hierarchy
					CO5	They acquire knowledge towards the changing status agrarian economy trade and commers
2	II	II	232-HIS	Early Medieval Indian History and Culture (600 Ad to 1526 AD)	CO1	Students will come to know about the antic and astonishing architectural styles from Pallavas to Vijayanagara Period
					CO2	To observe the administrative structure from Cholas to Vijayanagara period
					CO3	Inseption of Delhi Sultanate and how expansion and consolidation of Khilji Dynasty
					CO4	To Understand administrative structure of Delhi Sultanates and its decline
					CO5	To Know about the emergence of the new composite culture called indo-islamic culture and rise of Bhasti and sufi moments and its impact on Indian Society
3	III	III	333-HIS		CO1	To have knowledge on the conditions in India during the medieval period
					CO2	To understand the developments under the Mughals and their downfall
				Late Medieval & Colonial History of India(1526 - 1857 A.D.)	CO3	To analyse the European settlements, expansion policies and consolidation of British Empire
					CO4	To have knowledge of the different policies of the British

					CO5	To observe the causes and consequences of revolts of peasants,sepoys and tribes in 19th century
4	IV	IV	434-HIS	Social Reform Movement & Freedom Struggle (1820-1947 A.D.)	CO1	To understand the impact of several social, religious and self-respect movements
					CO2	To observe the growth of nationalism in India due to the impact of British colonial policies
					CO3	To acquire knowledge of freedom movement and different phases of the movement
					CO4	To have knowledge of the contributions of Gandhiji and Subhas Chandra Bose in the freedom struggle
					CO5	To understand how people suffered due to partition and know Sardar Vallabhai Patel's role in the integration of princely states
5	V	V	535-HIS	Age of Rationalism and Humanism (History of Modern World 1453 to 1821 AD)	CO1	To Understand the exotic and path breaking Geographical discoveries, Sea routes and Scientific inventions
					CO2	To Understand the renaisance and reformation moment in modern Euro
					CO3	To Observe the emegence and impact of Nation States
					CO4	To attain a broder perspective of revaluations in America, Europe and its impact on global Scenario
					CO5	To know how liberty, Equality and fraternity served as a new pillars of society
6	V	VI	536-HIS	History & Culture of Andhra Desa(12th - 19th Century A.D.)	CO1	To observe how trade, socioeconomic life, culture, architecture flourished under Kakatiyas and Reddy Kings
					CO2	To have knowledge of the glory of Vijayanagara Empire and the special contribution of Sri Krishna Devaraya to Andhra culture
					CO3	To understand the evolution of composite culture and influence of Qutub Shahis on Andhra
					CO4	To know how the British occupied Andhra and established their authority
					CO5	To analyse the conditions of Andhra under the company rule and impact of Industrial Revolution
7	VI	VII	637-HIS	History of Modern Europe	CO1	Student will acquire knowledge about industrial revaluation before and after in Europe and how it use global world

				(From 19th	CO2	Students will Gather knowledge about unification of Germany and unification of Italy and their impact
				Century to 1945 AD)	CO3	To acquire knowledge about communist revaluation and its causes, course and results
					CO4	Student will come to know about the historic World War-1 and atrocities and casualities and rise of Cold war
					CO5	Student will able to analyze how the failure of league of nations and unequal power domination let to another World War-II and acquire knowledge of UNO and its functions
8	VI	VIII A 1	638-HIS	Cultural Tourism in Andhra Pradesh	CO1	Students will know concept of Tourism, Scope of Tourism, Nature of Domestic and International Tourism
					CO2	And also about the knowledge of Tourism in General and Indian Tourism in Particular
					CO3	Students will gather information regarding the planning and development of AP Toursim, Its aims and objectives and various geographycal sceneries in AP
					CO4	Students will get an insides of various heritage sites, various acts for preservation and especially about archeological survey of India
					CO5	Students had an empherical understanding by visining a site and prepartion of project report on it
9	VI	VIII A 2	638-HIS	Popular Movements in Andhra Desa (1848 - 1956 A.D.)	CO1	To appreciate the several social and self-respect movements, special reference to Kandukuri Veeresalingam
					CO2	To gain knowledge of the Vandematram movement in different parts of Andhra
					CO3	To observe the progress of the freedom movement in Andhra, special reference to the non cooperation movement
					CO4	To understand the causes which led to the formation of separate Andhra
					CO5	To acquire knowledge of the main incidents and stages seen in the formation of Andhra Pradesh

10	VI	VIII A 3	638-HIS	Contemporary History of Andhra Pradesh (1956 - 2014)	CO1	To analyse the developments in various sectors in Andhra Pradesh and emergence of Telugu Desam Party
					CO2	To observe the growth of communist ideology and activities
					CO3	To gain knowledge about Dalit's struggles against social injustice
					CO4	To understand the causes leading to the Bifurcation of Andhra Pradesh
					CO5	To know the consequences of the bifurcation and formation of Telangana state

					Bio Technology	
1	I	I	121-BT	Microbiology and Cell biology	CO1	To study about basic microbiology History, development of Microbiology, contributions of Variour scientistics i the field of Microbiology. To learn about various types of Microscopes, and staining methods. This is helpful for the study of Microorganism in detail.
					CO2	To learn about Microorganisms like bacteria, virus, and bateriophages, structure, life cycle classifications and their importance. To apply knowledge about microorganisms in daily life like maintain and taking care from harmful microorganisms to protect from diseas for healthy life.
					CO3	To study Nutritional requirements of microorganism and types of midia for the growth of microorganism. To acquire the ability to decide which midia should be suitable for their growth, and also applied this knowledge for carrying out project. To know about the various types of sterilization methods of microorganism. To use knowledge in controling harmful microorganism.

					CO4	To study about growth and its measurement of growth of microorganism and this knowledge is apply for the selection of more number of cells in cultures and it may take up Project work.
					CO5	To study the deyailed structure of Cell and subcellular components, mechanism occuring in cell and cell devisions, which helps incase there is abnormal cell divisions occurs in the cell.
2	II	II	222-BT	Biomolecules, Enzymology and Bioenergetics	CO1	To learn about the discovery, structure and properties of various kinds of DNA and RNA, to use the knowledge in understanding of the basic molecule of life like DNA, for inspiring research in various fields.
					CO2	To study about the structure, Properties and classification of aminoacids, they are the building blocks of proteins and also to learn about the structure of proteins and its importance in our life.
					CO3	To learn about classification, structure and properties of carbohydrates and lipids i.e. major nutrients for humanbeings. Various diseases arising due to lack of improper intake of carbohydrates like diabeties, obesity, malnutrition etc..

					CO4	To learn about enthalpy, entropy, free energy and oxidative Phosphorylation.
					CO5	To study about the structure , classification, nomenclature, inhibition of Enzymes, and this knowledge which is helpful for applying in medical field to cure various various diseases. To study regulation, metabolic reactions of pathways like glycolysis, TCA cycletaking place in living organisms.
3	III	III	323-BT	Biophysical Techniques	CO1	To acquire knowledge on the principle, basic concepts, instrumentation, application of spectrophotometriy are studied and this knowledge is applied for estimation of DNA, RNA and proteins in research work.

					CO2	To learns about the priciple, mechanism amd applications of various types of Chromotography methods. This knowledge is useful for separation of molecules in pureform. i.e.. aminoacids, pigments..etc..
					CO3	To study about priciple, Instumentation, mechanism of electrophoresis methods and this menthods are used for detection of DNA and RNA and also carry out PCR technique, southern blotting..etc.
					CO4	To learn about isotopic tracer technique, how to calculate the measurement of radioactivity and they can also learn how to apply different isotopes in medical, therapeutic, diagnostic fields in life.
					CO5	To learn about different types of centrifuses, this knowledge is useful for the isolation of cell components and also used for the ditermination of molecular weight of molecules. To study about mean, median, mode, stardard deviation and ANOVA used to calculate or solved the problems
4	I V	IV	424-BT	Immunology	CO1	To learn about basic Immunology, types of Immunity, various types of immune cells and lymphoid organs, pathways off Innate and adoptive immune responses.
					CO2	To learn about the structure, classes, types of antbodies and antigens and factors affecting antigenicity. To understand how diseases causing microorganisms killed by the production of antibodies.
					CO3	To study about Vaccination,MHC and Hypersensitivity, this knowledge is useful for to gain better understanding about blood transfusion, allergy, Graft rejection and various types of diseases.
					CO4	To study about cytokins and antigen-antobody reactions, and this knowledge is helpful for understanding how immune system provide protection to our body.

					CO5	To learn about monoclonal Antibody production and its application, this knowledge helps to takeup research to find medicine and drugs for incurable diseases.
5	V	V	525-BT	Molecular Biology	CO1	To study about Gene, Genome, Chromosomes, DNA, which act as a genetic material and DNA responsible for life in every livining organism.
					CO2	To acquire knowledge on genome organisation and various types of replication mechanism in prokaryotes, Eukaryotes,.
					CO3	To know the mechanism of transcription and translation process i.e. protein synthesis, in living organism. To learn the molecular mechanism responsible for diseases and may take up research in this field.
					CO4	To learn about genetic code and its charecteristic and iteraction in between codon and anti codons.
					CO5	To know the level of gene expression and regulation through operon -concept, this knowledge is helpful for understanding switch on and switch off mechanism of gene expression
6	V	VI	526-BT	Recombinent DNA Technology	CO1	To acquire knowledge about various types of restriction Endonuclease enzymes, Vectors and how to construct genomic DNA library and C-DNA library for cloning
					CO2	To learn about ligation method, and selection of recombinant cells, this knowledge is useful for cloning.
					CO3	To get exposure to various techniques for identification of cloned genes and also it may help to take up research in this field.
					CO4	To Study about gene transfer methods and DNA sequencing methods. This knowledge is apply to know the sequence of DNA in different organisms.

					CO5	To gain knowledge on production of industrial product, transgenic plants and genetically modified organisms.
7	V I	VII	627-BT	Plant and Animal Biotechnology	CO1	To acquiases the knowledge in Plant tissue culture method, it may hepful for the production of transgenic plants. i.e. disease resistance plants, insect plants..etc.
					CO2	To gain knowledge in plant biotechnology it may useful in Agriculture field and produced less time more crop yeild by applying tissue culture method i.e. mycropropagation.
					CO3	To gain concept of vaccination and transgenic animal, it may take up research in this field.
					CO4	To gain and apply knowledge in stem cell therapy and gene therapy, and it may apply in the treatment of incurable diseases.
					CO5	To gain and apply knowledge of Biotechnology and science concepts to solve problems related field of Biotechnology
8	V I	VIII -A 1	628-A1-BT	Plant Tissue Culture	CO1	To learn about laboratory organisation, sterilization methods, media used in plant tissue culture and culture techniques i.e. gene tranfer method
					CO2	To learn about how to produce somatic hybrid, cybrid, Haploid plants, somatic embryos, and may take up research in this field.
					CO3	To gain and apply knowledge in the development of transgenic plant and genetically modified organisms.
					CO4	To learn about trangsgenic crop with improved quality of traits and also biofertilizers. This knowledge useful to improve soil fertility and high yield of crops.
					CO5	To learn about the role of transgenic plants in degradation of pollution and also production of industrial enzymes, synthetic seeds, Insulin, Plantibodies.And this knowledge apply in project work.

9	V I	VIII -A 2	628-A2-BT	Animal Tissue Culture	CO1	To study about laboratory organisation, sterilization methods, various types of media and culture techniques and this knowledge is apply for the production of transgenic animals.
					CO2	To learn abour gene therapy and Invitro fertilization and it may helpful for for the treatment of genetic diseases and also solved problesm in medical field.
					CO3	To gain and apply the knowledge of Biotechnology, science and Engineering concepts to solve problems related fields of Biotechnology, by applying stemcell therapy and production of vaccines, Insulin, Growth hormones..etc.
					CO4	To acquire knowledge about recombinant cytokins and its role in the treatment of various types of diseases.
					CO5	To learn about tissue engineering this knowledge is apply for synthesis of artificial organs. To design performan experiments, analyze and for investigating complex problems in Biotechnology and related fields.
1 0	V I	VIII -A 3	628-A3-BT (PW)	Project Work	CO1	To learn about how to handle equipment like, Autoclave, Laminare air flow, electrophorisis apparates, and centrifuge..etc.
					CO2	To learn about isolation of DNA from different samples by centrifugation method
					CO3	To learn about agarose gel electrophoresis method
					CO4	Tio learn about estimation of DNA method
					CO5	To learn about sterilization methods, media preparation and calus culture method by plant tissue culture technique.

Horticulture

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1	I	I	Horti111	Basic Concepts of Horticulture & Soil Science	CO1	After the completion of the Course I of Horticulture Programme the students will be able; To appreciate the importance and scope of Horticulture
					CO2	To understand the different values of Horticulture
					CO3	To know the role of environmental factors in the crop production
					CO4	To identify the soil properties suitable for optimal production
					CO5	To recongnize the soil components and their role to keep the soil fertility
2	II	II	Horti122	Plant Propagation Methods & Nursery Management	CO1	To use the basic requirements for horticulture plants propagation
					CO2	To appreciated the importance and process of seed propagation
					CO3	To identify the various vegetative parts used for multiplication
					CO4	To produce new qualitative plants using different techniques
					CO5	To establish and maintain the suitable growing structure for nursery
3	III	III	Horti 233	Oletriculture	CO1	To understand the importance, types and values of vegetable gardens
					CO2	To select the suitable varieties of vegetable crops based on soil and climatic conditions

					CO3	To use the appropriate cultural practices for more efficient production
					CO4	To control the pests and diseases of vegetable crops
					CO5	To produce quality vegetable seeds
4	IV	IV	HRC234	Ornamenytal Horticulture	CO1	To understand the importance, types of gardens and values of gardening
					CO2	Toselect the suitable varieties of economic floral crops based on soil and climatic conditions
					CO3	To use the appropriate special horticultural practices for more efficient production
					CO4	To establish and maintain the production unit of floral nursery plants
					CO5	To use the knowledge and skill in the landscaping

					Micro Biology	
1	I	I	121-MB	Introduction to Microbiology & Microbial Diversity	CO1	Gain basic knowledge about Microbiology including history,importance and applications of microbiology in daily life, health, food, sanitation and in genetic engineering.
					CO2	Learn the concept of classification microorganisms and general characteristics of algae, fungi, protozoa and viruses
					CO3	Understand bacterial cell structure and functions of components. Perform staining and observe bacterial morphology under microscope.

					CO4	Understand bacterial growth media and techniques of sterilization. Prepare bacterial growth media and perform sterilization by physical and chemical methods.
					CO5	Learn methods of isolation and preservation of bacterial pure cultures and apply them methods of preserve them in lab
2	II	II	122-MB	Microbial Biochemistry & Metabolism	CO1	Able to characterize and classify carbohydrates, nucleic acids , fats and lipids.
					CO2	Understand the principles of colorimetry, chromatography, spectrophotometry and electrophoresis. Apply them in qualitative & quatitative analysis of biomolecules.
					CO3	Able to classify enzymes and study inhibition of enzyme activity and enzyme kinetics. Demonstrate induced fit theory and lock & key models.
					CO4	Describe the nutritional requirements and nutritional groups of bacteria like autotrophs, heterotrophs, mixotrophs. Demonstrate the methods for measuring microbial growth like direct microscopy, viable count and turbidometry.
					CO5	Differentiate aerobic and anaerobic respiration through different metabolic pathways in microorganisms. Able to understand the concepts of oxygenic and anoxygenic photosynthesis in bacteria.
3	III	III	323-MB	Microbial Genetics & Molecular biology	CO1	Understand and differentiate the molecular structures of DNA and RNA and establish them as genetic materials through experimentation.
					CO2	Learn Genetic code and differentiate the process of transcription and translation in Prokarotes & Eukaryotes

					CO3	Acquire knowledge of various gene transfer mechanisms in bacteria. Understand the concept of mutations and their effects.
					CO4	Learn the concept of gene and their types, gene expression. Gene regulatory mechanisms and concept of lac operon.
					CO5	Explain the basic principles of genetic engineering. Demonstrate isolation of bacteria/plasmid DNA and separation by electrophoresis

4	IV	IV	324-MB	Immunology & Medical microbiology	CO1	Understand the role of immune system comprising ceels and organs in generating immune response. Differentiate innate and acquired immunity
					CO2	Define the structure and functions of antigens, antibodies. Perform Antigen-antobody reactions. conceptualize hypersensitivity and its implications in human body
					CO3	Understand the concepts of Normal flora, host pathogen interactions. Demonstrate the principles of collection, transport and processing of clinical samples. Perform cultural, biochemical, serological methods of laboratory diagnosis
					CO4	Develop understanding of pathogenesis, epidemiology and prevention of common bacterial, viral, fungal protozoal diseases of humans.
					CO5	Acquire knowledge of chemotherapy and mode of action of antimicrobial agents. Perform antibiotic susceptibilty and resistance tests. Understand different types of vaccines.
5	V	V	525-MB	Environmental & Agricultural microbiology	CO1	Developed a clear understanding of the diverse roles of microorganisms in soil, water and air. understand the role of microorganisms in geochemical cycles.
					CO2	Perform microbial analysis of drinking water and methods to treat water samples.
					CO3	Develop an understanding of solid and liquid waste management and role of microorganisms in treatment of sewage
					CO4	Acquire knowledge about microbial interactions and role of PGPRs in the field of agriculture. Concept of symbiotic & non- symbiotic methods of nitrogen fixation.
					CO5	Understand plant pathogens and diseases caused by viruses, fungi and bacteria in crops. Concept of biopesticides for disease control.

6	V	VI	526-MB	Food & Industrial	CO1	Able to identify the role of microorganisms in food spoilage and food borne diseases

				Microbiology	CO2	Demonstrate the methods of food preservation and able to describe the role of microorganisms in the production of fermented dairy foods. Understand the concepts and benefits of SCP and probiotics.
					CO3	Able to isolate industrially important microorganisms from natural sources and improve their productivity by mutations.
					CO4	Able to formulate production media using different raw materials for employing in fermenters. Demonstrate different types of fermentation processes and methods of down stream processing.
					CO5	Have developed laboratory skills in the fermentative production of organic acids, alcohols, enzymes, antibiotics and vitamins
7	VI	VII		Microbial Biotechnology	CO1	Acquired knowledge about technological developments in microbiology and its application in agriculture, environment, food and human therapeutics
					CO2	Understand the application of recombinant DNA technology in human prophylaxis and in plant disease control.
					CO3	Understand biocatalytic processes and their industrial applications.
					CO4	Demonstrate the commercial production of biofuels from lignocellulosic wastes. understand the concept of xenobiotics and role of microorganisms in mineral recovery
					CO5	Acquire knowledge of basic concepts related to IPR and apply in biomedical Research. Learn to respond and act ethically with regard to scientific research, practice, and technology.
8	VI	VIII -A		Microbial Quality Control In Food and Pharmaceutical Industries	CO1	Have developed a very good understanding of practical aspects of microbiological safety,
					CO2	Perform different cultural and microscopic methods for testing of products in the pharmaceutical industries
					CO3	Apply Nucleic acid probes, PCR based detection and biosensors to determine microbes in samples.

					CO4	Use of enrichment culture technique for the detection of specific microorganisms. Application of various detection methodologies and use of different microbiological media in food industries.
					CO5	Acquire knowledge about Hazard analysis of critical control point and Learn to define microbial standards for different foods and water
9	VI	VIII -B		Cell Culture Techniques	CO1	Explain major components of cell and tissue culture media, e.g. minerals, growth factors, hormones, and what governs the choice of components.
					CO2	Perform the common cell culture techniques, e.g. callus culture, Embryo culture and embryogenesis in plants, culture of animal cells.
					CO3	Acquire knowledge of cell lines used in mammalian tissue culture, their origins and applications.
					CO4	Explain Cell cycle and its regulation
					CO5	Demonstrate virus cultivation in embryonated eggs and measurement of infectious units. Demonstrate virus purification by ultracentrifugation method
10	VI	VIII -C		Project Work (6 hours/week)	CO1	Learn to Identify and analyze problems having societal relevance and frame objective of the study, in consultation with the Mentor
					CO2	Design relevant experiments, conduct the experiments, record /collect and analyze data.
					CO3	Draw inferences from data and interpret the results
					CO4	Acquire skills of systematic recording of their findings in a standard format
					CO5	Learn to give project presntation for external assesment and evaluation

English					
1	I	Eng 101	ENGLISH I	CO1	To expose the students to prose, poetry and non- detailed text to develop all the language skills..
				CO2	To acquire the knowledge of language skills, vocabulary, dialogue writing, etc.

				CO3	To read and appreciate the prescribed literary selections for pleasure, and to interpret the given poem, essay, short stories to undertstand the moral behind them
				CO4	To apply the acquired knowledge of grammar and vocabulary to the real time situations through practice of conversation, essay writing and exercises.
2	II	Eng 202	ENGLISH II	CO1	To understand and appreciate the nuances of poetry and appreciate the meter, rhyme and rhythm in poetry and the idiomatic expressions in prose sections
				CO2	To develop reading, writing and comprehension skills apart from the vocabulary and usage.
				CO3	To analyze and interpret the socio cultural aspects based on the prescribed prose texts
				CO4	To apply the acquired knowledge of sentence structure, grammar, and vocabulary for general essay writing, letter writing, etc.
3	III	Eng 303	ENGLISH III	CO1	To understand the various elements of poetry such as tone, imagery, figures of speech, and other stylistics.
				CO2	To be able to locate grammar in prose, to develop prose style, and to understand the difference between the formal and the informal
				CO3	To consider culture, author, and historic context and content of the prescribed texts and to analyse them.
				CO4	To be able to use the idioms, phrases, one word substitutions, synonyms and antonyms and other vocabulary related elements in writing essays and oral communication
4	III	Foundation course I 202	Communication skills and soft skills	CO1	To encourage the all round development of the students by focusing on soft skills..
				CO2	To expose the students to the right and positive attitudinal and behavioural aspects of the students.
				CO3	To demonstrate knowledge of effective communication skills in both formal and informal situations
				CO4	To understand the ways in which English can be used in and around the world .

5	IV	Foundation course II 303	Communication skills and soft skills	CO1	.To effectively communicate through verbal communication and improve the LSRW skills of the students.
				CO2	To develop report writing and precis writing skills of the students.
				CO3	To develop various reading techniques
				CO4	To develop the skills of paraphrasing and summarizing.
6	IV	Foundation course III 401	Communication Skills and soft skills	CO1	To reflect & develop a planned approach towards his career & life in general.
				CO2	To equip the students with the employability skills
				CO3	To be able to prepare the functional and chronological resume.
				CO4	To be able to face personal interview through mock interviews

Hindi						
1	I	I		HIN	CO1	To empower the students with literature and its objectives.
					CO2	To educate the students about the heroic nature of the strong people who stand by the truth.
					CO3	Deals with the theme of Friendship. Helps the students to find out good friends and values in society
					CO4	Brings out the theme of the honesty. how borrower is forgiven despite poor conditions
					CO5	It deals with the Promise and Sacrifice of a soldier
2	II	II		HIN	CO1	Shows the relation between literature and culture
					CO2	Unity in diversity is the main focus

					CO3	Exploitation of women by the so called society who looks for career in cine culture
					CO4	Revolt against corruption in the society
					CO5	translation from hindi to english which helps the students to understand global language
3	III	III		HIN	CO1	Moral Values through Kabir Doha who imbibes in the young minds
					CO2	Childhood memories of Lord Srikrishna by Surdas
					CO3	Nostalgic memories of four ages in Hindi Literature
					CO4	Concept of Motherland and its patriotism
					CO5	Value of Labor who were described by the Poet

Telugu					
I	I		sahitee nandanam	CO1	To be able to understand our culture and history ethecial values through classical literature. It leads to respect our language,literature and great writers.
				CO2	To be able to create interest towards mother tongue, and modern literature and to develop crative writing to express their views on contemparory issues.
				CO3	To be able to evaluate the lifestyle of common people behind the screen of globalisation.and get skills how to balance themselves inthe present senario.
				CO4	To be able to acquire knowledge and skills in grammar-It leads to know the beauty,rythem and formation of language
				CO5	on the whole the student is able to improve himself in the aspects of huminity ,humility,integrity,and equanimity
II	II		sahitee kowmudi	CO1	Through calssical literature student get inspiration - It leads to higher order thinking pow

				CO2	To be able to understand social evils and eradicate them through modern literatur
				CO3	To be cultivate values, morals, new approaches in day-to-day life.
				CO4	To be able to get esthetic sense through figurative language rythem and metre.
				CO5	To able to improve the standards of life,inculcate leadership qualities and composure of mind.
III	III	sahitee sorabham		CO1	to be able to understand the difference between modern and ancient literature and try to write creative writings.
				CO2	To get awareness on contemporary society , traditions, and finearts there by the student should be conscious and cautious about the society.
				CO3	To be able to create much interest on native culture and lofty values which leads to personality development.
				CO4	To be cultivate SELF RESPECT and patriatism towards and nation.
				CO5	Ultimately the student is able to feel joyous , delightful and be ready to face challeges in his day to day life
IV	IV	leadership education		CO1	Tobe able to understand leadership qualities,individual behaviour and group behavior.
				CO2	To be able to acquire communication skillsand management skills
				CO3	To be able to develop enthusiasm, right attitude and positive thinkingand.
				CO4	To be able to acquire global knowledge ,and universal thinking for the development of self and nation.
				CO5	On the whole the student is able to improve personality development,and team building management,Collaboration and conflict management.

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Botany						
1	I	I		Microbial Diversity , Algae and Fungi	CO1	Gain knowledge about the origin and evolution of life in the world and appreciate diversity of organisms
					CO2	Understand morpholgy of virus and their replicationmethods. Gain basic knowledge about diseases caused by them.
					CO3	Understand bacterial structure and their methods of reproduction. Gain knowledge about the economic importance of bacteria
					CO4	Gain knowledge of Algae and their significance for the growing populations with lot of Economic importance
					CO5	Able to understand fungi as pathogen, to overcome and manage the fungal disease and protect the life forms on the earth.
2	II	II		Diversity Of Archaegoniates & Anatomy	CO1	To Know the structure, reproduction, Life history and evolutionary aspects of bryophytes
					CO2	To Know the Life history and evolutionary aspects Pteridophytes and their seed habit
					CO3	To know the morphology, anatomy, reproduction and life history and economic importance of plants with naked seeds
					CO4	Understand and appreciate anatomy of plants
					CO5	To understand and appreciate the patterns of anomalous and normal secondary growth
3	III	III		Plant taxonomy &Embryology	CO1	To acquire knowledge of fundamental components of taxonomy and botanical nomenclature to maintain botanical garden worldwide.
					CO2	To acquire the knowledge of classification of the plants and the comparison, origin and evolution of angiosperms which are the most important species in our daily life.
					CO3	To acquire the knowledge of systematic Taxonomy

					CO4	Gain knowlede of vegetative, reproductive characters and economic importance of some families of B & H classification.
					CO5	To know the pollination and fertilization methods, development of embryo and it's structure to gain knowledge leading to new varieties.
4	IV	IV			CO1	To Know the various aspects of Plant water relations
				Plant physiology & Metabolism	CO2	To Know the process of various metabolic activities in plant body
					CO3	Student will understand and appreciate the Process and importance of photosynthesis
					CO4	To gain knowledge of Respiration and Nitrogen metabolism
					CO5	To know the process of Growth, development, senescence and Ageing
5	V	V		Cell Biology, Genetics &Plant breeding	CO1	To gain knowledge regarding the unit of life, structure and composition of cell wall and Plasma membrane.
					CO2	To understand the DNA Structure and appreciate its usefulness at molecular levels of genes in various aspects of life quality of genetical characters and forensic methods of the society etc.
					CO3	To Acquire the knowledge about Genetical aspects and understand the process of heredity and variation
					CO4	Student will understand appreciate plant breeding methods
					CO5	Gain knowledge of Breeding, role of Biotechnology in Crop Improvement
6	V	VI		Plant Ecology & Phytogeography	CO1	To have the knowledge of elements of environment and understand the importance of Climatic factors like light, temperature on plants and plant relations with environment
					CO2	To appreciate the structure of ecosystem and understand the aspects of community ecology
					CO3	To gain knowledge about Phytogeographical regions of the world and India
					CO4	To Know how to conserve the threatened plants in environment.

					CO5	Develop skills of working in the field of biodiversity and report writing
7	VI	VII		Plant tissue culture and its	CO1	To know about various methods in tissue culture and develop the ability to prepare artificial nutrient media independently
					CO2	Learn to apply various procedures of Bio - technology
				biotechnological applications	CO3	To understand the importance of molecular biology
					CO4	To gain knowledge about gene transfer methods and markers
					CO5	Gain knowloedge of growth patterns, vegetative characteristics of some GM crops and applications of bio technology
8	VI	VIII -A		ETHNOBOTANY AND MEDICINAL BOTANY	CO1	To know the culture and ethnology of ethnic communities and history of Various Methods in ancient Medicines
					CO2	Students can identify various plant parts used as medicines by ethnic groups,
					CO3	To understand the role of spices in Indian kitchens, their therapeutic role
					CO4	To know the uses of surrounding medicinal plants and Conservation of endangered and endemic medicinal plants:
					CO5	Gain knowledge of role of people in conservation of plant genetic resources,
9	VI	VIII -B		Pharmacognosy and Phytochemistry	CO1	To understand the isolation techniques of active principles from various parts of popular medicinal plants,
					CO2	To know the organoleptic and microscopic studies with reference to nature of active principles medicinal plants
					CO3	To learn techniques for secondary metabolite enrichment and understanding ethnopharmacological principles
					CO4	To learn biosynthesis and sources of drugs :

					CO5	Understand the efficiency of Enzymes, proteins and amino acids as drugs
10	VI	VIII -C		Project Work	CO1	Skill in operating laboratory equipment, their upkeep, and adept at various biological techniques.
					CO2	Develop Ability to prepare solutions and prepare different dilutions.
					CO3	Interpreting scientific results, and ability to present results in a scientific way through graphs, photographs, poster presentations
					CO4	Develop ICT skills and Power point presentations.
					CO5	Develop the art of scientific writing and presentation of scientific matter.Scientific writing and ethics.Writing references

Zoology						
	I	I	Zoo113	Animal diversity of Invertebrates	CO1	To enable the students understand the knowledge of different areas of Invertebrates.
					CO2	To understand the life cycles and mode of reproduction in different invertebrates
					CO3	To understand the systemic and functional morphology of various groups of Invertebrates.
					CO4	To study the economic importance, affinities and adaptations of invertebrates
	II	II	Zoo114	Animal diversity of chordates	CO1	To instill knowledge about various groups of chordates
					CO2	To acquire knowledge on the life cycles and mode of reproduction in different vertebrates
					CO3	To understand the systemic and functional morphology of various groups of chordates,
					CO4	To study their economic importance, affinities and adaptations

	III	III	Zoo116	Cytology, Genetics & Evolution	CO1	To learn the different types of cells
					CO2	To be able to identify the cell organelles and list out the cell organelles
					CO3	To know Mendals' laws and inter-relationship between organisms in population and communities
					CO4	To understand the concept of major evolutionary innovations in animal groups and functional significance of associated morphologies and behaviors.
	IV	IV	Zoo112	Embryology, Physiology, ecology, zoogeography	CO1	To study the aspects of digestion, respiration and other phyiological activities in mammals
					CO2	To learn the relationship among organisms in population and communities
					CO3	To study the population dynamics and population control and the importance of environment friendly practices.
					CO4	To study the concepts of zoogeography and, zoogeographical importance of Indian subcontinent.
	V	V	Zoo105	Animal Biotechnology	CO1	To study the concepts of animal biotechnology including recombinant DNA technology, enzymes and vectors
					CO2	To understand PCR, Cloning, Breeding, polyclones ,DNA sequencing, Hybridization techniques
					CO3	To understand the recent techniques of line Stem cell culture, cell hybridoma and its applications
					CO4	To understand the recent advances in animals and plants reproduction technology

	V	VI	Zoo106	Animal Husbandry	CO1	To learn dairy technology and various species of cattles available in India
					CO2	To learn about types and production of milk in cattles and buffallows
					CO3	To learn about different types of diseases caused by microorganisms and their preventive measures
					CO4	To learn about breeding techniques involved in the production of new varieties and methods involved in care management of cattles
	VI	VII	Zoo118	Elective VII-B Cellular metabolism & Molecular biology	CO1	To learn about Synthesis of Biomolecules
					CO2	To learn about Production of Energy
					CO3	To understand the Cell cycle
					CO4	To understand the Importance of Molecular biology in present scenario
	VI	VIII	Zoo119	Cluster B-1 – Principles of Aquaculture	CO1,2,	To understand the skills required in aquaculture and the aquaculture systems
					CO3,4	To know the principles of fishery management, aquaculture and fish biology in aquaculture industry in India and across the world
	VI	VIII	Zoo120	B-2 Aquaculture management	CO1,2,	To improve scientific, technical and vocational skills in the areas of e fisheries industry & aquaculture management
					CO3,4	To improve practical skills such as fish surveying, fish husbandry, identification and treatment of diseases and prevention methods
	VI	VIII	Zoo121	B-3 Post harvest technology	CO1	To learn about handling and principles of fish preservation
					CO2	To increase the knowledge about processing of fish products
					CO3	To understand the significance of sanitation and Quality control

					CO4	To promote familiarity on Quality assurance and management and certification

V V S Kumar

PRINCIPAL
Silver Jubilee Govt. College
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Re-Accredited with 'A' Grade by NAAC
KURNOOL 518 002

SILVER JUBILEE GOVERNMENT COLLEGE(A), KURNOOL

A.Y: 2020-21

1.1.1: COURSE OUTCOMES THAT HAVE RELEVANCE TO THE LOCAL, NATIONAL, REGIIONAL AND GLOBAL DEVELOPMENTAL NEEDS

Department	Course No.	Title of the Course	Course Code	Course Outcomes	Reflecting Local needs	Reflecting National needs	Reflecting Global needs
ENGLISH	**1**	**ENGLISH PRAXIS I**	**101 - ENG**	1Assists students to become a more competent, efficient and perceptive academic reader who is able to communicate others through writing and speaking the contents and main ideas of what is read.	yes	yes	yes
				2. Students will develop abilities as critical thinkers, readers and writers.	yes	yes	yes
				3. Students heighten their awareness of correct usage of English grammar in writing and speaking.	yes	yes	yes
				4. Able to sensitise to the nuances of English speech sounds word accent and rythem	yes	yes	yes
				5. Bring about a clear accsent and inteligibility in the pronunciation of English by providing an opportunity for practice in speaking.	yes	yes	yes
ENGLISH	**2**	**ENGLISH PRAXIS II**	**202 - ENG**	1. Ability to speak, read, write and listen clearly in person and through electronic media in English .	yes	yes	yes
				2 To introduce students to the latest techniques to be adopted in learning and practicing communicative Engish.	yes	yes	yes
				3 Provide scope and space to self learn and practice to speak Engish in various situations of day to day life.	yes	yes	yes
ENGLISH	**3**	**ENGLISH PRAXIS III**	**303 - ENG**	1 Able to converse in English with self confidence.	yes	yes	yes
				2. Provide/Able to do regular practice to use computer systems in learning	yes	yes	yes
				3Improve the fluency in spoken english and neutralize mother tongue influence.	yes	yes	yes
				4. Ability to Use English language appropriately for interviews, group discussions and public speaking	yes	yes	yes
				5. Identify own strengths and develop areas for growth .	yes	yes	yes
ENGLISH	**4**	**MA ENGLISH**	**101 MA ENGLISH**	1. provide an overview of the various phases of the evolution of Indian writing in English.	yes	yes	yes
				2. introduce students to the thematic concerns, genres and trends of Indian writing in English	yes	yes	yes
				3. acquire knowledge about American literature, its cultural themes, literary periods and key artistic features.	yes	yes	yes
				4. understand the various aspects of American society through a critical examination of the literary texts representing different periods and cultures.	yes	yes	yes
				5. Able to understand the basic elements of poetry- to enrich the students through various perspectives readings in poetry	yes	yes	
HINDI	**1**	**Gadya Sandesh & Katha Lok**	**101-HIN**	1.Able to know the vocabulary of Hindi language.	yes	yes	
				2.Able to know the correct usage of Hindi Grammar in writing and speaking.	yes	yes	
				3.Able to know the skill of letter writing in Hindi.	yes	yes	
				4.Assists the students of become a efficient reader of Literature.	yes	yes	
				5.Able to speak Hindi fluently.	yes	yes	
HINDI	**2**	**GadyaSandesh & Katha Lok**	**202-HIN**	1.Ability to develop the skill of listening, reading, writing and speaking.	yes	yes	
				2.Provide scope to self learning and practice to speak and Write Hindi	yes	yes	
				3.Assists the students to gain knowledge about writers and their writings.	yes	yes	
				4.Students will develop the abilities of critical thinking.	yes	yes	
				5.Able to appreciate the beauty of literature of Hindi Language.	yes	yes	
HINDI	**3**	**Kavya Deep & History of Hindi Literature.**	**303-HIN**	1.Acquire the knowledge about the History of Hindi Literature.	yes	yes	
				2.Acquire the knowledge about old and new poetry of Hindi Literature.	yes	yes	
				3.Students acquire general awareness about the various issues of present society.	yes	yes	
				4.Able to understand the importance of Hindi in Career guidance & development.	yes	yes	
				5.Ability to know the importantce of Hindi Language in developing moral values.	yes	yes	
TELUGU	**1**	**Telugu (సాహితీ సౌరభం)**	**101-Tel**	ప్రాచీన తెలుగుసాహిత్యం యొక్క ప్రాచీనతను, విశిష్టతను గుర్తిస్తారు. తెలుగు సాహిత్యంలో ఆదికవి నన్నయ కాలం నాటి బాషసంస్కృతులను, ఇతిహాస కాలం నాటి రాజనీతి విషయాల పట్ల పరిజ్ఞానాన్ని సంపాదించగలరు	yes		
				8కవుల కాలంనాటి మతపరిస్థితులను, బాషవిశేషాలను గ్రహిస్తారు.	yes		
				3తిక్కన భారతంనాటి మత, ధార్మిక పరిస్థితులను, తిక్కన కవితాశిల్పాన్ని , నాటకీయతను అవగాహన చేసుకోగలరు	yes		
				4ఎఱ్ఱన సూక్ష్మ వైచిత్రిని, ఇతిహాస కవిత్వంలోని విభిన్న రీతుల పట్ల అభిరుచిని పొందగలరు శ్రీనాథుని కాలంనాటి కవితావిశేషాలను, ముల్ల కవితా విశిష్టతను గుర్తించగలరు	yes		

				తెలుగు పద్యం స్వరూప స్వభావాలను, సాహిత్యభరువిని పెంపొందించుకుంటారు. ప్రాచీన కావ్యభాషలోని వ్యాకరణంశాలను అధ్యాంచేయడం ద్వారా భాషసామర్థ్యాన్ని , రచనలో మెలకువలను గ్రహించగలరు	yes		
TELUGU	**2**	**Telugu (సాహితీ కౌముది)**	**202-Tel**	1.ఆంగ్ల భాష ప్రభావం కారణంగా తెలుగులో వచ్చిన ఆధునిక సాహిత్యాన్ని, దాని విశిష్టతను గుర్తిస్తారు	yes		
				2.సమకాలీన ఆధునిక సాహిత్య ప్రక్రియలైన " వచన కవిత్వం, కథ, నవల, నాటకం, విమర్శ " ల పై అవగాహనా పొందుతారు	yes		
				3.భావ కవిత, అభ్యుదయ కవితా లక్ష్యాలను గూర్చిన జ్ఞానాన్ని పొందుతారు. ఆస్తిత్వవాద ఉద్యమాల పుట్టుకను, అవశ్యకతను గుర్తిస్తారు	yes		
				4.కథసాహిత్యంద్వారా సామాజిక చైతన్యాన్ని పొందుతారు.	yes		
				5.ఆధునిక తెలుగు కల్పనా సాహిత్యం ద్వారా సామాజిక, సాంస్కృతిక, రాజకీయ చైతన్యాన్ని పొందుతారు.	yes		
TELUGU	**3**	**Telugu (సాహితీ నందనం)**	**303-Tel**	1.తెలుగు సాహిత్య అభ్యాసన ద్వారా నేర్చుకున్న నైపుణ్యాలను, సృజనాత్మక నైపుణ్యాలుగా మార్చుకోగలరు	yes		
				2.భాషా తత్వాన్ని, భాష యొక్క అవశ్యకతను, భాష యొక్క ప్రాధ్యాన్ని గుర్తిస్తారు.	yes		
				3.భాషనైపుణ్యాలను అలవర్చుకోవడంతో పాటు వినియోగించడం నేర్చుకొంటారు. రచనా, భాషణా నైపుణ్యాలను సృజనాత్మక రూపంలో వ్యక్తికరించగలరు	yes		
				4.సృజన రంగం, ప్రసరమాధ్యమ రంగాల్లో ఉపాధి అవకాశాలను అందిపుచ్చుకోగలరు.	yes		
				5.అనువాద రంగంలో నైపుణ్యం సంపాదించగలరు.	yes		
TELUGU	**4**	**Human Values and professional Ethics(HVPE)**		1.Understand the significance of value inputs in a classroom and start applying them in thier life and profession.	yes	yes	yes
				2.Distinguish between values and skills, happiness and accumulation of physical facilities, the self and the body.	yes	yes	yes
				3.Understand the value of harmonious relationship based on trust and respect in thier life and profession.	yes	yes	yes
				4.Understand the role of a human being in ensuring harmony in society and nature.	yes	yes	yes
				5.Distinguish between ethical and unethical pracices, and start working out the startegy to actualize a harmonious environment wherever they work.	yes	yes	yes
BIOCHEMISTRUY	**1**	**Cell biology, Carbohydrates, Lipid and Proteins**	**121BC**	1 Comprehensive knowledge of Cell biology	yes	yes	yes
				2 understand water role in biological processes and measurement of PH	yes	yes	yes
				3 Knowledge on carbohydrates Classification , Biological Importance of carbohydrates	yes	yes	yes
				4 Knowledge on Lipids Classification , Biological Importance of Lipids	yes	yes	yes
				5 Knowledge on Amino acids, Classification , Peptides, Biologically important peptides Knowledge on Proteins, Classification and Biological Importance of proteins	yes	yes	yes
BIOCHEMISTRUY	**2**	**Nucleic acids and Biochemical Techniques**	**222BC**	1 Knowledge on Structure of Nucleic acids, Tyoes of DNA, RNA	yes	yes	yes
				2 Define and classify Structures of porphyrins	yes	yes	yes
				3 Understand principles and applications of centrifugation, chromatography techniques like Paper, Thin layer, Gel filtration, Ion exchange and Affinity. Electrophoresis	yes	yes	yes
				4 Understand the principles and application Colorimetry and Spectrophotometry, Tracer techniques	yes	yes	yes
				5 Describe outlines of Intermediary metabolism, methods of investigation	yes	yes	yes
BIOCHEMISTRUY	**3**	**Enzymology and Bioenergetics**	**323 BC**	1 Understand Classification of Enzymes and Structure	yes	yes	yes
				2 Understand Influence of Physical factors and Inhibitors on Enzyme activity	yes	yes	yes
				3 Understand Outline of mechanism of enzyme action, Regulation of enzyme activity	yes	yes	yes
				4 Understand Bioenergetics: Thermodynamic principles	yes	yes	yes
				5 Understand Biological Oxidations in Mitochondria	yes	yes	yes
BIOCHEMISTRUY	**4**	**Intermediary Metabolism**	**424 BC**	1 Understand the Concept of anabolism and catabolism, Carbohydrate Metabolism	yes	yes	yes
				2 Understand the Concept of Lipid Metabolism	yes	yes	yes
				3 Understand the Concept of Amino acid Metabolism	yes	yes	yes
				4 Understand the Concept of Nitrogen cycle, Nonbiological and biological nitrogen fixation	yes	yes	yes
				5 Understand the Concept of Metabolism of Nucleic acid and heme	yes	yes	yes
Biotechnology	**1**	**Bio-molecules & Analytical Techniques**	**121-BT**	Students gain knowledge on Structure, Nomenclature, Classification and Functions of biomolecules like Carbohydrates and Lipids	yes	yes	yes
				knowledge on Structure and Functions of biomolecules like Nucleic acids and Amino acids	yes	yes	yes
				Hands on skills on analytical techniques like Chromatography, Centrifugation and Electrophoresis	yes	yes	yes
				Gain expertise on analytical techniques like Spectroscopy, Microscopy and Laser Techniques	yes	yes	yes
				evaluate the problems related to bioenergetics and analyse them through statistical methods	yes	yes	yes
Biotechnology	**2**	**Microbiology, Cell & Molecular Biology**	**222-BT**	create awareness on various sterilization techniques and principles and applications of staining techniques	yes	yes	yes
				understand the Concept of microbial species and strains and Microbial Taxonomy	yes	yes	yes
				knowledge on Cell Structure, Cell cycle and Cell division	yes	yes	yes
				knowledge on DNA Replication, repair and Gene Regulation	yes	yes	yes
				understand the central dogma of Biology through transcription and translation process	yes	yes	yes
Biotechnology	**3**	**Immunology & r-DNA technology**	**323-BT**	1. gain knowledge on various cells and organs involved immune system	yes	yes	yes
				2.able to understand the concept of vaccines and their role in clinical Immunology	yes	yes	yes

				3.Gain expertise on tools and techniques of r-DNA technology	yes	yes	yes
				4. know about applications of biotechnology and cloning strategies	yes	yes	yes
				5. create awareness on basics of bioinformatics	yes	yes	yes
Biotechnology	**4**	**Plant &Animal Biotechnology**	**424-BT**	1. knowledge on secondary metabolite production using tissue culture techniques	yes	yes	yes
				2. analyse the importance of gene tranfer methods in producing transgenic plants	yes	yes	yes
				3. understand the concept of animal cell culture	yes	yes	yes
				4. gain knowledge on transgenic animals and gene therapy	yes	yes	yes
				5. able to gain knowledge in bioethics and IPR	yes	yes	yes
Biotechnology	**5**	**Environmental & Industrial Biotechnology**	**424-BT**	1. able to understand types of pollution and their control measures	yes	yes	yes
				2. create awareness on Bioremediation and biodegradation methods	yes	yes	yes
				3.able to identify various microbes involved in biofuel production	yes	yes	yes
				4. application of microbial technology in industrial biotechnology	yes	yes	yes
				5. evaluate the microbial involvement in production of various fermented products	yes	yes	yes
Botany	**1**	**Fundamentals of Microbes and Non-vascular Plants (Viruses, Bacteria, Fungi, Lichens, Algae and Bryophytes)**	**121--BOT**	1.Understand the concept of origin of life and classification of organisms, virus structure and diseseased caused by virus and controle	yes	yes	yes
				2. understand the structure of bacteria and diseses caused by by by bacteria and controle measures.	yes	yes	yes
				3. analyse fungi, lichens, classification based on theirstructure, reproduction and life cycles and uses	yes	yes	yes
				4. Knowledge on Algae classification based on their structure, reproduction and life cycles and uses.	yes	yes	yes
				5.Recall and explain thee evolutionary trends among amphibians of plant kingdom for their shift to land habitat.	yes	yes	yes
Botany	**2**	**Basics of Vascular plants and Phytogeography**	**222-BOT**	1.understand Classification andcomparePteridophytesandGymnospermsbasedonth eir morphology, anatomy, reproduction and life cycles.	yes	yes	yes
				2Critically understand various taxonomical aids for identification of Angiosperms.	yes	yes	yes
				3. understand basic aspects of taxomonomy,different classification , Herbarium preparation	yes	yes	yes
				4..understandSystematic description and economic importance of the of various fmilies in plant king dom	yes	yes	yes
				5.Locate different phytogeographical regions of the world and India and can analyze their floristic wealth	yes	yes	yes
Botany	**3**	**Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity**	**323-BOT**	1.Understand on the organization of tissuesand tissue systems in plants.	yes	yes	yes
				2..Illustrate and interpret various aspects of embryology.specially anther, ovule strustructure, pollination endospersand embryo strustructure and types	yes	yes	yes
				3.knowledge on the basic concepts of plant ecology, andevaluate the effects of environmental and biotic factors on plant communities	yes	yes	yes
				4.Appraise various qualitative and quantitative parameters to study the population and community ecology.	yes	yes	yes
				5.knowlege on the importance of biodiversity and consequences due to its loss.understandendemic/endangered flora and fauna from two biodiversity hot spots in India and assess strategies for their conservation.	yes	yes	yes
Botany	**4**	**Plant Physiology and Metabolism**	**424-BOT**	1understand theimportance of water in plant life and mechanisms for transport of water and solutes in plants.	yes	yes	yes
				2. understand the role of minerals in plant nutrition and their deficiency symptoms..the role of enzymes in plant metabolism	yes	yes	yes
				3.understand the light reactions and carbon assimilation processes responsible for synthesis of foodin plants.respiration process	yes	yes	yes
				4.Analyze the biochemical reactions in relation to Nitrogen and lipid metabolisms.	yes	yes	yes
				5.the physiological factors that regulategrowth and development in plants.understand the role of light on flowering and explain physiology of plants under stress conditions.	yes	yes	yes
Botany	**5**	**Cell Biology, Genetics and Plant Breeding**	**425-BOT**	1.Understand the cell and cell organells structure and functions.	yes	yes	yes
				2.Understand prokaryotic and eukaryotic chromosomes structure,Karyotype and Idiograme	yes	yes	yes
				3.Understand Mendals law and linkage and crossing overconcept.	yes	yes	yes
				4.knowlege on DNA & RNA structure, transcription and translation process	yes	yes	yes
				5. understand the plant breeding methods, Hydridization and molecular Markers.	yes	yes	yes
chemistry	**1**	**Inorganic and Physical Chemistry**	**111-CHEM**	1. Understand the basic concepts of p-blockelements	yes	yes	yes
				2. Explain the difference between solid, liquid and gases interms of intermolecular interactions.	yes	yes	yes
		Practical –I Analysis of SALT MIXTURE	**111-CHEM LAB**	1. Understand the basic concepts of qualitative analysis of inorganicmixture	yes	yes	yes
				2. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory	yes	yes	yes
chemistry	**2**	**Organic and General Chemistry**	**212-CHEM**	1. Understand and explain the differential behavior of organic compounds based on fundamentalconcepts learnt.	yes	yes	yes

				2. Formulate the mechanism of organic reactions by recalling and correlating the fundamental propertiesof the reactants involved.	yes	yes	yes
				3. LearnandidentifymanyorganicreactionmechanismsincludingFreeRadical Substitution, ElectrophilicAddition and Electrophilic Aromatic Substitution.	yes	yes	yes
		Practicals-II Volumetric Analysis	**212-CHEM LAB**	1. Use glassware, equipment and chemicals and follow experimental procedures in the laboratory	yes	yes	yes
				2. Understandandexplainthevolumetric analysisbasedonfundamental conceptslearnt in ionic equilibria	yes	yes	yes
Commerce	**2**	**Business Organisation**	**142-BO**	Comprehend the nature of Joint Stock Company and formalities to promote a Company.	yes	yes	yes
				Describe the Social Responsibility of Business towards the society.	yes	yes	yes
				Critically examine the various organizations of the business firms and judge the best among them.	yes	yes	yes
				Design and plan to register a business firm. Prepare different documents to register a company at his own	yes	yes	yes
				Articulate new models of business organizations.	yes	yes	yes
Commerce	**6**	**Business Economics (G)**	**143-BE**	Describe the nature of economics in dealing with the issues of scarcity of resources.	yes	yes	yes
				Analyze supply and demand analysis and its impact on consumer behavior.	yes	yes	yes
				Evaluate the factors, such as production and costs affecting firms behavior.	yes	yes	yes
				Recognize market failure and the role of government in dealing with those failures.	yes	yes	yes
				Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.	yes	yes	yes
Commerce	**4**	**Information Technology(CA)**	**143-IT**	Demonstrate basic understanding of computer hardware and software.	yes	yes	yes
				Apply skills and concept of basic use of a computer.	yes	yes	yes
				Prepare basic documents, charts, spread sheets and presentations using of Ms-Office.	yes	yes	yes
				Create personal, academic and business documents using Ms-Office.	yes	yes	yes
				Getting knowledge of networks and send receive E-Mails	yes	yes	yes
Commerce	**5**	**Financial Accounting**	**244-F.ACC**	Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.	yes	yes	yes
				Analyze the accounting process and preparation of accounts in consignment and joint venture	yes	yes	yes
				Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.	yes	yes	yes
				Design an accounting system for different models of businesses at his own using the principles of existing accounting system.	yes	yes	yes
				Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities.	yes	yes	yes
Commerce	**6**	**Business Economics (G)**	**246-BE**	To familiarize the students with the basic concept of Macro Economics and its application	yes	yes	yes
				To aware students about Gross National Product (GNP), Net National Product (NNP) ,Income at Factor cost or National Income at Factor Prices,,Per Capita Income , Personal Income (PI) ,Disposable Income etc.	yes	yes	yes
				To Study the relationship among broad aggregates.	yes	yes	yes
				To apply economic reasoning to solve the problems of the economy.	yes	yes	yes
Commerce	**7**	**Principles of Management**	**245-PM**	To know the features of Management	yes	yes	yes
				TO know the features oand types of planning	yes	yes	yes
				To know the principles of Organisation and	yes	yes	yes
				To know the importance of Line and Staff Organisation	yes	yes	yes
				To know the procedure of recruitment of human resources	yes	yes	yes
Commerce	**8**	**Programming in C (CA)**	**246-PRO.C**	Demonstrate an understanding of algorithms, flow charts in the problem-solving process.		yes	yes
				Identify the necessary properties of good problem-solving techniques.		yes	yes
				Understand tokens and control structures in C.		yes	yes
				Understand arrays and functions and pointers.		yes	yes
				Develop and test programs using c and C++.		yes	yes
Commerce	**9**	**Corporate Accounting**	**347-CORP.ACC**	Understand the basic concepts of issues of shares, debentures and underwriting of shares.	yes	yes	yes
				Analyse and compute profit prior to incorporation and post in corporation period and to find out the mechanism for redemption of preference shares.	yes	yes	yes
				Evaluate the financial position of the company.	yes	yes	yes
				Analyze and Compute various methods of goodwill and shares of the company.	yes	yes	yes
				Apply the procedure for liquidation of companies.	yes	yes	yes
Commerce	**10**	**Banking Theory &Practice**	**348-BTP**	Understand the basic concepts of banks and functions of commercial banks.	yes	yes	yes
				Demonstrate an awareness of law and practice in a banking context.	yes	yes	yes
				Engage in critical analysis of the practice of banking law.	yes	yes	yes
				Critically examine the current scenario of Indian Banking system.	yes	yes	yes
				Formulate the procedure for better service to the customers from various banking innovations.	yes	yes	yes
Commerce	**11**	**Business Statistics**	**349-B.STAT**	Understand the importance of Statistics in real life	yes	yes	yes
				Formulate complete, concise, and correct mathematical proofs.	yes	yes	yes
				Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.	yes	yes	yes
				Build and assess data-based models.	yes	yes	yes
				Learn and apply the statistical tools in day life.	yes	yes	yes

Commerce	**12**	**Business Law**	**4410-BL**	Understand the legal environment of business and laws of business.	yes	yes	yes
				Highlight the security aspects in the present cyber-crime scenario.	yes	yes	yes
				Apply basic legal knowledge to business transactions.	yes	yes	yes
				Understand the various provisions of Company Law.	yes	yes	yes
				Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.	yes	yes	yes
Commerce	**13**	**Income Tax**	**4411-IT**	Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning.	yes	yes	
				Understand the provisions and compute income tax for various sources.	yes	yes	
				Grasp amendments made from time to time in Finance Act.	yes	yes	
				Compute total income and define tax complicacies and structure.	yes	yes	
				Prepare and File IT returns of individual at his own.	yes	yes	
Commerce	**14**	**Accounting for Service Organisations**	**4412-ASO**	To know the features of Non-trading organisations and NGOs	yes	yes	yes
				To know the provisions of Companies Act,2013	yes	yes	yes
				To acquire the accounting procedure of Electricity Acccounts	yes	yes	yes
				To know the Accounting procedure	yes	yes	yes
				To know the Accounts of Insurance Compamnies	yes	yes	yes
Commerce	**15**	**Office Automation Tools**	**4412-OAT**	To know the features of MS Word	yes	yes	yes
				To know the features of power point	yes	yes	yes
				To aqcuire knowledge in using entering and editing in MS Excel	yes	yes	yes
				To make the charts using wizard	yes	yes	yes
				To prepare data base and tables	yes	yes	yes
Commerce	**16**	**Entrepreneurship Development(FC)**	**100-LSC-EDP**	Understand the basic concepts in the area of Entrepreneurship.	yes	yes	yes
				Be familiar with EDP schemes.	yes	yes	yes
				Adopt key steps in the elaboration of business idea.	yes	yes	yes
				Understand the stages of the entrepreneurial process and the resources needed for thesuccessful development of entrepreneurial ventures.	yes	yes	yes
				Better use and maximize existing resources.	yes	yes	yes
Commerce	**17**	**Commercial Geography**	**5413-CG**	Understand different part of geographical knowledge and evolution	yes	yes	
				Understand importance of Water resources and environment	yes	yes	
				Understand elements of environmental polution and its problems and management.	yes	yes	
				Knowledge of Agriculture Regions	yes	yes	
				To know the role of Forests in India	yes	yes	
Commerce	**18**	**Cost Accounting**	**5414-CA**	To understand the concept of costing and related terms.	yes	yes	yes
				To familiarity with the estimation and controlling of material cost	yes	yes	yes
				To understand the estimation and controlling of labour cost	yes	yes	yes
				To familiarity with the estimation of overhead cost	yes	yes	yes
				To able to prepare cost sheet	yes	yes	yes
Commerce	**19**	**Auditing**	**5415-AUD**	Understanding the meaning and necessity of audit in modern era		yes	yes
				Comprehend the role of auditor in avoiding the corporate frauds		yes	yes
				Identify the steps involved in performing audit process		yes	yes
				Determine the appropriate audit report for a given audit situation		yes	yes
				Plan an audit by considering concepts of evidence, risk and materiality		yes	yes
Commerce	**20**	**Advertising and Media Planning (G)(Elective)**	**5416-AMP**	Identify and respond to clients advertising needs and marketing objectives.	yes	yes	yes
				Apply digital marketing trends and strategies in advertising.	yes	yes	yes
				To know the Media Planning	yes	yes	yes
				To inculcate Media Strategies	yes	yes	yes
				Advertising Media channels and benefits	yes	yes	yes
Commerce	**21**	**Brand Management(G)(Elective)**	**5417-BRDMT**	Apply the key principles of Branding and implement in work environment.	yes	yes	yes
				Analyse the measurement of brand equity and brand performance.	yes	yes	yes
				Practically develop a brand including positioning and communication.	yes	yes	yes
				Create branding concepts and ideas in their own.	yes	yes	yes
				Apply the brand extension policies and liaison with Government authorities.	yes	yes	yes
Commerce	**22**	**E-Commerce (CA)(Elective)**	**5417-ECOM**	Acquire knowledge in identifying the main business and marketplace models for electronic Communications and Trading	yes	yes	yes
				Understanding Electronic Payment System and its environment.	yes	yes	yes
				Make ethical decisions related to ecommerce based on laws, privacy, and security.	yes	yes	yes
				Analyze the steps, tools, and security considerations needed create an E- commerce websites	yes	yes	yes
Commerce	**23**	**Database Management System (CA)(Elective)**	**5418-DBMS**	Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.	yes	yes	yes
				Design ER-models to represent simple database application scenarios	yes	yes	yes
				Enhance the knowledge and understanding of Database analysis and design.	yes	yes	yes
				Use the Relational model and how it is supported by SQL and PL/SQL.	yes	yes	yes
				Solve Database problems using Oracle 9i SQL and PL/SQL. This will includethe use of Procedures, Functions, Packages, and Triggers.the use of Procedures, Functions, Packages, and Triggers.	yes	yes	yes

Commerce	**24**	**Marketing**	**6421-Mar**	Develop an idea about marketing and marketing environment.	yes	yes	yes
				Understand the consumer behavior and market segmentation process.	yes	yes	yes
				Know the process of packaging and labeling to attract the customers.	yes	yes	yes
				Formulate new marketing strategies for a specific new product.	yes	yes	yes
				Design and develop new advertisements to given products	yes	yes	yes
Commerce	**25**	**GST Fundamentals**	**6422-GST**	Understand the basic principles underlying the Indirect Taxation Statutes.	yes	yes	
				Examine the method of tax credit. Input and Output Tax credit and Cross Utilization of Input Tax Credit.	yes	yes	
				Identify and analyze the procedural aspects under different applicable statutes related to GST.	yes	yes	
				Compute the assessable value of transactions related to goods and services for levy and determination of duty liability.	yes	yes	
				Develop various GST Returns and reports for business transactions in Tally	yes	yes	
Commerce	**26**	**Management Accounting**	**6420-MA**	Understand various costing methods and management techniques.	yes	yes	yes
				To enable the students to understand different ratios used for analyzing financial Statements	yes	yes	yes
				To understand the analysis of financial statements by using various methods	yes	yes	yes
				To enable the students to understand different ratios used for analyzing financial Statements	yes	yes	yes
				To helps the students to prepare fund flow and Cash flow statement for the business organization	yes	yes	yes
Commerce	**27**	**Direct Marketing (G)(Elective)**	**6421-DM**	To know the Marketing communication	yes	yes	yes
				TO the direct and interactive Marketing	yes	yes	yes
				To know the media channels and digital marketing	yes	yes	yes
				To know social media and digital marketing	yes	yes	yes
				To adopt key factors of direct marketing	yes	yes	yes
Commerce	**28**	**Sales Promotion (G)(Elective)**	**6423-SP**	Develop a sales organization and exhibit the functions of sales organization.	yes	yes	yes
				Demonstrate selling skills	yes	yes	yes
				Manage a sales force and team.	yes	yes	yes
				Demonstrate the use of current technology trends and methods of selling.	yes	yes	yes
				Use the knowledge on fixing sales quota, prepare budgets and forecast sales.	yes	yes	yes
Commerce	**29**	**Web Technology (CA)(Elective)**	**6423-WT**	Understand the basic concepts and technologies used in the field of management information systems;	yes	yes	yes
				Have the knowledge of the different types of management information systems;	yes	yes	yes
				Goal is to understand how HTML works, structures and concepts of web design, such as CSS and layout control	yes	yes	yes
				You will discover how does web works really, what makes web sites work.	yes	yes	yes
				To create web elements like buttons, banners & Bars and of course complete UI designs.	yes	yes	yes
Commerce	**29**	**Tally (CA)(Elective)**	**6421-TLY**	To know the features of Tally features and creation of Companies.	yes	yes	yes
				To make Inventory masters and Pay roll entries.	yes	yes	yes
				Possess the required skill to independently operate the various options of MS Word for office administration	yes	yes	yes
				Possess the required skill set of working in MS Excel spreadsheet and use various formulas for calculation	yes	yes	yes
				To know the generation of Financial statements oor reports.	yes	yes	yes
Commerce	**30**	**Retailing (SDC)**	**300-SDC-RTLG**	To know the Retailing Business ,Its growth in India and impact.	yes	yes	yes
				Understand the importance of selection of layout for setting up a retail store	yes	yes	yes
				Formulate ideas for starting a retail business by the usage of modern tools and use e marketing strategies	yes	yes	yes
				Create a shopping experience model that builds customer loyalty and business promotion	yes	yes	yes
				To know the types of Retail Stores	yes	yes	yes
					yes	yes	yes
Commerce	**1**	**Fundamentals of Acccounting(I B.Com (G&CA)**	**141-FA**	Identify transactions and events that need to be recorded in the books of accounts	yes	yes	yes
				Equip with the knowledge of accounting process and preparation of final accounts of sole trader.	yes	yes	yes
				Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP.	yes	yes	yes
				Analyze the difference between cash book and pass book in terms of balance and make reconciliation.	yes	yes	yes
				Critically examine the balance sheets of a sole trader for different accounting periods.	yes	yes	yes
Commerce	**2**	**Business Organisation and Management**	**142-BOM**	Comprehend the nature of Joint Stock Company and formalities to promote a Company.	yes	yes	yes
				Describe the Social Responsibility of Business towards the society.	yes	yes	yes
				Critically examine the various organizations of the business firms and judge the best among them.	yes	yes	yes
				Design and plan to register a business firm. Prepare different documents to register a company at his own	yes	yes	yes
				Articulate new models of business organizations.	yes	yes	yes
Commerce	**3**	**Business Environment (G)**	**143-B.ENV**	To understand the elements of environment and its impact on business	yes	yes	yes
				To familiar with economic environment of business	yes	yes	yes
				To familiar with Government policies in business promotions	yes	yes	yes
				To gain knowledge on economic role of government in India	yes	yes	yes
				To appreciate the new technology policy and legal protection for natural environment and their impact on business	yes	yes	yes

Commerce	**4**	**Information Technology(CA)**	**143-IT**	Demonstrate basic understanding of computer hardware and software.	yes	yes	yes
				Apply skills and concept of basic use of a computer.	yes	yes	yes
				Prepare basic documents, charts, spread sheets and presentations using of Ms-Office.	yes	yes	yes
				Create personal, academic and business documents using Ms-Office.	yes	yes	yes
				Getting knowledge of networks and send receive E-Mails	yes	yes	yes
Commerce	**5**	**Financial Accounting**	**244-F.ACC**	Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.	yes	yes	yes
				Analyze the accounting process and preparation of accounts in consignment and joint venture	yes	yes	yes
				Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture.	yes	yes	yes
				Design an accounting system for different models of businesses at his own using the principles of existing accounting system.	yes	yes	yes
				Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities.	yes	yes	yes
Commerce	**6**	**Business Economics (G)**	**245-BE**	Describe the nature of economics in dealing with the issues of scarcity of resources.	yes	yes	yes
				Analyze supply and demand analysis and its impact on consumer behavior.	yes	yes	yes
				Evaluate the factors, such as production and costs affecting firms behavior.	yes	yes	yes
				Recognize market failure and the role of government in dealing with those failures.	yes	yes	yes
				Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.	yes	yes	yes
Commerce	**7**	**E-commerce and Web designing**	**245-E.COM .WEB**	Understand the basic concepts and technologies used in the field of management information systems	yes	yes	yes
				Have the knowledge of the different types of management information systems	yes	yes	yes
				Goal is to understand how HTML works, structures and concepts of web design, such as CSS and layout control.	yes	yes	yes
				You will discover how does web works really, what makes web sites work.	yes	yes	yes
				To create web elements like buttons, banners & Bars and of course complete UI designs.	yes	yes	yes
Commerce	**8**	**Advanced Accounting**	**346-ADV ACC**	Understand the concept of Non-profit organizations and its accounting process	yes	yes	yes
				Comprehend the concept of single-entry system and preparation of statement of affairs	yes	yes	yes
				Familiarize with the legal formalities at the time of dissolution of the firm	yes	yes	yes
				Prepare financial statements for partnership firm on dissolution of the firm	yes	yes	yes
				Employ critical thinking skills to understand the difference between the dissolution of the firm and dissolution of partnership	yes	yes	yes
Commerce	**9**	**Business Statistics**	**349-B.STAT**	Understand the importance of Statistics in real life	yes	yes	yes
				Formulate complete, concise, and correct mathematical proofs.	yes	yes	yes
				Frame problems using multiple mathematical and statistical tools, measuring relationships by using standard techniques.	yes	yes	yes
				Build and assess data-based models.	yes	yes	yes
				Learn and apply the statistical tools in day life.	yes	yes	yes
Commerce	**10**	**Marketing**	**6419-Mar**	Develop an idea about marketing and marketing environment.	yes	yes	yes
				Understand the consumer behavior and market segmentation process.	yes	yes	yes
				Know the process of packaging and labeling to attract the customers.	yes	yes	yes
				Formulate new marketing strategies for a specific new product.	yes	yes	yes
				Design and develop new advertisements to given products	yes	yes	yes
Commerce	**11**	**Programming in C (CA)**	**246-PRO.C**	Demonstrate an understanding of algorithms, flow charts in the problem-solving process.	yes	yes	yes
				Identify the necessary properties of good problem-solving techniques.	yes	yes	yes
				Understand tokens and control structures in C.	yes	yes	yes
				Understand arrays and functions and pointers.	yes	yes	yes
				Develop and test programs using c and C++.	yes	yes	yes
Commerce	**12**	**Banking Theory &Practice(G)**	**246-BTP**	Understand the basic concepts of banks and functions of commercial banks.	yes	yes	yes
				Demonstrate an awareness of law and practice in a banking context.	yes	yes	yes
				Engage in critical analysis of the practice of banking law.	yes	yes	yes
				Critically examine the current scenario of Indian Banking system.	yes	yes	yes
				Formulate the procedure for better service to the customers from various banking innovations.	yes	yes	yes
Commerce	**13**	**Marketing**	**349--MAR**	Develop an idea about marketing and marketing environment.	yes	yes	yes
				Understand the consumer behavior and market segmentation process.	yes	yes	yes
				Know the process of packaging and labeling to attract the customers.	yes	yes	yes
				Formulate new marketing strategies for a specific new product.	yes	yes	yes
				Design and develop new advertisements to given products	yes	yes	yes
Commerce	**14**	**Programming in C WITH C ++ (CA)**	**246-PRO.C**	Demonstrate an understanding of algorithms, flow charts in the problem-solving process.		yes	yes
				Identify the necessary properties of good problem-solving techniques.		yes	yes
				Understand tokens and control structures in C.		yes	yes
				Understand arrays and functions and pointers.		yes	yes
				Develop and test programs using c and C++.		yes	yes
Commerce	**15**	**Corporate Accounting**	**347-CORP.ACC**	Understand the basic concepts of issues of shares, debentures and underwriting of shares.	yes	yes	yes

				Analyse and compute profit prior to incorporation and post in corporation period and to find out the mechanism for redemption of preference shares.	yes	yes	yes
				Evaluate the financial position of the company.	yes	yes	yes
				Analyze and Compute various methods of goodwill and shares of the company.	yes	yes	yes
				Apply the procedure for liquidation of companies.	yes	yes	yes
Commerce	**16**	**Cost & Management Accounting**	**5414-CA**	To understand the concept of costing and related terms.	yes	yes	yes
				To familiarity with the estimation and controlling of material cost and labour cost	yes	yes	yes
				To familiarity with the estimation of overhead cost	yes	yes	yes
				To enable the students to understand different ratios used for analyzing financial Statements	yes	yes	yes
				To helps the students to prepare fund flow and Cash flow statement for the business organization	yes	yes	yes
Commerce	**17**	**Income Tax**	**4411-IT**	Acquire the complete knowledge of the tax evasion, tax avoidance and tax planning.	yes	yes	yes
				Understand the provisions and compute income tax for various sources.	yes	yes	yes
				Grasp amendments made from time to time in Finance Act.	yes	yes	yes
				Compute total income and define tax complicacies and structure.	yes	yes	yes
				Prepare and File IT returns of individual at his own.	yes	yes	yes
Commerce	**18**	**Business Law**	**4410-BL**	Understand the legal environment of business and laws of business.	yes	yes	yes
				Highlight the security aspects in the present cyber-crime scenario.	yes	yes	yes
				Apply basic legal knowledge to business transactions.	yes	yes	yes
				Understand the various provisions of Company Law.	yes	yes	yes
				Engage critical thinking to predict outcomes and recommend appropriate action on issues relating to business associations and legal issues.	yes	yes	yes
Commerce	**19**	**Auditing**	**5415-AUD**	Understanding the meaning and necessity of audit in modern era	yes	yes	yes
				Comprehend the role of auditor in avoiding the corporate frauds	yes	yes	yes
				Determine the appropriate audit report for a given audit situation	yes	yes	yes
				Plan an audit by considering concepts of evidence, risk and materiality	yes	yes	yes
Commerce	**20**	**GST Fundamentals**	**6422-GST**	Understand the basic principles underlying the Indirect Taxation Statutes.	yes	yes	yes
				Examine the method of tax credit. Input and Output Tax credit and Cross Utilization of Input Tax Credit.	yes	yes	yes
				Identify and analyze the procedural aspects under different applicable statutes related to GST.	yes	yes	yes
				Compute the assessable value of transactions related to goods and services for levy and determination of duty liability.	yes	yes	yes
				Develop various GST Returns and reports for business transactions in Tally	yes	yes	yes
Commerce	**21**	**Database Management System (CA)**	**5418-DBMS**	Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.	yes	yes	yes
				Design ER-models to represent simple database application scenarios	yes	yes	yes
				Enhance the knowledge and understanding of Database analysis and design.	yes	yes	yes
				Use the Relational model and how it is supported by SQL and PL/SQL.	yes	yes	yes
				Solve Database problems using Oracle 9i SQL and PL/SQL. This will includethe use of Procedures, Functions, Packages, and Triggers.the use of Procedures, Functions, Packages, and Triggers.	yes	yes	yes
Commerce	**22**	**Commercial Geography**	**5413-CG**	Understand different part of geographical knowledge and evolution	yes	yes	yes
				Understand importance of Water resources and environment	yes	yes	yes
				Understand elements of environmental polution and its problems and management.	yes	yes	yes
				Knowledge of Agriculture Regions	yes	yes	yes
				To know the role of Forests in India	yes	yes	yes
Commerce	**23**	**Cost Accounting**	**5414-CA**	To understand the concept of costing and related terms.	yes	yes	yes
				To familiarity with the estimation and controlling of material cost	yes	yes	yes
				To understand the estimation and controlling of labour cost	yes	yes	yes
				To familiarity with the estimation of overhead cost	yes	yes	yes
				To able to prepare cost sheet	yes	yes	yes
Commerce	**24**	**Auditing**	**5415-AUD**	Understanding the meaning and necessity of audit in modern era	yes	yes	yes
				Comprehend the role of auditor in avoiding the corporate frauds	yes	yes	yes
				Identify the steps involved in performing audit process	yes	yes	yes
				Determine the appropriate audit report for a given audit situation	yes	yes	yes
				Plan an audit by considering concepts of evidence, risk and materiality	yes	yes	yes
Commerce	**25**	**Advertising and Media Planning (G)(Elective)**	**5416-AMP**	Identify and respond to clients advertising needs and marketing objectives.	yes	yes	yes
				Apply digital marketing trends and strategies in advertising.	yes	yes	yes
				To know the Media Planning	yes	yes	yes
				To inculcate Media Strategies	yes	yes	yes
				Advertising Media channels and benefits	yes	yes	yes
Commerce	**26**	**Brand Management(G)(Elective)**	**5417-BRDMT**	Apply the key principles of Branding and implement in work environment.	yes	yes	yes
				Analyse the measurement of brand equity and brand performance.	yes	yes	yes

				Practically develop a brand including positioning and communication.	yes	yes	yes
				Create branding concepts and ideas in their own.	yes	yes	yes
				Apply the brand extension policies and liaison with Government authorities.	yes	yes	yes
Commerce	**27**	**E-Commerce (CA)(Elective)**	**5417-ECOM**	Acquire knowledge in identifying the main business and marketplace models for electronic Communications and Trading	yes	yes	yes
				Understanding Electronic Payment System and its environment.	yes	yes	yes
				Make ethical decisions related to ecommerce based on laws, privacy, and security.	yes	yes	yes
				Analyze the steps, tools, and security considerations needed create an E- commerce websites	yes	yes	yes
Commerce	**28**	**Database Management System (CA)(Elective)**	**5418-BRDMT**	Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.	yes	yes	yes
				Design ER-models to represent simple database application scenarios	yes	yes	yes
				Enhance the knowledge and understanding of Database analysis and design.	yes	yes	yes
				Use the Relational model and how it is supported by SQL and PL/SQL.	yes	yes	yes
				Solve Database problems using Oracle 9i SQL and PL/SQL. This will includethe use of Procedures, Functions, Packages, and Triggers.the use of Procedures, Functions, Packages, and Triggers.	yes	yes	yes
Commerce	**29**	**Marketing**	**6419-Mar**	Develop an idea about marketing and marketing environment.	yes	yes	yes
				Understand the consumer behavior and market segmentation process.	yes	yes	yes
				Know the process of packaging and labeling to attract the customers.	yes	yes	yes
				Formulate new marketing strategies for a specific new product.	yes	yes	yes
				Design and develop new advertisements to given products	yes	yes	yes
Commerce	**30**	**GST Fundamentals**	**6422-GST**	Understand the basic principles underlying the Indirect Taxation Statutes.	yes	yes	yes
				Examine the method of tax credit. Input and Output Tax credit and Cross Utilization of Input Tax Credit.	yes	yes	yes
				Identify and analyze the procedural aspects under different applicable statutes related to GST.	yes	yes	yes
				Compute the assessable value of transactions related to goods and services for levy and determination of duty liability.	yes	yes	yes
				Develop various GST Returns and reports for business transactions in Tally	yes	yes	yes
Commerce	**31**	**Management Accounting**	**6420-MA**	Understand various costing methods and management techniques.	yes	yes	yes
				To enable the students to understand different ratios used for analyzing financial Statements	yes	yes	yes
				To understand the analysis of financial statements by using various methods	yes	yes	yes
				To enable the students to understand different ratios used for analyzing financial Statements	yes	yes	yes
				To helps the students to prepare fund flow and Cash flow statement for the business organization	yes	yes	yes
Commerce	**32**	**Direct Marketing (G)(Elective)**	**6421-DM**	To know the Marketing communication	yes	yes	yes
				TO the direct and interactive Marketing	yes	yes	yes
				To know the media channels and digital marketing	yes	yes	yes
				To know social media and digital marketing	yes	yes	yes
				To adopt key factors of direct marketing	yes	yes	yes
Commerce	**33**	**Sales Promotion (G)(Elective)**	**6423-SP**	Develop a sales organization and exhibit the functions of sales organization.	yes	yes	yes
				Demonstrate selling skills	yes	yes	yes
				Manage a sales force and team.	yes	yes	yes
				Demonstrate the use of current technology trends and methods of selling.	yes	yes	yes
				Use the knowledge on fixing sales quota, prepare budgets and forecast sales.	yes	yes	yes
Commerce	**34**	**Web Technology (CA)(Elective)**	**6423-WT**	Understand the basic concepts and technologies used in the field of management information systems;	yes	yes	yes
				Have the knowledge of the different types of management information systems;	yes	yes	yes
				Goal is to understand how HTML works, structures and concepts of web design, such as CSS and layout control	yes	yes	yes
				You will discover how does web works really, what makes web sites work.	yes	yes	yes
				To create web elements like buttons, banners & Bars and of course complete UI designs.	yes	yes	yes
Commerce	**35**	**Tally (CA)(Elective)**	**6421-TLY**	To know the features of Tally features and creation of Companies.	yes	yes	yes
				To make Inventory masters and Pay roll entries.	yes	yes	yes
				Possess the required skill to independently operate the various options of MS Word for office administration	yes	yes	yes
				Possess the required skill set of working in MS Excel spreadsheet and use various formulas for calculation	yes	yes	yes
				To know the generation of Financial statements oor reports.	yes	yes	yes
Commerce	**36**	**Retailing (SDC)**	**300-SDC-RTLG**	To know the Retailing Business ,Its growth in India and impact.	yes	yes	yes
				Understand the importance of selection of layout for setting up a retail store	yes	yes	yes
				Formulate ideas for starting a retail business by the usage of modern tools and use e marketing strategies	yes	yes	yes
				Create a shopping experience model that builds customer loyalty and business promotion	yes	yes	yes
				To know the types of Retail Stores	yes	yes	yes
Commerce	**37**	**Office Secretaryship(SDC)**	**100-ENTP**	*Understand the organizational hierarchy and outlines of functioning*	yes	yes	yes

				Comprehend the role of office secretaryship in a small and medium organization	yes	yes	yes
				Acquire knowledge on office procedures and interpersonal skills	yes	yes	yes
				Apply the skills in preparing and presenting notes, letters, statements,reports in different situations.	yes	yes	yes
Commerce	**38**	**Entrepreneurship Development(FC)**	**100-LSC-EDP**	Understand the basic concepts in the area of Entrepreneurship.	yes	yes	yes
				Be familiar with EDP schemes.	yes	yes	yes
				Adopt key steps in the elaboration of business idea.	yes	yes	yes
				Understand the stages of the entrepreneurial process and the resources needed for thesuccessful development of entrepreneurial ventures.	yes	yes	yes
				Better use and maximize existing resources.	yes	yes	yes
Computer Science	**1**	**Computer Fundamentals and Photoshop**	**111-CS**	1.To understand the working of a computer, data representation in various number systems.	yes	yes	yes
				2.To demonstrate the basic parts of a computer and basics of windows operating system	yes	yes	yes
				3.To demonstrate the process of image editing using Photoshop.	yes	yes	yes
				4.To construct artistic images, image backgrounds,colour manipulations using Photoshop tool box.	yes	yes	yes
				5.To construct presentations and adds using layer styles, opacity layers and various filters.	yes	yes	yes
Computer Science	**2**	**Programming in C**	**212-CS**	1. To describe the basic terminology used in computer programming. To explain the different data types in a computer program.	yes	yes	yes
				2. To design programs involving Decision Control and Looping Statements.	yes	yes	yes
				3. To construct C programs using multidimensional arrays and strings.	yes	yes	yes
				4. To design modular programs using derived and user defined data types.	yes	yes	yes
				5. To apply the dynamics of memory by the use of pointers. To perform different file operations on files.	yes	yes	yes
Computer Science	**3**	**Object Oriented Programming using java**	**313-CS**	1. To demonstrate the concept and underlying principles of OOP.	yes	yes	yes
				2. To illustrate simple java primitives and problem solving using OOP concept.	yes	yes	yes
				3. To implement java programs using runtime polymorphism, multiple inheritance using interfaces	yes	yes	yes
				4. To Analyse the behaviour of Threads and to manage the errors and exceptions	yes	yes	yes
				5. To create java applications using applets and packages and I/O streams	yes	yes	yes
Computer Science	**4**	**Data structures Using Java**	**414-CS**	1. To demonstrate the concept of Abstract data type , data structures and taxonomy of data structures	yes	yes	yes
				2.To use data structures stacks, queues and variants of queues in the construction of linear data structures	yes	yes	yes
				3.To demonstrate the construction of binary trees and their operations	yes	yes	yes
				4.To construct the graphs and minimal spanning trees.	yes	yes	yes
				5.To implement searching and sorting of elements in a data structure.	yes	yes	yes
Computer Science	**5**	**Database Management Systems**	**515-CS**	1.To demonstrate the advantages , limitations of database management system and Concept of data model	yes	yes	yes
				2.To construct conceptual data model(E-R Model) of a database for any organization.	yes	yes	yes
				3.To discuss about relational data model, design of relational algebra and relational calculus queries	yes	yes	yes
				4. To demonstrate the SQL sub languages and to implement SQL queries for various real world transactions using different SQL constructs.	yes	yes	yes
				5.To implement stored procedures and construct active databases	yes	yes	yes
Computer Science	**6**	**Software Engineering**	**516-CS**	1. To acquire the knowledge of basic software engineering methods, processes and their appropriate applications.	yes	yes	yes
				2.To apply requirements gathering methods to create a SRS document for a defined problem.	yes	yes	yes
				3.To discuss about software architecture and effective modular using by incorporating coupling and cohesion	yes	yes	yes
				4.To demonstrate and design effective user interfaces	yes	yes	yes
				5.To demonstrate software quality metrics and software reliability using various testing methods and standards.	yes	yes	yes
Computer Science	**7**	**Web Technologies**	**617-CS**	1.To create web pages using XHTML and Cascading style sheets	yes	yes	yes
				2.To build dynamic web pages using dynamic HTML	yes	yes	yes
				3.To create dynamic web applications through XML	yes	yes	yes
				4.To create web applications through Ruby	yes	yes	yes
				5.To develop Java server faces web applications and to demonstrate web services.	yes	yes	yes
Computer Science	**8**	**Distributed Systems**	**618-CS-A1**	1. To demonstrate the models for distributed systems.	yes	yes	yes
				2.To discuss about the implementation of Remote Procedure Call(RPC)	yes	yes	yes
				3. To understand the design and implementation Distributed shared memory system.	yes	yes	yes
				4.To describe the load balancing approach and load sharing approach in distributed systems	yes	yes	yes
				5.To describe file sharing and authentication, access control of data files in a distributed environment	yes	yes	yes
Computer Science	**9**	**Cloud computing**	**618-CS-A2**	1.To compare the strengths and limitations of cloud computing	yes	yes	yes
				2.To identify the core issues of cloud computing such as security, privacy and interoperability	yes	yes	yes
				3.To Identify the architecture, infrastructure and delivery models of cloud computing	yes	yes	yes

				4.To understand public and private clouds and to distinguish infrastructure as a service(IAAS) clouds.	yes	yes	yes
				5.To apply suitable virtualization concept in cloud computing	yes	yes	yes
Computer Science	**10**	**Grid computing**	**618-CS-A3**	1.To understand the genesis of grid computing	yes	yes	yes
				2.To describe grid monitoring systems and service level agreements.	yes	yes	yes
				3.To learn the technology and tool kits for facilitating grid computing	yes	yes	yes
				4.To understand the data management challenges and collective data management services in grid computing	yes	yes	yes
				5.To understand the list of globally available middleware for grid computing	yes	yes	yes
ECONOMICS	**1**	**MICRO ECONOMICS ANALYSIS**	**131-ECO**	1. To remember the nature, scope, importance and limitations of microeconomics and the differences between microeconomic analysis and macroeconomic analysis.		yes	yes
				2. To understanding the various terms and concepts relating to microeconomic analysis with the help of examples of real life.		yes	yes
				3. To analyze the consumer's equilibrium and consumer's surplus using indifference curve analysis. Various laws and principles of consumption, production, and income distribution.		yes	yes
				4. To evaluate the determination of price and output at different market conditions in short term and long term.		yes	yes
				5. Draws critical diagrams and graphs to explain and examine the application of various laws and principles of microeconomic analysis.		yes	yes
ECONOMICS	**2**	**MACRO ECONOMIC ANALYSIS**	**232-ECO**	1. To remember the various concepts, definitions, laws and principles of macroeconomic theory with reference to income, employment, money, banking and finance.	yes	yes	yes
				2. To understand the difference between various concepts and components of national income with illustrations and methods of measuring national income.	yes	yes	yes
				3. To analyze the theories relating to income, employment and empirical evidences of Consumption and Investment Functions and factors influencing them.	yes	yes	yes
				4. To describe the functions of commercial banks and central bank, creation and control of credit and phases of trade cycles.	yes	yes	yes
				5. To draw critical formulae, diagrams and graphs of consumption and investment functions: concepts of multiplier and accelerator: inflation and trade cycles.	yes	yes	yes
ECONOMICS	**3**	**DEVELOPMENT ECONOMICS**	**333-ECO**	1. To remember various concepts and definitions and indicators relating to economic growth and development including recent developments.	yes	yes	yes
				2. To understand characteristics of developing economies and choice of techniques and a few important models and strategies of growth.	yes	yes	yes
				3. To analyze the role and importance of various financial and other institutions in the context of India's economic development.	yes	yes	yes
				4. To evaluate the theoretical aspects of a few models and strategies of economic growth.	yes	yes	yes
				5. Draws critical diagrams and graphs to explain the models and strategies to highlight empirical evidences to support the strategies.	yes	yes	yes
ECONOMICS	**4**	**ECONOMIC DEVELOPMENT-INDIA AND ANDHRA PRADESH**	**434-ECO**	1. To remember leading issues of Indian economic development with reference to potential for growth, obstacles, policy responses, objectives, outlays and achievements of economic plans and growth strategies.	yes	yes	
				2. To understand available resources, demographic issues, general problems of poverty, unemployment, relevant policies, specific problems, remedial policies and their effectiveness relating to Agriculture and Industrial Sectors of Indian and AP economy.	yes	yes	
				3. To understand the Indian Tax system, recent changes, issues of public expenditure and public debt, recent finance commissions and major issues of economic development of Andhra Pradesh after bifurcation and central assistance.	yes	yes	
				4. To Critically examines leading issues of current importance relating to India and AP economy, major policies and programmes. Covid– 19 and its impact on Indian economy.	yes	yes	
				5. Uses official statistical data and reports including tables and graphs to explain the achievements of Indian economy with reference to the objectives of planning and policy and make critical evaluation.	yes	yes	
ECONOMICS	**5**	**STATISTICAL METHODS FOR ECONOMICS**	**435-ECO**	1. To remember the definitions, terms and their meaning relating to statistical methods and various formulae used to measure central tendency, correlation regression and Indices.	yes	yes	yes
				2. To understand Importance of statistics and its applications, method of classification of primary data, uses of Correlation and Regression analysis, time series and index numbers in economic analysis.	yes	yes	yes
				3. To analyses and solves using given data and information related to different kinds of statistical problems using various principles and formulae relating to central tendency, correlation, regression, time series, indices and interpret data and suggest solutions to economic problems.	yes	yes	yes
				4. Draws graphs of Histogram, Frequency Polygon and Frequency Curve, more than cumulative and less than cumulative frequency curves (Ogive).	yes	yes	yes

				5. Draws diagrams of Different types of Bar diagrams, Pie Diagram and its uses in economic analysis.	yes	yes	yes
ECONOMICS	**6**	**RURAL ENTREPRENEURSHIP**	**536-ECO**	1. To know the basic theories and essentials of entrepreneurship.	yes	yes	
				2. Identify and analyze the entrepreneurship opportunities available in local rural area.	yes	yes	
				3. Apply the theories of entrepreneurship to the conditions of local rural area and formulate appropriate business ideas.	yes	yes	
				4. Demonstrate practical skills that will enable them to start rural entrepreneurship.	yes	yes	
					yes	yes	
ECONOMICS	**7**	**FARMER PRODUCER ORGANIZATIONS**	**537-ECO**	1. To know the concept and organization of FPO and its economic activities.	yes	yes	
				2. Identify and analyze the opportunities related to FPO in local rural area.	yes	yes	
				3. Apply the concepts to the identified FPO related opportunities available in the local area and formulate business ideas.	yes	yes	
				4. Demonstrate practical skills that will enable them to start a FPO or earn wage employment in it.	yes	yes	
				5	yes	yes	
History	**1**	**ANCIENT INDIAN HISTORY & CULTURE (From Indus Valley Civilization to 13th Cent A.D)**	**131- HIST**	Identify and define various kinds of sources and understand how history books are shaped		yes	yes
				Compare and contrast various stages of progress from IVC to Vedic age and analyse the Jain, Buddhist and Vedic faiths and also analyse the emergence of the Mauryan and Gupta empires during the "classical age" in India		yes	yes
				Evaluate the key facets of ancient society, polity and culture in South India—the feudalism, and the rise of technology and commerce		yes	yes
				Critically examine the nature of monarchic rule and develop and comprehensive understanding of cultural evolution during ancient period		yes	yes
				Increase the awareness and appreciation of Transition from Territorial States to Emergence of Empires especially in South India		yes	yes
History	**2**	**MEDIEVAL INDIAN HISTORY &CULTURE (1206 A.D to 1764 A.D)**	**232- HIST**	Able to describe the advent of Islam in India and study the traces of political and cultural expansion of Turks & Afghans	yes	yes	
				Understand the socio, economic and cultural conditions of medieval India and also can explain the administration and art and architecture of Vijayanagar Rulers	yes	yes	
				Explain the expansion and consolidation of Indian by the Mughals Mughals and also the contribution of Akbar and can analyse critically the concept of Golden Age of Shah Jahan	yes	yes	
				Analyse the emergence of composite culture in India under Mughals and also analyse the rise of the Marathas and the contribution of Shivaji	yes	yes	
				Evaluate the establishment of the British rule in India and understand the dangerous consequences disunity at all levels	yes	yes	
History	**3**	**MODERN INDIAN HISTORY & CULTURE (1764-1947 A. D)**	**333- HIST**	Unearth the true nature of the British rule and its disastrous impact on Indian economy and society	yes	yes	
				Gauge the disillusionment of people against the Company's rule even during the early 19th century	yes	yes	
				Assess the causes and effects of Reformation movements and also inspire the public to overthrow inequalities of the present day society	yes	yes	
				Rise above petty parochial issues after understanding the sacrificial saga of freedom struggle	yes	yes	
				Evaluate the undercurrent of communal politics that led to India's partition and identify the enemies of India's integrity and sovereignty	yes	yes	
History	**4**	**HISTORY & CULTURE OF ANDHRA (FROM 1512 TO 1956 AD)**	**434- HIST**	Interpret social and political and cultural transformation from medieval to modern Andhra	yes		
				Relate key historical developments during medieval period occurring in coastal Andhra and Telangana regions and analyse socio - political and economic changes under Qutb Shahi rulers	yes		
				Explain how the English East India Company became the most dominant power and outline the impact of colonial policies on different aspects in Andhra	yes		
				Outline the issues related to caste, women, widow remarriage, child marriage, social reforms and the laws and policies of colonial administration towards these issues	yes		
				Take pride in the non-violence struggle for Indian Independence and relate the importance of peace in everyday life and apply the knowledge of the regional history to understand the regional, linguistic and other cultural aspirations of the present-day society	yes		
History	**5**	**HISTORY OF MODERN WORLD (From 15th Cent. AD to 1945 AD)**	**435- HIST**	Assess and appraise the developments in art, literature, and society during the Renaissance and utilize content knowledge of the Reformation and Counter Reformation to make predictions about the evolution of Christianity in Europe and abroad		yes	yes
				Evaluate the causes for the Glorious Revolution and American Revolution and identify the background for the evolution of human rights movement		yes	yes

				Understand the main events of the French Revolution and its significance in the shift in European culture from Enlightenment to Romanticism		yes	yes
				Know how the world wars affected people all over the world and the destruction they caused		yes	yes
				Develop the intellectual curiosity and habits of thought that will lead to life-long learning and continued engagement with European history, literature, culture, languages, and current affairs and acquire advanced international and intercultural competency through coursework in international studies		yes	yes
History	**6**	**ARCHIVAL SOURCES AND TECHNIQUES**	**536- HIST**	Understand the archival sources and techniques as professional tools.	yes	yes	yes
				Identify the intellectual and physical content in historical sites and records.	yes	yes	yes
				Develop the ability to preserve and create access for a historic record.	yes	yes	yes
				Recognize the importance of archives in history writing	yes	yes	yes
				Manage, budget and implement projects	yes	yes	yes
History	**7**	**TECHNIQUES OF HISTORY WRITING**	**537- HIST**	Understand the meaning of history, scope and various concepts in historical writings	yes	yes	yes
				Identify various historical sources for writing history of a person / event / place/organization/ monument/ etc.	yes	yes	yes
				Understand the different ways to organize sources and interpretation	yes	yes	yes
				Summarize the changing ideas and approaches to a particular topic of history	yes	yes	yes
				Learn skills related to choosing and writing of a comprehensive history of a small unit	yes	yes	yes
HORTICULTURE	**1**	**FUNDAMENTALS OF HORTICULTURE AND SOIL SCIENCE**	**121-HORT**	1. To evaluate the importance in terms of values and scope of Horticulture	yes		
				2.To classify horticultural crops based on different parameters	yes		
				3.To decide the type of fruits and vegetable crops for cultivation in different agro-climatic zones in India and understand the role of environmental factors in the crop production	yes		
				4.To apply the basic knowledge of common crop management processes	yes		
				.5.To understand the soil components,types, properties suitable for optimal production and sustainable soil fertility	yes		
HORTICULTURE	**2**	**PLANT PROPAGATION AND NURSERY MANAFEMENT**	**222-HORT**	1.To aply the knowledge of sexual propagation for the horticulture plants multiplication effectively	yes	yes	
				2. To appreciated the importance and process of asexual and vegetative propagation	yes	yes	
				3To produce qualitative fruit and flower plants using different techniques	yes	yes	
				4.To establish the nursery selecting suitable site, growing structure, media and equipment	yes	yes	
				5. To establish, manage a nursery and get the nursery certified properly	yes	yes	
HORTICULTURE	**3**	**BASICS OF VEGETABLE SCEINCE**	**323-HORT**	1.To understand the importance, types and values of vegetable gardens	yes	yes	yes
				2.To select the suitable varieties of vegetable crops based on soil and climatic conditions	yes	yes	yes
				3. To apply the appropriate cultural practices for more efficient production	yes	yes	yes
				4. To control the pests and diseases of vegetable crops	yes	yes	yes
				5. To produce quality vegetable seeds	yes	yes	yes
HORTICULTURE	**4**	**BASICS OF FLOWER SCIENCE**	**424-HORT**	1. To understand the importance, types of gardens and values of gardening	yes	yes	yes
				2. To select the suitable varieties of economic floral crops based on soil and climatic conditions	yes	yes	yes
				3. To use the appropriate special horticultural practices for more efficient production	yes	yes	yes
				4. To establish and maintain the production unit of floral nursery plants	yes	yes	yes
				5. To use the knowledge and skill in the landscaping	yes	yes	yes
HORTICULTURE	**5**	**BASICS OF FRUIT SCIENCE**	**425-HORT**	1. To evaluate the importance, types and values of orchards	yes	yes	yes
				2. To establish and maintain the fruit gardens	yes	yes	yes
				3. To apply the suitable training and pruning techniques for more efficient production	yes	yes	yes
				4. To apply the suitable training and pruning techniques for more efficient production	yes	yes	yes
				5. To select the suitable fruit crop and cultivate successfully in different climatic regions in our country	yes	yes	yes
Mathematics	**1**	**Differential Equations**	**111-MAT**	1. Solve linear differential equations	yes	yes	yes
				2. Convert non-exact homogeneous equations to exact differential equations by using integrating factors.	yes	yes	yes
				3. Know the methods of finding solutions of differential equations of the first order but not of the first degree.	yes	yes	yes
				4. Solve higher-order linear differential equations, both homogeneous and non homogeneous, with constant coefficients.	yes	yes	yes
				5. Understand the concept and apply appropriate methods for solving differential equations.	yes	yes	yes
Mathematics	**2**	**Three Dimensional Analytical Solid Geometry**	**212-MAT**	1. get the knowledge of planes.	yes	yes	yes
				2. basic idea of lines, sphere, cones and Cylinders.	yes	yes	yes

				3. understand the properties of planes, lines, spheres, cones and Cylinders.	yes	yes	yes
				4. express the problems geometrically and then to get the solution.	yes	yes	yes
				5	yes	yes	yes
Mathematics	**3**	**Abstract Algebra**	**313-MAT**	1. acquire the basic knowledge and structure of groups, subgroups and cyclic groups.	yes	yes	yes
				2. get the significance of the notation of a normal subgroups.	yes	yes	yes
				3. study the group homomorphisms and isomorphisms with applications.	yes	yes	yes
				4. understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems.	yes	yes	yes
				5. understand the applications of ring theory in various fields.	yes	yes	yes
Mathematics	**4**	**Real Analysis**	**414-MAT**	1. get clear idea about the real numbers and real valued functions.	yes	yes	yes
				2. obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/ series.	yes	yes	yes
				3. test the continuity, differentiability and Riemann integration of a function.	yes	yes	yes
				4. know the significance and geometrical interpretation of mean value theorems.	yes	yes	yes
				5	yes	yes	yes
Mathematics	**5**	**Linear Algebra**	**415-MAT**	1. understand the concepts of vector spaces, subspaces, bases, dimension and their properties	yes	yes	yes
				2. understand the concepts of linear transformations and their properties	yes	yes	yes
				3. apply Cayley- Hamilton theorem to problems for finding the inverse of a matrix and higher powers of matrices without using routine methods.	yes	yes	yes
				4. learn the properties of inner product spaces and determine orthogonality in inner product spaces.	yes	yes	yes
MICROBIOLOGY	**1**	**Introduction to Microbiology & Microbial Diversity**	**121-MB**	Create basic knowledge about Microbiology including history,importance and applications of microbiology in daily life, health, food, sanitation and in genetic engineering.	yes	yes	yes
				Analyze the concept of classification microorganisms and general characteristics of algae, fungi, protozoa and viruses	yes	yes	yes
				Evaluate bacterial cell structure and functions of components. Perform staining and observe bacterial morphology under microscope.	yes	yes	yes
				Understand bacterial growth media and techniques of sterilization. Prepare bacterial growth media and perform sterilization by physical and chemical methods.	yes	yes	yes
				Analyze the methods of isolation and preservation of bacterial pure cultures and apply them methods of preserve them in lab	yes	yes	yes
MICROBIOLOGY	**2**	**Microbial Biochemistry & Metabolism**	**122-MB**	1. Create the ability to characterize and classify carbohydrates, nucleic acids , fats and lipids.	yes	yes	yes
				2. Understand the principles of colorimetry, chromatography, spectrophotometry and electrophoresis. Apply them in qualitative & quatitative analysis of biomolecules.	yes	yes	yes
				3. Able to classify enzymes and study inhibition of enzyme activity and enzyme kinetics. Demonstrate induced fit theory and lock & key models.	yes	yes	yes
				4. Analyze the nutritional requirements and nutritional groups of bacteria like autotrophs, heterotrophs, mixotrophs. Demonstrate the methods for measuring microbial growth like direct microscopy, viable count and turbidometry.	yes	yes	yes
				5. Evaluate aerobic and anaerobic respiration through different metabolic pathways in microorganisms. Able to understand the concepts of oxygenic and anoxygenic photosynthesis in bacteria.	yes	yes	yes
MICROBIOLOGY	**3**	**Microbial Genetics & Molecular biology**	**323-MB**	1.Understand and differentiate the molecular structures of DNA and RNA and establish them as genetic materials through experimentation.	yes	yes	yes
				2. Analyse Genetic code and differentiate the process of transcription and translation in Prokarotes & Eukaryotes	yes	yes	yes
				3.Acquire knowledge of various gene transfer mechanisms in bacteria. Understand the concept of mutations and their effects	yes	yes	yes
				4.Learn the concept of gene and their types, gene expression. Gene regulatory mechanisms and concept of lac operon.	yes	yes	yes
				5.Explain the basic principles of genetic engineering. Demonstrate isolation of bacteria/plasmid DNA and separation by electrophoresis	yes	yes	yes
MICROBIOLOGY	**4**	**Immunology & Medical microbiology**	**324-MB**	1.Understand the role of immune system comprising ceels and organs in generating immune response. Differentiate innate and acquired immunity	yes	yes	yes
				2.Analyse the structure and functions of antigens, antibodies. Perform Antigen- antobody reactions. conceptualize hypersensitivity and its implications in human body	yes	yes	yes
				3.Evaluate the concepts of Normal flora, host pathogen interactions. Demonstrate the principles of collection, transport and processing of clinical samples. Perform cultural, biochemical, serological methods of laboratory diagnosis	yes	yes	yes
				4.Develop understanding of pathogenesis, epidemiology and prevention of common bacterial, viral, fungal protozoal diseases of humans.	yes	yes	yes
				5.Acquire knowledge of chemotherapy and mode of action of antimicrobial agents. Perform antibiotic susceptibilty and resistance tests. Understand different types of vaccines.	yes	yes	yes
MICROBIOLOGY	**5**	**Environmental & Agricultural microbiology**	**525-MB**	1. Evaluate the diverse roles of microorganisms in soil, water and air. understand the role of microorganisms in geochemical cycles.	yes	yes	yes
				2.Able to Perform microbial analysis of drinking water and methods to treat water samples.	yes	yes	yes

				3.Develop an understanding of solid and liquid waste management and role of microorganisms in treatment of sewage	yes	yes	yes
				4.Acquire knowledge about microbial interactions and role of PGPRs in the field of agriculture. Concept of symbiotic & non-symbiotic methods of nitrogen fixation.	yes	yes	yes
				5.Understand plant pathogens and diseases caused by viruses, fungi and bacteria in crops. Concept of biopesticides for disease control.	yes	yes	yes
MICROBIOLOGY	**6**	**Food & Industrial Microbiology**	**526-MB**	1.Able to identify the role of microorganisms in food spoilage and food borne diseases	yes	yes	yes
				2.Demonstrate the methods of food preservation and able to describe the role of microorganisms in the production of fermented dairy foods. Understand the concepts and benefits of SCP and probiotics.	yes	yes	yes
				3.Able to isolate industrially important microorganisms from natural sources and improve their productivity by mutations.	yes	yes	yes
				4.Able to formulate production media using different raw materials for employing in fermenters. Demonstrate different types of fermentation processes and methods of down stream processing.	yes	yes	yes
				5.laboratory skills in the fermentative production of organic acids, alcohols, enzymes, antibiotics and vitamins	yes	yes	yes
MICROBIOLOGY	**7**	**Microbial Biotechnology**	**627-MB**	1.Acquired knowledge about technological developments in microbiology and its application in agriculture, environment, food and human therapeutics	yes	yes	yes
				2.Understand the application of recombinant DNA technology in human prophylaxis and in plant disease control.	yes	yes	yes
				3.Analyse the biocatalytic processes and their industrial applications.	yes	yes	yes
				4.Demonstrate the commercial production of biofuels from lignocellulosic wastes. understand the concept of xenobiotics and role of microorganisms in mineral recovery	yes	yes	yes
				5.Acquire knowledge of basic concepts related to IPR and apply in biomedical Research. Learn to respond and act ethically with regard to scientific research, practice, and technology.	yes	yes	yes
MICROBIOLOGY	**8**	**Microbial Quality Control In Food and Pharmaceutical Industries**	**628-MB-A1**	1.Create a very good understanding of practical aspects of microbiological safety,	yes	yes	yes
				2. Perform different cultural and microscopic methods for testing of products in the pharmaceutical industries	yes	yes	yes
				3.Apply Nucleic acid probes, PCR based detection and biosensors to determine microbes in samples.	yes	yes	yes
				4.Use of enrichment culture technique for the detection of specific microorganisms. Application of various detection methodologies and use of different microbiological media in food industries.	yes	yes	yes
				5.Acquire knowledge about Hazard analysis of critical control point and Learn to define microbial standards for different foods and water	yes	yes	yes
MICROBIOLOGY	**9**	**Diagnostic Microbiology**	**628-MB-A2**	1.Apply theory, microbiology knowledge and technical skills to identify bacteria in the laboratory, appreciating hazards associated with handling microorganisms in the laboratory and the subsequent safety requirements	yes	yes	yes
				2.Asses appropriate methods for isolation and identification of infectious agents.	yes	yes	yes
				3. Analyse the methods of identification of disease-causing bacteria in the lab and identify disease-causing bacteria	yes	yes	yes
				4. Evaluate various serological methods employed in diagnosis of disease	yes	yes	yes
				5.Describe the use of molecular or serological methods for the detection or identification of microbes.	yes	yes	yes
MICROBIOLOGY	**10**	**Cell Culture Techniques**	**628-MB-A3**	1.Explain major components of cell and tissue culture media, e.g. minerals, growth factors, hormones, and what governs the choice of components.	yes	yes	yes
				2.Perform the common cell culture techniques, e.g. callus culture, Embryo culture and embryogenesis in plants, culture of animal cells.	yes	yes	yes
				3.Acquire knowledge of cell lines used in mammalian tissue culture, their origins and applications.	yes	yes	yes
				4.Explain Cell cycle and its regulation	yes	yes	yes
				5.Demonstrate virus cultivation in embryonated eggs and measurement of infectious units. Demonstrate virus purification by ultracentrifugation method	yes	yes	yes
Physics	**1**	**Mechanics, Properties of Matter & Waves and Oscillations**	**111-PHY**	1.Understand Newton's laws of motion and motion of variable mass system and its application to rocket motion and the concepts of impact parameter, scattering cross section.	yes	yes	yes
Physics	**1**	**Mechanics, Properties of Matter & Waves and Oscillations**	**111-PHY**	2 Apply the rotational kinematic relations, the principle and working of gyroscope and its applications and the processional motion of a freely rotating symmetric top.	yes	yes	yes
Physics	**1**	**Mechanics, Properties of Matter & Waves and Oscillations**	**111-PHY**	3 Comprehend the general characteristics of central forces and the application of Kepler's laws to describe the motion of planets and satellite in circular orbit through the study of law of Gravitation.	yes	yes	yes
Physics	**1**	**Mechanics, Properties of Matter & Waves and Oscillations**	**111-PHY**	4 Examine phenomena of simple harmonic motion and the distinction between undamped, damped and forced oscillations and the concepts of resonance and quality factor with reference to damped harmonic oscillator.	yes	yes	yes

Physics	**1**	**Mechanics, Properties of Matter & Waves and Oscillations**	**111-PHY**	5 Figure out the formation of harmonics and overtones in a stretched string and acquire the knowledge on Ultrasonic waves, their production and detection and their applications in different fields	yes	yes	yes
Physics	**2**	**Wave Optics**	**212-PHY**	1. Understand the phenomenon of interference of light and its formation in (i) Lloyd's single mirror (ii) Thin films, Newton's rings and Michelson interferometer and study of Fresnel's diffraction and Fraunhoffer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating.	yes	yes	yes
Physics	**2**	**Wave Optics**	**212-PHY**	2 Understand the construction and working of zone plate and make the comparison of zone plate with convex lens.	yes	yes	yes
Physics	**2**	**Wave Optics**	**212-PHY**	3 Confirmation of transverse nature of light through phenomenon of polarisation.Appilications of polarization in different fields	yes	yes	yes
Physics	**2**	**Wave Optics**	**212-PHY**	4 Caluculation of image formed by optical systems and the defects involved .	yes	yes	yes
Physics	**2**	**Wave Optics**	**212-PHY**	5 Comprehend the basic principle of laser,their construction and applications in different fields. and basic principle of fibre optic communication and explore the field of Holography.	yes	yes	yes
Political Science	**1**	**Introduction to Political Science**	**131-POL**	1. Recall the previous knowledge about Political Science and understand the nature and scope, traditional and modern approaches of Political Science	yes	yes	yes
				2. Identify various sources for Political Reporting	yes	yes	yes
				Provide an overview of interpreting the political phenomena from the gross roots level to the Parliament.	yes	yes	yes
				. Develop insights and enhance skills in a professional manner in the age of mass media.	yes	yes	yes
				Learn skills related to reporting, enlarge job opportunities and make it as a career	yes	yes	yes
Political Science	**2**	**Basic Organs of Government**	**232-POL**	Understand the Origin and Evolution of the concept of Constitutionalism and classification of Constitutions	yes	yes	yes
				Acquaint themselves with different theories of origin of State.	yes	yes	yes
				Understand and analyses organs and forms of Governments along with a deep insight into the various agents involved in the political process.	yes	yes	yes
				Apply the knowledge to analyse and evaluate the existing systems	yes	yes	yes
					yes	yes	yes
Political Science	**3**	**Indian Government And Politics**	**333 -POL**	Acquire knowledge about the historical background of Constitutional development in India, appreciate philosophical foundations and salient features of the Indian Constitution. An	yes	yes	
				Analyze the relationship between State and individual interms of Fundamental Rights and Directive Principles of State Policy.	yes	yes	
				Understand the composition of and functioning of Union Government as well as State Government and finally	yes	yes	
				Acquaint themselves with the judicial system of the country and its emerging trends such as judicial reforms.	yes	yes	
				5	yes	yes	
Political Science	**4**	**Indian Political Process**	**434 - POL**	Know and understand the federal system of the country and some of the vital contemporary emerging issues.	yes	yes	
				Evaluate the electoral system of the country and to identify the areas of electoral reforms.	yes	yes	
				Know the constitutional base and functioning of local governments with special emphasis on 73rd& 74th Constitutional Amendment Acts.	yes	yes	
				Understand the dynamics of Indian politics, challenges faced and gain a sensitive comprehension to the contributing factors.	yes	yes	
				Apply the knowledge and critically comprehend the functioning of some of the regulatory and governance institutions.	yes	yes	
Political Science	**5**	**Western Political Thought**	**435-POL**	Understand the fundamental contours classical, western political philosophy, basic features of medieval political thought and shift from medieval to modern era.	yes	yes	yes
				Understand the Social Contract Theory and appreciate its implications on the perception of State in terms of its purposes and role	yes	yes	yes
				Acquaint with the Liberal and Marxist philosophy and analyze some trends in Western Political Thought.	yes	yes	yes
				Critically analyse the evolution of western political thought	yes	yes	yes
STATISTICS	**1**	**Descriptive statistics and probability**	**111-STAT**	1. To acquire the basic knowledge of statistics and methods in statstics	yes	yes	yes
				2. To get the significance of diagrammatic and graphical representation of the data.	yes	yes	yes
				3. To use the concepts of central tendency , dispersion and probability is solving problems	yes	yes	yes
				4. To understand random variables and able to apply in solving of problems.	yes	yes	yes
				5. To understand generating functions and their significance.	yes	yes	yes
STATISTICS	**2**	**Probability distributions and statistical methods**	**212-STAT**	1. To acquire the basic knowledge of distributions and application of those in generating functions.	yes	yes	yes
				2. To understand the relation among various distributions.	yes	yes	yes
				3. To understand the meaning of Co-relation, concept of regression and various co-efficients.	yes	yes	yes
				4. To learn principle of least square to use in different curve fittings	yes	yes	yes
				5. To understand the significance of contingency	yes	yes	yes
STATISTICS	**3**	**Statistical Inference**	**313-STAT**	1. To acquire the basic knowledge and Neyman's factorization theorem, Binomial, Poisson &Normal Population parameters estimate.	yes	yes	yes
				2. To get the significance and power of various tests.	yes	yes	yes

				3. To understand the concepts of large sample test and small sample tests	yes	yes	yes
				4. To understand the significance of test based on x2, t and F.	yes	yes	yes
				5. To understand advantages, disadvantages and applications of non-parametric tests.	yes	yes	yes
STATISTICS	**4**	**Sampling techniques and design of experiments**	**414-STAT**	1. To acquire the basic knowledge of sampling techniques and methods of sampling	yes	yes	yes
				2. To get the knowledge of Stratified random sampling and will be able to Compare proportional and optimum allocations.	yes	yes	yes
				3. To learn ANOVA with equal and unequal classifications and will be able to apply in new situations.	yes	yes	yes
				4. To understand the significance of design of experiments and various designs and applications	yes	yes	yes
				5. will be able to analyse the sampling techniques by means of Mean and Variance.	yes	yes	yes
STATISTICS	**5**	**Quality Control and Optimization Techniques**	**415-STAT**	1. To acquire the knowledge of SQC and its importance in various fields	yes	yes	yes
				2.To get the knowledge of different control charts	yes	yes	yes
				3. To learn OC curve and ASN curves in single and double sampling plans by using binomial disrtibution.	yes	yes	yes
				4. To acquire the basic knowledge of game theory and learn saddle point, max-mini, mini-max principles and dominance properties.	yes	yes	yes
				5. To learn the importance of sequencing of jobs, scheduling and evaluation techniques and students will be able to solve k-machines vs n-jobs problems.	yes	yes	yes
Tourism & Travel Managament	**1**	**Concepts and Impact of Tourism**	**131-TTM**	Understand concepts of Tourism within broader cultural, environmental, political and economic dimensions of the society	yes	yes	yes
				Recognize the various types of Tourism	yes	yes	yes
				Estimate the importance of elements and components of Tourism	yes	yes	yes
				Identify different modes of Transport and types of accommodation and appraise their significance to Tourism	yes	yes	yes
				Promote Sustainable and responsible Tourism	yes	yes	yes
Tourism & Travel Managament	**2**	**Tourism Resources of India**	**232-TTM**	Estimate the relevance of Tourism Resources to the development of Tourism	yes	yes	yes
				Identify the factors that help to promote and hinder the development of Tourism	yes	yes	yes
				Analyse the multidimensional activities of Tourism industry	yes	yes	yes
				Compare and assess the natural, cultural and man-made attractions of Tourism	yes	yes	yes
				Identify the various touristic sites and significance to the development of Tourism	yes	yes	yes
Tourism & Travel Managament	**3**	**Travel & Tourism Management**	**333-TTM**	Relate the work of various Travel organizations to the development and promotion of Tourism	yes	yes	yes
				Summarize the role of Travel Agency and Tour Operators in promotion of Tourism Industry	yes	yes	yes
				Create Packaged tours and price them accordingly	yes	yes	yes
				Manage the accommodation units& Travel Agencies	yes	yes	yes
				Create tour brochures/information leaflet and tourist itinerary	yes	yes	yes
Tourism & Travel Managament	**4**	**Tourism Policy, Planning and Development**	**434-TTM**	Recognize the need for Planning and Policy by the Govt.	yes	yes	yes
				Plan for development of Tourism in any given area with the inputs learnt through the study of the course	yes	yes	yes
				Summarize AP Tourism Policy, assess the existing facilities and plan for further development	yes	yes	yes
				Implement the schemes meant to preserve the tribal cultures	yes	yes	yes
				Apply available legal provisions/ measures to solve related problems and challenges in the Tourism Industry	yes	yes	yes
Tourism & Travel Managament	**5**	**Tourism Marketing**	**435-TTM**	Comprehend the concept of Marketing and use of it effectively to promote the Tourism Product	yes	yes	yes
				Elucidate the concept of Marketing research, learn the collection of Primary and Secondary data sources	yes	yes	yes
				Apply the Marketing Mix in Tourism industry	yes	yes	yes
				Investigate and use of major tools for the Promotion	yes	yes	yes
				Evaluate the attributes for an ideal destination and its relevance to regional development	yes	yes	yes
Web Enabled Technologies	**1**	**Fundamentals of computers, web, Internet & Python programming**	**111-WET**	1.To understand the working of a computer	yes	yes	yes
				2.To demonstrate disk operating system, windows operating system commands	yes	yes	yes
				3.To create MS word documents by applying various styles	yes	yes	yes
				4.To use python language constructs such as control structures, functions,lists.tuples,dictionaries, arrays, string for implementing programs in python	yes	yes	yes
				5.To use various python modules and packages to develop programs in python language	yes	yes	yes
Web Enabled Technologies	**2**	**HTML,CSS, Java Script**	**212-WET**	1.To implement web pages using HTML, CSS	yes	yes	yes
				2.To design a responsive web pages using HTML forms and by incorporating audio, video plugins	yes	yes	yes
				3.To apply styles for webpages using CSS forms and to demonstrate CSS3	yes	yes	yes
				4.To understand the dynamic html and use of java script in html pages	yes	yes	yes
				5.To implement client side validation using java script	yes	yes	yes
Web Enabled Technologies	**3**	**Graphic Designing**	**313-WET**	1.To identify and specify file formats and image resolution for print and web.	yes	yes	yes
				2.To use image sharpening techniques.	yes	yes	yes
				3.To apply layers and filters in image editing	yes	yes	yes
				4.To demonstrate GUI of illustrator and transforming and moving of objects	yes	yes	yes

				5.To create a story board using animation	yes	yes	yes
Web Enabled Technologies	**4**	**PHP & MySql, Wordpress**	**414-WET**	1.To demonstrate installation of PHP and Apache web server, MySQL on Windows and Linux platforms.	yes	yes	yes
				2.To write PHP Script with functions and Arrays.	yes	yes	yes
				3.To create forms and access the input from forms using Super Globals	yes	yes	yes
				4.To construct PHP and MySQL database connectivity for data retrieval and manipulation through webpages.	yes	yes	yes
				5.To create customized Wordpress website	yes	yes	yes
Web Enabled Technologies	**5**	**Advanced Java Script JQUERY/AJAX/JSON/ Angular JS**	**515-WET**	1.To understand basics of jQuery, jQuery attributes and DOM methods	yes	yes	yes
				2.To implement Event handling in jQuery	yes	yes	yes
				3.To customize jQuery UI widgets	yes	yes	yes
				4.To understand the need of Ajax in real websites	yes	yes	yes
				5.To understand the design of single-page applications and how AngularJS facilitates their development.	yes	yes	yes
Web Enabled Technologies	**6**	**MOBILE APP Development (Android based)**	**516-WET**	1.To understand objectives and functions of operating system	yes	yes	yes
				2.To understand the installation and running of applications on Eclipse platform.	yes	yes	yes
				3.To demonstrate best practices in android programming	yes	yes	yes
				4.To construct user interfaces using android programming	yes	yes	yes
				5.To describe intents and broadcasts, launching activities in mobile applications	yes	yes	yes
Web Enabled Technologies	**7**	**OOP Using Java**	**617-WET**	1.To implement Object Oriented programming concepts using basic syntaxes of controls Structures, strings and function for developing skills of logic building activity.	yes	yes	yes
				2.To identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem	yes	yes	yes
				3.To demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.	yes	yes	yes
				4.To demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development	yes	yes	yes
				5.To Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events	yes	yes	yes
Web Enabled Technologies	**8**	**Java Servlets**	**618-WET-A1**	1.To understand Servlet life cycle and Java servlet API	yes	yes	yes
				2.To deploy the Servlet application using a web server.	yes	yes	yes
				3.To implement Servlet Request Interface and handle Servlet initialization	yes	yes	yes
				4.To implement HttpServletRequest and HttpServletResponse interfaces and to deomonstrate managing of sessions and cookies.	yes	yes	yes
				5.To construct Web.Xml file and implement the communication between application, applet to servlet.	yes	yes	yes
Web Enabled Technologies	**9**	**JSP(Java Server Pages)**	**618-WET-A2**	1.To demonstrate the JSP lifecycle, JSP tags.	yes	yes	yes
				2.To demonstrate working of Java Beans and Action tags in JSP	yes	yes	yes
				3.To use JSP exception handling in the development of JSP programming	yes	yes	yes
				4.To understand JSP Expression language	yes	yes	yes
				5.To work with JSP standard tag library to create effective web applications	yes	yes	yes
Web Enabled Technologies	**10**	**JDBC(Java Database Connectivity)**	**618-WET-A3**	1.To understand various JDBC drivers and their API.	yes	yes	yes
				2.To describe JDBC statements and work with Resultset and meta data	yes	yes	yes
				3.To use Advanced JDBC Concepts in database connectivity	yes	yes	yes
				4.To construct Transactions that use SQL/XML support for retrieving auto generated keys	yes	yes	yes
				5.To discuss ACID properties of database transactions and to demonstrate wrapper interfaces	yes	yes	yes
Zoology	**1**	**Animal Diversity – I Biology of Non-Chordates**	**121-Zoo**	1. To analyze the general taxonomic rules on animal classification	yes	yes	yes
				2.Classify Protozoa to Coelenterata with taxonomic keys	yes	yes	yes
				3.Classify Phylum Platy hemninthes to Annelida phylum using examples from parasitic adaptation and vermin composting	yes	yes	yes
				4.Describe Phylum Arthropoda to Mollusca using examples and importance of insects and Molluscans	yes	yes	yes
				5.Describe Echinodermata to Hemi chordata with suitable examples and larval stages in relation to the phylogeny	yes	yes	yes
Zoology	**2**	**Animal Diversity – II Biology of Chordates**	**222-Zoo**	1. To analyze and describe general taxonomic rules on animal classification of chordates	yes	yes	yes
				2. To classify Protochordata to Mammalia with taxonomic keys	yes	yes	yes
				3. To understand the systemic and functional morphology of various groups of chordates,	yes	yes	yes
				4. To evaluate their economic importance, affinities and adaptations	yes	yes	yes
				5. To Understand Mammals with specific structural adaptaions	yes	yes	yes
Zoology	**3**	**Cell biology, Genetics, Molecular Biology & Evolution**	**323-Zoo**	1. To understand the basic unit of the living organisms and to differentiate the organisms by their cell structure.	yes	yes	yes
				2 To analyze fine structure and function of plasma membrane and different cell organelles of eukaryotic cell	yes	yes	yes

				3.. To understandthe history of origin of branch of genetics, gain knowledge on heredity, interaction of genes, various types of inheritance patterns existing in animals	yes	yes	yes
				4. To create in-depth knowledge on various of aspects of genetics involved in sex determination, human karyotyping and mutations of chromosomes resulting in various disorders	yes	yes	yes
				5.Understand the central dogma of molecular biology and flow of genetic information from DNA to proteins.	yes	yes	yes
Zoology	**4**	**Physiology, Cellular Metabolism & Embryology**	**424-Zoo**	1 .To Understand the functions of important animal physiological systems including digestion, cardio-respiratory and renal systems.	yes	yes	yes
				2. To analyze the muscular system and the neuro-endocrine regulation of animal growth, development and metabolism with a special knowledge of hormonal control of human reproduction	yes	yes	yes
				3. To describe the structure, classification and chemistry of biomolecules and enzymes responsible for sustenance of life in living organisms	yes	yes	yes
				4. To evaluate the basic metabolic activities pertaining to the catabolism and anabolism of various biomolecules	yes	yes	yes
				5. To Describe the key events in early embryonic development starting from the formation of gametes upto gastrulation and formation of primary germ layers.	yes	yes	yes
Zoology	**5**	**Immunology &Animal Biotechnology**	**525-Zoo**	1 .To create knowledge about organs of Immune system, types of immunity, cells and organs of immunity.	yes	yes	yes
				2.To analyze immunological response as to how it is triggered (antigens) and regulated (antibodies)	yes	yes	yes
				3.To understand the applications of Biotechnology in the fields of industry and agriculture including animal cell/tissue culture, stem cell technology and genetic engineering	yes	yes	yes
				4. To evaluate the recent advances in animals and plants reproduction technology	yes	yes	yes
				5. To get familiar with the tools and techniques of animal biotechnology.	yes	yes	yes
Zoology	**6**	**Sustainable aqua culture management**	**526-Zoo**	1 .To Evaluate the present status of aquaculture at the Global level and National level	yes	yes	yes
				2.To classify different types of ponds used in aquaculture	yes	yes	yes
				3.To demonstrate induced breeding of carps	yes	yes	yes
				4. To create critical knowledge on commercial importance of shrimps	yes	yes	yes
				5 .To evaluate and Identify fin and shell fish diseases	yes	yes	yes
Zoology	**7**	**Postharvest technolgy of fish and fisheries**	**627-Zoo**	1. To identify the types of preservation methods employed in aquaculture	yes	yes	yes
				2.To evaluate and choose the suitable Processing methods in aquaculture	yes	yes	yes
				3.To create the standard quality control protocols laid down in aqua industry	yes	yes	yes
				4. To analyze the protocols of aqua processing method	yes	yes	yes
				5.To Identify the best Seafood quality assurance system	yes	yes	yes

COURSE OUTCOMES						
S.No	**Semester**	**Paper**	**Course Code**	**Course Name**	**CO Number**	**Course Outcome**
Mathematics						
1	I	I	MAT-11	Differential Equations	CO1	Student will be able to : Understand how to find the integrating factors for various types of linear equations
					CO2	to apply different methods for solving DEs of first order but not of first degree .
					CO3	To find the solution of higher-order linear differential equations with constant coefficients and various techniques i.e. Solution of f(D)y=0General Solution of f(D)y=Q when Q is a function of x. is Expressed as partial fractions.P.I. of f(D)y = Q , Q is b sin ax or b cos ax
					CO4	Solution of the non-homogeneous linear differential equations with constant coefficients. ,Method of variation of parameters;
					CO5	To make diffrentiate the Ordinary and Partial Differential equations..Lagrange's equations-Type I and II .
2	II	II	MAT-12	Solid Geometry	CO1	To understand the equation of planes and various types and Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane
					CO2	To find the equation of a line; Angle between a line and a plane; some conditions; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line;
					CO3	To definition and equation of the sphere; Plane sections of a sphere; Intersection of two spheres; Equation of a circle; Sphere through a given circle; Intersection of a sphere and a line; Power of a point; Tangent plane; Plane of contact; Polar plane; Pole of a Plane; Conjugate points; Conjugate planes;

					CO4	To Angle of intersection of two spheres; To know the definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; Enveloping cone of a sphere and others
					CO5	To undersatnd the Intersection of a line and a quadric cone; Tangent lines and tangent plane at a point; varoius Condition that a plane may touch a cone;Definition of a cylinder; Enveloping cylinder of a sphere; The right circular cylinder; Equation of the right circular cylinder with a given axis and radius.
3	III	III	MAT-21	Abstract Algebra & Real Analysis-I	CO1	To review Algebraic structure – Group definition and elementary properties Finite and Infinite groups – examples – order of a group. Composition tables with examples.
					CO2	To the significance of the notions of cosets, normal subgroups, and factor group, Lagrange's Theorem -Analyze consequences of Lagrange's theorem
					CO3	To know definition of normal subgroup – various normal subgroups– Hamilton group – quotient group – criteria for the existence of a quotient group and related theorems
					CO4	To attain the knowledge of real numbers and sequences-related theorems
					CO5	To attain the knowledge series and various tests to find their convergence
4	IV	IV	MAT-22	Abstract Algebra & Real Analysis-II	CO1	To know about the structure preserving maps between groups and their consequences - homomorphisms-fundamental theorem on Homomorphism and applications
					CO2	Definition of permutation groups and Cyclic Groups and properties – Cayley's theorem.
					CO3	Understanding the concepts of Limits and types Continuous functions
					CO4	To know the calculus tools- differntiation - related theorems
					CO5	To knw the another tool like Riemann Integral, Fundamental theorem of integral calculus, integral as the limit of a sum, Mean value Theorems.
5	V	V	MAT-31	Ring Theory and	CO1	To attain knowledge in Rings, Sub rings, Ideals
					CO2	Further learning of homomorphisms and polynomial rings

				Vector Calculus (Commaon Paper Core))	CO3	To learnVector differential operators and related topics
					CO4	To understand line, surface and volume integrals
					CO5	To know the theorems of Gauss and Stokes, Green's and applications

6	V	VI	MAT-32	Linear Algebra (Commaon Paper Core)	CO1	To understand real vector spaces, subspaces, , Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors basis, dimension and their properties.
					CO2	To know basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of a Vector space, , subspace, Quotient space and Dimension of Quotientspace
					CO3	To Linear transformations-,Rank and Nullity- Rank Nullity Theorem
					CO4	To recognize consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix, using rank. Cayley – Hamilton Theorem.
					CO5	Inner product spaces, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process. Bessel's inequality and Parseval's Identity
7	V	VII	MAT-33	Cluster Elective-VI (A)- Laplace Transform	CO1	To know about piecewise continuous functions, Dirac delta function, Laplace transforms and its properties.
					CO2	To know Shifting Theorems, Laplace Transform of the derivative of f(t), Initial Value theorem and Final Value theorem.
					CO3	To know Laplace transforms of Bessel' functions, error function sine and cosine integrals
					CO4	to learn the process of Inverse Laplace Transform. -related theorems- use of partial fractions, Examples
					CO5	To understand the convolution Theorem – proof and Applications – Heaviside's Expansion theorem and its Applications.
8	VI	VIII(A)1	MAT-34	Integral Transforms-Paper	CO1	To know about piecewise continuous functions, Dirac delta function, Laplace transforms and its properties.Understanding how to apply LTto DE's

				VIII(A)-1 (Cluster elective)	CO2	Solution of simultaneous ordinary Differential Equations.Solutions of partial Differential Equations
					CO3	Equations-Abel's, Integral Equation-Integral Equation of Convolution Type, Integral Differential Equations. Application of L.T. to Integral Equations.
					CO4	To familiarize with Fourier transforms of functions belonging to between Laplace and Fourier transforms.Class-relation
					CO5	To know Finite Fourier tranforms and its techniques
9	VI	VIII(A)2	MAT-35	Advanced Numerical AnalysisPaper VIII(A)-2 (Cluster elective)	CO1	To know what is Curve fitting and its applications
					CO2	To know Newton's forwardand backward difference formula, Central difference formula, Stirling's interpolation formula, divided difference formula.
					CO3	To know Numerical Integration- Euler transformation.
					CO4	Learning the Solutions of simultaneous Linear Systems of Equations: Method of factorization, Solution of Tridiagonal Systems,. Iterative methods. Jacobi's method, Gauss-siedal method
					CO5	To find numerical solution of first order ordinary differential equations: by Taylor's Series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge – Kutta methods
10	VI	VIII(A)3	MAT-36	Cluster Elective Paper VIII(A)-3: Project Work-(Integral Transforms and Advanced Numerical Analysis)	CO1	To know to the methods to initiate any project
					CO2	Group wise selecting some theme and anylize method to form project
					CO3	Tis project work involving applications of theory to assimilate basic concepts of mathematics.
					CO4	To solve complex problems by identifying feasible divisions into simpler sub-problems;
					CO5	Learning skills for final submssion of project work and analyzing the results in group manner and presenting the same in viva voce

PHYSICS

1	I	I	111-PHY	Mechanics and properties of matter	CO1	Acquire Knowledge about the scal and vector fields. Gradient of a scalar field, Divergence and curl of vector field, different types of integrals stokes and Guss theorem
					CO2	Understand the variable mass and motion of the rocket, collisions in two and three dimensions, solve the problems on Rutherford scattering
					CO3	Provide a theoretical basis for doing experiments in compound pendulum and torsional pendulum,understand the mechanics of Rigid bodies. Describe elastic nature of the materials, types of beams,loads, supports and bending moment
					CO4	Gain knowledge on Central forces and its conservative nature, Kepler's laws and their verification useful to understand the motion of the planets
					CO5	Students will get knowledge on Galilean and Lorentz transformations, Michelson-Morley experiment, Postulates of special theory of relativity and applications
2	II	II	212-PHY	Waves and Oscillations	CO1	Learn about physical properties of Simple Harmonic Motion (SHM), Combination of two mutually perpendicular S.H.M, Lissajous figures.
					CO2	Describe equation and solution of damped harmonic and Forced oscillators, Energy and Power dissipation ,concept of resonance.students can analyse different types of complex vibrations using Fourier's theorem
					CO3	Can derive the General Solution of Longitudinal vibrations in , Derive the equation for the frequency of Longitudinal Vibrations in a bar in different cases, working principle of Tuning fork
					CO4	Develope Clear understanding about the different cases of modes of vibrations of stretched string, harmonics, overtones and mechanical impedance, Power dissipation.
					CO5	Get the knowledge about the properties, production ,detection and applications of Ultrasonics

3	III	III	313-PHY	wave optics	CO1	Caluculation of image formed by optical systems and the defects involved.
					CO2	Understanding the wave nature of light through the phenomenon of interference and diffraction
					CO3	Confirmation of transverse nature of light through phenomenon of polarisation.Appilications of polarization in different fields.
					CO4	Gain Fundamental knowledge in lasers, holography.
					CO5	Use of Optical fiber communication in information and technology

4	IV	IV	414-PHY	Thermodynamics and Radiation physics	CO1	Learning and analysis of various thermodynamic process and calculation of work done in each of these process
					CO2	Understanding the reversible and irreversible process, working of a Carnot engine, and knowledge of calculating change in entropy for various process.
					CO3	Realize the importance of potential(energy) functions to describe thermodynamical systems and applications of Maxwell's relations.
					CO4	Use of experimental tools to produce low temperatures and their application in superconductivity
					CO5	Understanding the thermal radiation-Black body and its theoritical explanation by Quantum mechanics.
5	V	V	515-PHY	Electricity,Magnetism and Electronics	CO1	Understanding the fundamental law of nature-Coulombs law and Principle of superposition.Calculation of Electric field and Potentials.Appilications and Importance of Gauss law.Energy storage in Capacitors.
					CO2	Calculate the magnitude and direction of the magnetic field due to a current distributions using the Biot-Savart law and Ampere's Law for symmetric current distributions.
					CO3	Describe and analyze electromagnetic wave propagation in freespace from Maxwell equations.Calculation of EM energy and mentum carried by a wave.
					CO4	Acquire knowledge and applications of Diode and Transistors.

					CO5	know about various number systems and their applications.Logic gates and their importance in information technology.
6	V	VI	516-PHY	Modern Physics	CO1	Gain Fundamental knowledge in various atomic models in understanding Hydrogen spectrum.For multi electron systemsVector atom model and L-S, J-J coupling schmes.
					CO2	Realize the importance of Raman effect,Zeeman effect and stark effect and their appilications in understanding various molecular phenomenon.
					CO3	Understand the basic postulates of quantum physics.Ability to construct and apply Schrodinger wave equation for free particle

						in a box.Also to understand free and bound states as well as to analyze and interpret the results
					CO4	Expected to gain knowledge of crystal structure.X-ray diffraction and superconductivity,its underlying principles and its applications in modern world .
					CO5	Acquire knowledge and deep understanding of Radio activity,nuclear Fission and Nuclear Fusion,the relevance of nuclear transformation.
7	VI	VII	617-PHY	Renewable energy	CO1	Recollects the knowledge on basic ideas about energy aspects.
					CO2	Awareness on environmental degradation due to production and utilization.
					CO3	Perception on solor energy and utilization
					CO4	Gains Knowlede on utilization of ocean,tidal and wave energy.
					CO5	Awareness on resources of energies from hydrogen and bio mass.
8	VI	VIII -A	618PHY-A1	Solar Thermal and Photovoltaic aspects	CO1	Basic idea of structure of sun,solar irradiance and solar radiation.
					CO2	Different laws related to solar irradiance.Various parameters related to solar irradiance and its measurment.
					CO3	Knowledge of Flat Plate Collector and receving efficiency.
					CO4	Understanding of construction and working of PVC and its types.

					CO5	Applications of solar cells in Demostic and industrial appliances.
9	VI	VIII -B	618PHY-A2	Wind,Hydro and Oceaan energies	CO1	Knowledge on basic principles of wind enery.
					CO2	Understanding of wind measurment tecgniques-types of animo meter.
					CO3	Applications of wind energy in different fields.
					CO4	Knowledge on conversion of ocean energy into electrical energy.
					CO5	Basic ideas on tidal energy,modes of operation of different tidal systems.Advantages and Disadvantages of tidal energy.
10	VI	VIII -C	618PHY-A3	Energy storage devices	CO1	Acquire the basic knowledge on Need of energy storage systems, different modes of energy storage systems and their applications.
					CO2	Describe the construction and working principle of different Batteries and Carbon nanotubes.
					CO3	Explain the construction, principle, applications, advantages and disadvantages of Electromagnetic energy storage systems
					CO4	Understand the components, construction, principle,advantages, disadvantages and applications of Fuel Cells
					CO5	Gain the knowledge on the construction and working of different types of fuel cells and their applications

CHEMISTRY						
1	I	I	111-CHE	Inorganic and Physical Chemistry	CO1	Gain the knowledge of synthesis and applications of various compounds like Borazine, Diborane, Boron nitride, silicones and interhalogen compounds.
					CO2	One can understand the classification, synthesis and application of Organometallic compounds in synthetic organic chemistry especially in carboncarbon bond (C-C) bond formation reactions.
					CO3	Able to differentiate both the crystalline and amorphous solids. Claasify the crystal systems based on the arrangement of particles (atoms) in a cube. Can study the diffraction pattern of X-rays also gain the knowledge of semiconductors and its applications.

					CO4	Able to define the ideal and real gases by using ideal gas equation, derive the gas equation at different conditions like low, high pressure and volume. Understand the Andrews isotherms of CO2 gas. Able to derive the vander waals gas equation for real gases by using ideal gas equation also can derive the relationship between Vander-Waals gas constants and critical constants.
					CO5	Can understand the importance of liquid crystals, Able to define the ideal and non ideal solutions, can classify the solutions wrt critical solution temperature eg.phenol-water, acetone-ater and ethanol-water systems.
2	II	II	212-CHE	Organic and General Chemistry	CO1	Able to understand the fundamentals in organic chemistry like types of reagents, intermediates and reactions encountered in synthetic organic chemistry.
					CO2	Gained the knowlwgwde of synthesis and applications of acyclic and alicyclic compounds.

					CO3	Can understand the concept of resonance, resonance energy and resonance hybrid wrt benzene. Also understand the various electrophilic substitution reactions of aromatic compounds.
					CO4	Able to define the colloids, gels and emulsions. Also gain the knowledge of physical and chemical adsorptions. Can apply the Valence Bond theory and Molecular Orbital theory to simple homo and hetero nuclear di atomic molecules.
					CO5	Gained the knowledge of representing organic molecules like wedge, Fischer, Newmann and Sawhorse formulae. Also understand the concept of chirality, stereoisomerism and optical activity. Can apply the CIP rules in the D,L and R,S nomenclature of organic compounds.
3	III	III	313-CHE	Inorganic and Physical Chemistry	CO1	Can understand the characteristics of d- and f-block elements like electronic configuratioin, oxidation states, magnetic properties, catalytic properties and ability to form complexes with various ligands.
					CO2	Can understand the theories of bonding in metals. Able to distinguish and apply the knowlwdge of the conductors, semiconductors and insulators using Band theory. Able to apply the EAN rule to the various metal carbonyls.
					CO3	Able to define and derive the Raoults law euqtion, also apply for the calculation of terms involved in the formula. Can able to intereralte all the colligative properties such as Lowering of vapour pressure, elevation in boiling point, depression in freezing point and the Osomotic pressure.

					CO4	Able to understand and calculate the conductivity values and determine the conductivities of the different samples of solutions.
					CO5	Can apply the knowledge of phase rule to various systems in industries.
4	IV	IV	414-CHE		CO1	Able to understand the terminology in spectroscopy. Also can draw the block diagrams of single and double beam spectrophotometers.
					CO2	Can determine the structure of unknown organic compound using electronic, vibrational and NMR spectroscopy.
					CO3	Able to assign the nomenclature and classification of organic compounds.
				Spectroscopy and Organic Chemistry	CO4	Able to synthesize various organic compounds such a s Hydroxy, Carbonyl and Carboxylic acids.

					CO5	Can apply the synthetic procedures for the preparation of various organic compounds in many pharamaceutical industries.
5	V	V	515-CHE	Inorganic, Physical and Organic Chemistry	CO1	Acquire the knowledge of Werners theory, Sidgwick theory, VBT and CFT for different geometrical Co-ordination compounds..
					CO2	Able to identify and calculate the magnetic moment of several metal complexes. Can distinguish the concept of thermodynamic and kinetic stability.
					CO3	Can apply the knowledge to synthesize various N-Compounds.
					CO4	Can derive the temperature dependence of enthalpy of formation of Kirchoff's equation and Carnots theorem.
					CO5	Able to identify the spontnity of chemical reactions by using various thermodynamic paramaeters such as Internal energy, Enthalpy, Gibbs free energy and Entropy.
6	V	VI	516-CHE	Inorganic, Physical and Organic Chemistry	CO1	Can understand the substitution reactions in metal complexes. Acquire the knowledge of biological significance of essential elements.
					CO2	Can able to derive and determine the various order of reactions.
					CO3	Able to understand and calculate the efficiency of the photochemical reactions.
					CO4	Can acquire the knowledge of synthesis and applications of heterocyclic compounds such as pyrrole, furan, thiophene and pyridine.

					CO5	Can able to determine the structure of monosaccharides and interconversions encountered in carbohydrates. Gain the knowledge of synthesis and applications of aminoacids.
7	VI	VII	617-CHE	Environmental Chemistry	CO1	Able to distinguish the renewable and non-renewable energy sources.
					CO2	Able to suggest the methods of reduction for the air and soil pollution.
					CO3	Acquire the knowledge of softening of water.
					CO4	Understand the toxic effects of Hg, Pb, As and Cd.
					CO5	Able to understand the mechanism of bio-geo-chemical cycles.
8	VI	VIII - A1	618-CHE-A1	Polymer Chemistry	CO1	Able to understand the basic knowlwdge regarding polymers.
					CO2	Can apply the number and weight average molecular weight determination methods to different polymers.
					CO3	Able to understand the concept of glass transition temperature.
					CO4	Gain the knowlwdge and usage of plastic additives such as fillers, Plasticizers, softmners and Lubricants.
					CO5	Can explain the applications of various polymers such as PE, PVC, Teflon, PAN, Terelene, Nylon 6,6 and silicones in industries.
9	VI	VIII - A2	618-CHE-A2	Instrumental Methods of Analysis	CO1	Recall and remembering the various analytical methods.
					CO2	Able to understand the various components present in the IR, FTIR, UV-Visible and NMR spectrophotyometers.
					CO3	Can determine the structure of unknown organic compounds.
					CO4	Can understand and impliment the various chromatographic techniques.
					CO5	Able to understand the elemental analysis, atomic absorption , atomic emission and X-ray spectroscopic techniques.
10	VI	VIII - A3	618-CHE-A3	Analysis of Drugs, Foods, Dairy Products and Biochemical analysis	CO1	Gain the knowledge of structure and medicinal activity of antipyretics, antianalgesic, antimalarial and antituberculosis.
					CO2	Gain the knowledge of structure and medicinal activity of antihistamine and sedative drugs sucha as citrizine, alprazolam, lorazepem, zolpidem.
					CO3	Gain the knowledge of structure and medicinal activity of anti epileptic, anti convulsant drugs and anti cardiovascular drugs.
					CO4	Able to analyse the milk and milk products in daily life.
					CO5	Able to estimate the blood cholesterol, RBC and WBC.

Computer Science						
1	I	I		Computer Fundamentals and Photoshop	CO1	To understand the working of a computer, data representation in various number systems.
					CO2	To demonstrate the basic parts of a computer and basics of windows operating system
					CO3	To demonstrate the process of image editing using Photoshop.
					CO4	To construct artistic images, image backgrounds,colour manipulations using Photoshop tool box.
					CO5	To construct presentations and adds using layer styles, opacity layers and various filters.
2	II	II		Programming in C	CO1	To describe the basic terminology used in computer programming.To explain the different data types in a computer program.
					CO2	To design programs involving decision structures, loops and using recursive and non recursive functions with call by value and call by reference mechanisms..
					CO3	To construct C programs using multidimensional arrays and strings.
					CO4	To apply the dynamics of memory by the use of pointers.
					CO5	To use different data structures and functions for creating , modifying text files and binary files.
3	III	III		Object Oriented Programming using java	CO1	To demonstrate the concept and underlying principles of OOP.
					CO2	To illustrate simple java primitives and problem solving using OOP concept.
					CO3	To implement java programs using runtime polymorphism, multiple inheritance using interfaces
					CO4	To Analyze the behaviour of Threads and to manage the errors and exceptions
					CO5	To create java applications using applets and packages and I/O streams
4	IV	IV		Data structures	CO1	To demonstrate the concept of Abstract data type , data structures and taxonomy of data structures
					CO2	To use data structures stacks, queues and variants of queues in the construction of linear data structures
					CO3	To demonstrate the construction of binary trees and their operations
					CO4	To construct the grpahs and minimal spanning trees.
					CO5	To implement searching and sorting of elements in a data structure.

5	V	V		Database Management Systems	CO1	To demonstrate the advantages , limitations of database management system and Concept of data model
					CO2	To construct concpetual data model(E-R Model) of a database for any organization.
					CO3	To discuss about relational datamodel, design of relational algebra and relational calculus queries
					CO4	To demonstrate the SQL sub languages and to implement SQL queries for various real world transactions using different SQL constructs.
					CO5	To implement stored procedures and construct active databases
6	V	VI		Software Engineering	CO1	To acquire the knowledge of basic software engineering methods, processes and their appropriate applications.
					CO2	To apply requirements gathering methods to create a SRS document for a defined problem.
					CO3	To discuss about software architecture and effective modular using by incorporating coupling and cohesion
					CO4	To demonstrate and design effective user interfaces
					CO5	To demonstrate software quality metrics and software reliability using various testing methods and standards.
7	VI	VII		Web Technologies	CO1	To create web pages using XHTML and Cascading style sheets
					CO2	To build dynamic web pages using dynamic HTML
					CO3	To create dynamic web applications through XML
					CO4	To create web applications through Ruby
					CO5	To develop Java server faces web applications and to demonstrate webservices.
8	VI	VIII -A		Distributed Systems	CO1	To demonstrate the models for distributed systems.
					CO2	To discuss about the implementation of Remote Procedure Call(RPC)
					CO3	To understand the design and implementation Distributed shared memory system.
					CO4	To describe the load balancing approach and load sharing approach in distributed systems
					CO5	To describe file sharing and authentication, access control of data files in a distributed environment
9	VI	VIII -B		Cloud computing	CO1	To compare the strengths and limitations of cloud computing
					CO2	To identify the core issues of cloud computing such as security, privacy and interoperability
					CO3	To Identify the architecture, infrastructure and delivery models of cloud computing

					CO4	To understand public and private clouds and to disinguish infrastructure as a service(Iaac) clouds.
					CO5	To apply suitable virtualization concept in cloud computing
10	VI	VIII -C		Grid computing	CO1	To understand the genesis of grid computing
					CO2	To describe grid monitoring systems and service level agreements.
					CO3	To learn the technology and tool kits for facilitating grid computing
					CO4	To understand the data management challenges and collective datamanagement services in grid computing
					CO5	To understand the list of globally available middleware for grid computing

Web Technology						
1	I	I		Fundamentals of computers, web, Internet & Python programming	CO1	To understand the working of a computer
					CO2	To demonstrate disk operating system, windows operating system commands
					CO3	To create MS word documents by applying various styles
					CO4	To use python language constructs such as control structures, functions,lists.tuples,dictionaries, arrays, string for implementing programs in python
					CO5	To use various python modules and packages to develop programs in python language
2	II	II		HTML,CSS, Java Script	CO1	To implement web pages using HTML, CSS
					CO2	To design a responsive web pages using HTML forms and by incorporating audio, video plugins
					CO3	To apply styles for webpages using CSS forms and to demonstrate CSS3
					CO4	To understand the dynamic html and use of java script in html pages
					CO5	To implement client side validation using java script

3	III	III		Graphic Designing	CO1	To identify and specify file formats and image resolution for print and web.
					CO2	To use image sharpening techniques.
					CO3	To apply layers and filters in image editing
					CO4	To demonstrate GUI of illustrator and transforming and moving of objects
					CO5	To create a story board using animation
4	IV	IV		PHP & MySql, Wordpress	CO1	To demonstrate installation of PHP and Apache web server, MySQL on Windows and Linux platforms.
					CO2	To write PHP Script with functions and Arrays.
					CO3	To create forms and access the input from forms using Super Globals
					CO4	To construct PHP and MySQL database connectivity for data retrieval and manipulation through webpages.
					CO5	To create customized Wordpress website
5	V	V		Advanced Java Script JQUERY/AJAX/JSON/Angular JS	CO1	To understand basics of jQuery, jQuery attributes and DOM methods
					CO2	To implement Event handling in jQuery
					CO3	To customize jQuery UI widgets
					CO4	To understand the need of Ajax in real websites
					CO5	To understand the design of single-page applications and how AngularJS facilitates their development.
6	V	VI			CO1	To understand objectives and functions of operating system

				Mobile Application Development	CO2	To understand the installation and running of applications on Eclipse platform.
					CO3	To demonstrate best practices in android programming
					CO4	To construct user interfaces using android programming
					CO5	To describe intents and broadcasts, launching activities in mobile applications

7	VI	VII		OOP Using Java	CO1	To implement Object Oriented programming concepts using basic syntaxes of controls Structures, strings and function for developing skills of logic building activity.
					CO2	To identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
					CO3	To demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
					CO4	To demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development
					CO5	To Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events
8	VI	VIII -A		Java Servlets	CO1	To understand Servlet life cycle and Java servlet API
					CO2	To deploy the Servlet application using a web server.
					CO3	To implement ServletRequest Interface and handle Servlet initialization
					CO4	To implement HttpServletRequest and HttpServletResponse interfaces and to deomonstrate managing of sessions and cookies.
					CO5	To construct Web.Xml file and implement the communication between application, applet to servlet.
9	VI	VIII -B		JSP(Java Server Pages)	CO1	To demonstrate the JSP lifecycle, JSP tags.
					CO2	To demonstrate working of Java Beans and Action tags in JSP
					CO3	To use JSP exception handling in the development of JSP programming
					CO4	To understand JSP Expression language
					CO5	To work with JSP standard tag library to create effective web applications
10	VI				CO1	To understand various JDBC drivers and their API.

		VIII -C		JDBC(Java Database Connectivity)	CO2	To describe JDBC statements and work with Resultset and meta data
					CO3	To use Advanced JDBC Concepts in database connectivity
					CO4	To construct Transactions that use SQL/XML support for retrieving auto generated keys
					CO5	To discuss ACID properties of database transactions and to demonstrate wrapper interfaces

COMMERCE						
1	I	I	141-F.A	Fundamentals of Accounting- I	CO1	The students will get conceptual understanding of fundamentals of financial accounting system and will be imparted with skills in accounting for various kinds of business transactions.
					CO2	The students will understand the rules in preparing the subsidiary Books like cash book and other books
					CO3	The students will gain knowledge in the preparation of Bank Reconciliation statement for monthly or as and when requires. They can also find the errors and can also rectify them.
					CO4	They can also gain knowledge in Depreciation methods of Accounting
					CO5	They can also know the procedure for the preparation of final statements of the business organizations
2	I	I	142-B.O	Business Organization	CO1	The students will gain knowledge in the nature and scope of business organization, concepts and functions of Business
					CO2	They can acquire the knowledge in the forms of Business Organizations and procedure of establishment of Business organizations

					CO3	They can get awareness about different forms Companies and can prepare the documents required before and after the formation of Companies.
					CO4	They can understand the importance of Entrepreneurship .
					CO5	The students will understand the quilities of an Entrepreneur.

3	I	I	143-B.E	Business Economics - I	CO1	Students will be able to know the nature and scope of the Business Economics .
					CO2	Students will be acquainted with the demand and supply analysis .
					CO3	Students will be able to know the Production analysis and returns to scale of production
					CO4	Students will understand the production costs .
					CO5	The students will gain knowledge in Break even analysis.
4	I	I	143-F.C.P	Computer Fundamentals and photoshop	CO1	The students can understand the concept of input and output devices of Computers and how it works and understand the concepts, structure, types and design of operating Systems.
					CO2	The can understand the concept of input and output devices of Computers in detail.
					CO3	The students can get knowledge in Adobe Photoshop.
					CO4	The students will get an awareness about the images and Layers working with Tool Box.
					CO5	The Students know how to apply filters and lighting effects and different types of filters applying the images.
5	II	II	244- F.A	Fundamentals of Accounting- II	CO1	The students will understand concept ,meaning and defination and causes of depreciation and methods of recording depreciation
					CO2	The students can distinguish between provision and reserve and preparation of bad debts of A/c ,provision for doubtful debts A/c ,provision for discount on Debtors and reserve for discount on creditors
					CO3	The students will understand the need for negotiable instruments and procedure of Accounting for bills honoured and dishonoured.
					CO4	The students can understand need and meaning of consignment, distingish between a consignment and a sale, types of commission,accounting treatment in the books of consignor and consignee.

					CO5	The students can understand the meaning of joint venture, dstinguish between joint venture and consinment and methods of recording joint venture transaction.

6	II	II	245-P.M	Principles of management	CO1	The students will get knowledge about evolution of management thoughts and Principles of Management
					CO2	They can get better understanding of planning and decision making process.
					CO3	They can get an idea about organization structure, different types of organizations
					CO4	They will be familiarized with recruitment and selection process and stages in selection and also know about the effective guidelines of delegation of Authority
					CO5	They will also know the effective guidelines of delegation of Authority.
7	II	II	246-B.E	Business Economics - II	CO1	The students get knowledge in Cobb-Douglas Production function
					CO2	They will also get knowledge regaurding market structure and types of markets.
					CO3	They will get knowledge regurding Trade Cycles
					CO4	They will understand the concept of National income and its Measurements
					CO5	They will also understand Economics systems and Structural Reforms.
8	II	II	246-C	Programming in C	CO1	Students can understand how to create algorithm and flow charts
					CO2	**The students will understand how to create a program using control statements and how to execute a program.**
					CO3	Students will know functions and types of functions
					CO4	The students will gain knowledge in an Array and also know types of arrays and example programs.
					CO5	The students will understand the pointer and use of address variables to store the data in to the memory.
9	III	III	347-C.A	Corporate Accounting	CO1	The students will get awareness about the conceptual aspect of corporate accounting and Company final Accounts.
					CO2	The students will understand the issue of shares and redemption of shares in the Corporate Sector.
					CO3	They will understand the issue of debentures to the public.

					CO4	They will understand the valuation of Goodwill
					CO5	The students will get the knowledge in the Draft Final Accounts of companies according to section 128 of the companies Act,2013
10	III	III	348-B.T.P	Banking theory and Practice	CO1	The Students will be acquainted with the fundamentals of banking and functions of Banks.
					CO2	Students will acquire knowledge in respect of Online services like ATMs – RTGS .
					CO3	The studentswill acquire knowledge with regard to Development Banking like- SIDBI-NABARD-EXIM Bank
					CO4	The students will be enlightened regarding the General and Special relationship between the Customer and Banker.
					CO5	The students will understand the duties and responsibilities of Collecting and Paying Banker.
11	III	III	349-B.S	Business Statistics	CO1	The students will understand the Importance of Statistics in the Business Organizations
					CO2	The students will understand that how to show the business data in a Graphic presentation using Computer
					CO3	The students will understand usage of the methods of Central tendency in the business requirements
					CO4	They will also know about the measures of Dispersion and Skewness
					CO5	The Students will know the types of measures of co-relation and regression its helps to students to analyses & calculate in future research work.
12	III	IV	4410-B.L	Business Laws	CO1	The students will understand Indian companies Act and Indian Contract Act.
					CO2	The students will know about essentials of Offer and Acceptance
					CO3	The students will also understand the concept of capacity of parties like Minor .
					CO4	They will be enable to know the Sale of Goods Act and the Information & Technology Act, 2000.
					CO5	Students will easily understand the information technology act 2000.

13	III	IV	4411-I.T	INCOME TAX	CO1	The students will acquire knowledge in basic concepts like Assessee,Assessment Year,Previous year.
					CO2	The students will get an awareness on the Residential Status of an Individual,firm,company etc.
					CO3	The students will get knowledge with regard to Income from salaries and can apply the knowledge they gained in practical way.
					CO4	The students will get an awareness with regard to income from House property.
					CO5	The students will get knowledge in Capital gains.
14	III	IV	4412-ASO	Accounting for Service Organizations	CO1	To know the Accounting Procedures in Non-trading Organizations.
					CO2	To understand the accounting system in Electricity Companies.
					CO3	To understand the accounting procedures in Banking Companies
					CO4	To know the types of Insurance Companies and the accounting procedures in Insurance Companies.
					CO5	The students will know the types of Insurance Companies and the accounting procedures in Insurance Companies.
15	IV	IV	4412-OAT	Office automation Tools	CO1	The students will get knowledge features of Ms word. Students can understand How to create a documents and printing a document. Creating aMacro, creating a mail merge.
					CO2	The students will know how to create a Presentation using Ms power point with animation effects.
					CO3	They will Understand how to create a excel sheet, applying formulas and functions, filters etc.,
					CO4	They will also create different types of charts and chart parts and converting charts.
					CO5	The students will understand how to create tables ,forms, query’s and reports in Ms access.
16	IV	IV	403-EPS		CO1	The studentswill know about Entrepreneurship development

				Entrepreneurship Education	CO2	The students will get an awareness on various Entrepreneurship Development Programmes and project formulation
					CO3	The students will be familiarized with the EDP schemes
					CO4	The students will gain knowledge about MSME
					CO5	The students will get knowledge in latest techniques with reguard to EDP.
17	V	V	5413-CG	Commercial Geography	CO1	The students will understand the Geography and the structure of the earth interior system.
					CO2	The students will get knowledge reguarding Agriculture crops and distribution.
					CO3	The students will understand Rivers Drainage system and Interlinking rivers.
					CO4	They also will understand the Mining and Minerals resources in India. Forests and its importance and the role of the forests in the development of Industries.
					CO5	They will get knowledge reguarding the role of Forests and its importance and the role of the forests in the development of Industries.
18	V	V	5414-CA	Cost Accounting	CO1	The students will get knowledge of cost accounting and to provide knowledge about the ascertainment of cost and profitability of each of the products and advise the management to maximize its profits.
					CO2	They will get awareness about Material control and methods of pricing issues
					CO3	They will also know Labour Cost ,Methods of wage payment methods and Overhead distribution
					CO4	Thei will Prepare the process cost accounts, treatment of normal and abnormal process lossess.
					CO5	They will understand various techniques and methods of cost accounting and standard costing using variance analysis.
19	V	V	5415-AUD	Auditing	CO1	They will get knowledge of practical of auditing.

					CO2	Students will understand the audit process from the planning stage to completion of the audit, as well as the rendering of an audit opinion via the various report options.
					CO3	Students will understand auditors‟ legal liabilities, and be able to apply case law in making a judgment whether auditors might be liable to certain parties. Student will explain the internal audit process including the professional standards applicable to the internal audit profession.
					CO4	Students will understand to levels of persuasiveness of different types of audit evidence and explain the broad principles of audit sampling techniques.
					CO5	The student will understand the need for an independent or external audit and describe briefly the development of the role of the assurance provider and will apply professional ethics including Code of Conduct to specific scenarios describe the various.
20	V	V	5416-DBMS	DBMS	CO1	Students can understand about data, information and DBMSand file based systems and data models.
					CO2	students can understand about E-R models, relationships between entities .
					CO3	students can learn SQL and commands. How to create a tables in database.
					CO4	They will also learn about PL/SQL language,how to create a program and execute a program.
					CO5	The students will gain knowledge in functions ,arrays, procedures, packages and triggers.
21	V	V	5417-E-COM	E-Commerce	CO1	The students know about the E-commerce, Importance & Scope of Ecommerce. To learn the different types of online business in different ways that is through Business to Business, Business to Consumers, and Consumers to Consumers.
					CO2	The students know the evaluation of the internet,how to use for business and categories of networks, and each business is building their own web sites so customers can easily accesses to their business concerns.

					CO3	The students know about electronic market and how it is performing now a day's like internet shopping, web advertisements, ordering journals electronically, selling on web, E-commerce for services, travel and tourism and trading stock online.
					CO4	They also know how to get involved in security schemes of Electronic payment systems like credit card system, debit card system, value card systems, E-cash system, electronic fund transfer system.
					CO5	Students acquire skill in E-security, Internet protocol, Digital signatures, secure electronic Transactions and fire walls.

22	V	V	5416-AMP	Advertisement and Media Planning	CO1	The students know the importance of Advertisements, the role of Advertisements on the Indian economy.
					CO2	They also know the Consumer Behavior and Consumer decision making process.
					CO3	They will understand the Creativity Advertising Process and Slogan elements of design and principles of design.
					CO4	They make Media planning and strategies in designing Print Advertisements
					CO5	The students get knowledge in the strategies in designing PrintAdvertisements
23	V	V	5417-BM	Brand Management	CO1	The students will understand the Brand Concepts, significance of brand and loyalty.
					CO2	The students will know about Brand Equity -Cost, Price and Consumer Based methods and brand reinforcement
					CO3	The students will understand brand building and brand positioning.
					CO4	The students will acquire knowledge in Brand Segmentation , Portfolio.
					CO5	The students will know the evaluation of branding in different sectors.
24				Project Work/ Lab : DBMS, ECommerce		The students will get good practical knowledge.
25	VI	VI	6419-Mar	Marketing	CO1	The students will get knowledge reguarding an idea about marketing and its functions

					CO2	Thei will know about consumer behavior
					CO3	They will familiarize about product and its classifications ,product design, new product, product environment,
					CO4	They can understand pricing and introduce the concept of sales policies promotion
					CO5	The students will aware of on the Promotion Mix and distribution of products and services
26	VI	VI	6420-MA	Management Accounting	CO1	The students will understand about management accounting concepts related to the management functions of planning, control, and decision making and the ability to analysis interpret and use accounting information in managerial decision making.

					CO2	The student is expected to have analysis and interpretation of Accounting Ratios.
					CO3	They know the Funds flow in organization and to prepare and to submit the Funds flow statements to the management.
					CO4	They know the cash flow in organisation and prepare and submit the cash flow statement to the management
					CO5	The students will understand of Marginal Costing which relates the break even Analysis.
27	VI	VI	6421-DM	Direct Marketing	CO1	The Students know the Features and different strategies of Direct Marketing, mailing like SMS-MMS. And New channels of direct marketing.
					CO2	Students have to improve their marketing intelligence and creative process in marketing fields.
					CO3	Students will learn to produce advertisements through magazines, news papers, Radio/TV.
					CO4	In the same way students grasp to produce advertisements through social media and digital marketing like face book, twitter, E-mailing. Mobile Marketing- Integrating media and channels.
					CO5	Students will understand the role of Digital Marketing on the Indian Economy.

28	VI	VI	6422-GST	Goods and service Tax Fundamentals	CO1	The students will understand the GST concepts and the short comings and advantages by introducing the GST.
					CO2	The students will acquire knowledge with regard to the structure of GST .
					CO3	The students will get knowledge inrespect of various models of GST.
					CO4	The studens will get an awareness in respect ofInter-State transactions under IGST.
					CO4	The students will understand theApplication of the Input Tax Credit in respect of GST.
29	VI	VI	6423-SPM	Sales Promotion	CO1	Students will pursue different types of sales organization, Sales executive functions, Sales promotion and control.
					CO2	Students will analyze market potentials, sales potentials and sales forecasting methods.
					CO3	Students attain knowledge to prepare sales budget, sales territories, sales quotas, sales contest-coupons &discounts and free offers to promote marketers goods and services.
					CO4	Students will get to know the sales manager qualities and functions, types of sales man and they know different types of customer's psychology. So they can promote their sales according to customer's will.
					CO5	Students study about the sales force management-recruitment and how the selections were carried on, training, and how they motivate of sales personnel to the consumers.
30	VI	VI	6421-TLY	Tally	CO1	The students know the fundamentals of Tally and the Creation of Accounting in Masters in Tally.ERP 9
					CO2	They know how to create accounting masters in tally.ERP9
					CO3	They know about the software procedure in Inventory Master Creating, Altering, Displaying, Deleting Stock items .
					CO4	They know the Voucher Entry using in Tally software.

					CO5	They will understand the preparation of Reports like Trial Balance, Balance Sheet, Profit & Loss A/c, Cash Book, Bank Book - Inventory Books and Registers - Practice Exercises.
31	VI	VI	6423-WT	Web Technology	CO1	The students will understand the how to create a web pages using HTML different types of tags and execution of webpages.
					CO2	They will understand XML and advantages of XML.
					CO3	They also understand the Cascading Style Sheets like Introduction, using Styles, simple examples, your own styles
					CO4	They will understand the concept of JavaScript.
					CO5	They will understand Objects in JavaScript.
32	VI	VI		Project Work : Direct Marketing, Sales Promotion	CO1	The students will get good practical knowledge in preparing project report
					CO2	
					CO3	
					CO4	
					CO5	
33	VI	VI			CO1	The students will get good practical knowledge in preparing project report
				Project Work /Lab: Web technology, TallyPromotion	CO2	
					CO3	
					CO4	

Poli ical Science						
1	I	I	131-POL	Basic Concepts of Political Science	CO1	Acquiring the knowledge about Political science.
					CO2	Getting awareness about approaches to the study of politics.
					CO3	Getting information about origin and evolution of the modern state.
					CO4	Knowing about the rights and citizenship.

					CO5	To understand the freedom, equality and justice.
2	II	II	232-POL	Political Institutions (Concepts, Theories and Institutions)	CO1	To understand the concept of state, nation and civil society.
					CO2	To analyze the meaning of organs of government and theory of separation of power.
					CO3	To know about the meaning sovereignty, types and characteristics.
					CO4	To understand the forms of government in various countries and their working pattern
					CO5	To compare with procedure of various social institutions and government institutions.
3	III	III	333-POL	Indian Constituion	CO1	To understand the meaning, nature, and significance of the Indian Constitution.
					CO2	To understand the meaning, nature, and significance of the Indian Constitution.
					CO3	To provide insights into the philosophy of the Indian Constitution.
					CO4	To throw light on the making of the Constitution.
					CO5	To identify the sources that had inspired the framers of the Constitution to improvise and incorporate these into our Constitution.
4	IV	IV	434-POL	Indian Political Process	CO1	To acquire knowledge about caste system and communities in India.
					CO2	To understand the theory of modernization.
					CO3	To elucidate the role of state towards religion.
					CO4	To understand the electoral trends & voting behavior in India
					CO5	To understand the evolution of party systems in India.

5	V	V	535-POL	Indian Political Thought	CO1	To trace the evolution of Indian political thought from ancient India to modern India.
					CO2	To analyze the nationalist thought of Raja Rammohon Roy, Bankim, Vivekananda and Tagore.
					CO3	To discuss the nationalism of Gandhi, M. N. Roy, Narendra Deva and Syed Ahmed Khan.
					CO4	To understand the social and religious reforms during renaissance.
					CO5	To understand the Ambedkar's views on Social Justic, annihilation and the depressed classes.
6	V	VI	636-POL	Western Political Thought	CO1	To elucidate the richness and variations in the political perceptions of Western Thinkers.
					CO2	To provide a foundation to students of Political Science in familiarizing themselves to the Thought & Theory of Western Philosophy.
					CO3	To examine the features of Medieval Political Thought
					CO4	To provide an insight into the dominant features of Ancient Western Political Thought
					CO5	To emphasise on Ancient Greek political thought with focus on Aristotle and Plato
7	VI	VII	637-PS	Local Self - Government in Andhra Pradesh	CO1	To understand the constitutional provisions and their importance.
					CO2	To analyse the structure and functions of Panchayat Raj.
					CO3	To elucidate the role of rural and urban local bodies.
					CO4	To provide insight to patterns of leadership and its emerging challenges.
					CO5	To understand the importance of committees in Local Self-Government.

8	VI	VIII -A	638-PSA1	International Relations	CO1	To analyze the history of international relational through the causes and phases of colonialism.
					CO2	To know the impact of first world war and second world war and its causes and consequences
					CO3	To criticize the various ideologies which lead to the destruction of world.
					CO4	To appreciates the post war developments through the emergence of third world.
					CO5	To understand the concept of power, national, regional, global and peace security.
9	VI	VIII -B	638-PSA2	Foreign Policy	CO1	To explain different theories of foreign policy analysis;
					CO2	To analyze strengths and weaknesses of different approaches to foreign policy analysis;
					CO3	To apply theories of foreign policy analysis to specific cases;
					CO4	To understand the issues and processes described and to relate them to current affairs and present-day issues of significance.
					CO5	To contrast and compare the strength of theoretical approaches used in foreign policy analysis.
10	VI	VIII -C	638-PSA3	Contemporary Global Issues	CO1	To identify key issues in global politics and understand their historical contexts;
					CO2	To develop the capacity to research key issues in ways that enable them to analyse different approaches to understanding and addressing these issues;
					CO3	To debate and evaluate different approaches to major issues;
					CO4	To write and present a political argument in a clear, coherent, and engaging manner.
					CO5	To understand the international organizations and their role in global issues.

Economics						
1	I	I	131 - ECO		CO1	Able to understand the nature and scope of Economics.
					CO2	To acquire knowledge on various methodologies adopted by various economists to analyse economics.
					CO3	To gain knowledge related to utility analysis.
					CO4	To acquire these skills in real life
					CO5	To understand the different courses analysis.
2	II	II	232 - ECO		CO1	Able to understand the concept of production function.
					CO2	To acquire knowledge on various types of the market structures and the role of markets in real life.
					CO3	To able to understand the marginal productivity theory of distribution theory of distribution.
					CO4	Able to understand the ease, rent, interest and profits.
					CO5	To the interest of the student.
3	III	III	333 - ECO		CO1	To understand the concepts of micro and macro economics.
					CO2	The dance of microeconomics and paradoxes of macroeconomics.
					CO3	To understand the consumption investment functions.
					CO4	To understand the classical and modern theories of employment.
					CO5	To acquire knowledge measuring functions and classification of money.
4	IV	IV	434 - ECO		CO1	To illustrate the meaning of inflation.
					CO2	To understand the causes, effects and measures to control inflation.
					CO3	To identify various types of banks, aquare knowledge on various functions of commercial banks.
					CO4	To understand the meaning of shares and debentures, functions of stock market.

					CO5	To know about the objectives and instruments of macroeconomic policy.
5	V	V	535 - ECO		CO1	To illustrate the meaning of economic growth and development to know the various theories.
					CO2	To understand the concepts of sustainable development.
					CO3	To understand the various choices of techniques.
					CO4	To understand the basic features of Indian economy.
					CO5	To assess the importance of national income in India.
6	V	VI	536 - ECO		CO1	To understand the importance and structure of Indian agriculture.
					CO2	The agricultural infrastructure and agricultural price policies.
					CO3	To know the structure and growth of Indian industry.
					CO4	To gain knowledge on disinvestment and foreign direct investment.
					CO5	To be aware of Andhra Pradesh economy.
7	VI	VII	637 - ECO		CO1	To understand the meaning and scope of public finance.
					CO2	To understand the difference between public and private finance.
					CO3	To assess the sources of public revenue.
					CO4	To acquire knowledge on public expenditure.
					CO5	To acquire knowledge on meaning and components of budget.
8	VI	VIII -A	638 - ECO - A1		CO1	To understand the nature and scope of statistics.
					CO2	To acquire knowledge on primary and secondary data.
					CO3	To acquire the skill of how to classify and tabulate the data.
					CO4	To acquire the skill of drawing various diagrams.
					CO5	To the interest of student.
9	VI	VIII -B	638 - ECO - A2		CO1	To understand the various methods of central tendency.
					CO2	To acquire the skill of various problems of Central tendency.
					CO3	To understand the various methods of dispersion.
					CO4	To acquire the skill of solving various problems of disperation.
					CO5	To interest of the student.
10	VI	VIII -C			CO1	To understand the concept of skewness.
			638 - ECO -		CO2	To acquire the skill of solving the problems.

			A3		CO3	To understand the concept of Correlation.
					CO4	To assess the role of time series in Indian economy.
					CO5	To know about the concept of index numbers, like laspeare, paasche, Fisher's.

History						
1	I	I	131-HIS	Ancient Indian History & Culture upto 600 AD	CO1	By Studying this module Students will gain knowledge about indian history and culture and Diverse Geographycal features of India
					CO2	To understand the chronological events and changes that took in the time line of pre-historic to historic times
					CO3	Students can analyze the political systems, socio, religious and economic conditions right from vedic period to later guptas
					CO4	These conditions will give insides about the position of women, verna system and administrative hierarchy
					CO5	They acquire knowledge towards the changing status agrarian economy trade and commers
2	II	II	232-HIS	Early Medieval Indian History and Culture (600 Ad to 1526 AD)	CO1	Students will come to know about the antic and astonishing architectural styles from Pallavas to Vijayanagara Period
					CO2	To observe the administrative structure from Cholas to Vijayanagara period
					CO3	Inseption of Delhi Sultanate and how expansion and consolidation of Khilji Dynasty
					CO4	To Understand administrative structure of Delhi Sultanates and its decline
					CO5	To Know about the emergence of the new composite culture called indo-islamic culture and rise of Bhasti and sufi moments and its impact on Indian Society
3	III	III	333-HIS		CO1	To have knowledge on the conditions in India during the medieval period
					CO2	To understand the developments under the Mughals and their downfall
				Late Medieval & Colonial History of	CO3	To analyse the European settlements, expansion policies and consolidation of British Empire

				India(1526 - 1857 A.D.)		
					CO4	To have knowledge of the different policies of the British
					CO5	To observe the causes and consequences of revolts of peasants,sepoys and tribes in 19th century
4	IV	IV	434-HIS	Social Reform Movement & Freedom Struggle (1820-1947 A.D.)	CO1	To understand the impact of several social, religious and self-respect movements
					CO2	To observe the growth of nationalism in India due to the impact of British colonial policies
					CO3	To acquire knowledge of freedom movement and different phases of the movement
					CO4	To have knowledge of the contributions of Gandhiji and Subhas Chandra Bose in the freedom struggle
					CO5	To understand how people suffered due to partition and know Sardar Vallabhai Patel's role in the integration of princely states
5	V	V	535-HIS	Age of Rationalism and Humanism (History of Modern World 1453 to 1821 AD)	CO1	To Understand the exotic and path breaking Geographical discoveries, Sea routes and Scientific inventions
					CO2	To Understand the renaisance and reformation moment in modern Euro
					CO3	To Observe the emegence and impact of Nation States
					CO4	To attain a broder perspective of revaluations in America, Europe and its impact on global Scenario
					CO5	To know how liberty, Equality and fraternity served as a new pillars of society
6	V	VI	536-HIS	History & Culture of Andhra Desa(12th - 19th Century A.D.)	CO1	To observe how trade, socioeconomic life, culture, architecture flourished under Kakatiyas and Reddy Kings
					CO2	To have knowledge of the glory of Vijayanagara Empire and the special contribution of Sri Krishna Devaraya to Andhra culture
					CO3	To understand the evolution of composite culture and influence of Qutub Shahis on Andhra
					CO4	To know how the British occupied Andhra and established their authority
					CO5	To analyse the conditions of Andhra under the company rule and impact of Industrial Revolution
7	VI	VII	637-HIS	History of Modern Europe	CO1	Student will acquire knowledge about industrial revaluation before and after in Europe and how it use global world

				(From 19th	CO2	Students will Gather knowledge about unification of Germany and unification of Italy and their impact
				Century to 1945 AD)	CO3	To acquire knowledge about communist revaluation and its causes, course and results
					CO4	Student will come to know about the historic World War-1 and atrocities and casualities and rise of Cold war
					CO5	Student will able to analyze how the failure of league of nations and unequal power domination let to another World War-II and acquire knowledge of UNO and its functions
8	VI	VIII - A 1	638-HIS	Cultural Tourism in Andhra Pradesh	CO1	Students will know concept of Tourism, Scope of Tourism, Nature of Domestic and International Tourism
					CO2	And also about the knowledge of Tourism in General and Indian Tourism in Particular
					CO3	Students will gather information regarding the planning and development of AP Toursim, Its aims and objectives and various geographycal sceneries in AP
					CO4	Students will get an insides of various heritage sites, various acts for preservation and especially about archeological survey of India
					CO5	Students had an empherical understanding by visining a site and prepartion of project report on it
9	VI	VIII - A 2	638-HIS	Popular Movements in Andhra Desa (1848 - 1956 A.D.)	CO1	To appreciate the several social and self-respect movements, special reference to Kandukuri Veeresalingam
					CO2	To gain knowledge of the Vandematram movement in different parts of Andhra
					CO3	To observe the progress of the freedom movement in Andhra, special reference to the non cooperation movement
					CO4	To understand the causes which led to the formation of separate Andhra
					CO5	To acquire knowledge of the main incidents and stages seen in the formation of Andhra Pradesh
10	VI	VIII - A 3	638-HIS	Contemporary History of Andhra Pradesh (1956 - 2014)	CO1	To analyse the developments in various sectors in Andhra Pradesh and emergence of Telugu Desam Party
					CO2	To observe the growth of communist ideology and activities
					CO3	To gain knowledge about Dalit's struggles against social injustice
					CO4	To understand the causes leading to the Bifurcation of Andhra Pradesh
					CO5	To know the consequences of the bifurcation and formation of Telangana state

Bio Technology						
1	I	I	121-BT	Microbiology and Cell biology	CO1	To study about basic microbiology History, development of Microbiology, contributions of Variour scientistics i the field of Microbiology. To learn about various types of Microscopes, and staining methods. This is helpful for the study of Microorganism in detail.
					CO2	To learn about Microorganisms like bacteria, virus, and bateriophages, structure, life cycle classifications and their importance. To apply knowledge about microorganisms in daily life like maintain and taking care from harmful microorganisms to protect from diseas for healthy life.
					CO3	To study Nutritional requirements of microorganism and types of midia for the growth of microorganism. To acquire the ability to decide which midia should be suitable for their growth, and also applied this knowledge for carrying out project. To know about the various types of sterilization methods of microorganism. To use knowledge in controling harmful microorganism.
					CO4	To study about growth and its measurement of growth of microorganism and this knowledge is apply for the selection of more number of cells in cultures and it may take up Project work.
					CO5	To study the deyailed structure of Cell and subcellular components, mechanism occuring in cell and cell devisions, which helps incase there is abnormal cell divisions occurs in the cell.
2	II	II	222-BT	Biomolecules, Enzymology and Bioenergetics	CO1	To learn about the discovery, structure and properties of various kinds of DNA and RNA, to use the knowledge in understanding of the basic molecule of life like DNA, for inspiring research in various fields.
					CO2	To study about the structure, Properties and classification of aminoacids, they are the building blocks of proteins and also to learn about the structure of proteins and its importance in our life.

					CO3	To learn about classification, structure and properties of carbohydrates and lipids i.e. major nutrients for humanbeings. Various diseases arising due to lack of improper intake of carbohydrates like diabeties, obesity, malnutrition etc..

					CO4	To learn about enthalpy, entropy, free energy and oxidative Phosphorylation.
					CO5	To study about the structure , classification, nomenclature, inhibition of Enzymes, and this knowledge which is helpful for applying in medical field to cure various various diseases. To study regulation, metabolic reactions of pathways like glycolysis, TCA cycletaking place in living organisms.
3	III	III	323-BT	Biophysical Techniques	CO1	To acquire knowledge on the principle, basic concepts, instrumentation, application of spectrophotometriy are studied and this knowledge is applied for estimation of DNA, RNA and proteins in research work.
					CO2	To learns about the priciple, mechanism amd applications of various types of Chromotography methods. This knowledge is useful for separation of molecules in pureform. i.e.. aminoacids, pigments..etc..
					CO3	To study about priciple, Instumentation, mechanism of electrophoresis methods and this menthods are used for detection of DNA and RNA and also carry out PCR technique, southern blotting..etc.
					CO4	To learn about isotopic tracer technique, how to calculate the measurement of radioactivity and they can also learn how to apply different isotopes in medical, therapeutic, diagnostic fields in life.
					CO5	To learn about different types of centrifuses, this knowledge is useful for the isolation of cell components and also used for the ditermination of molecular weight of molecules. To study about mean, median, mode, stardard deviation and ANOVA used to calculate or solved the problems

4	I V	IV	424-BT	Immunology	CO1	To learn about basic Immunology, types of Immunity, various types of immune cells and lymphoid organs, pathways off Innate and adoptive immune responses.
					CO2	To learn about the structure, classes, types of antbodies and antigens and factors affecting antigenicity. To understand how diseases causing microorganisms killed by the production of antibodies.
					CO3	To study about Vaccination,MHC and Hypersensitivity, this knowledge is useful for to gain better understanding about blood transfusion, allergy, Graft rejection and various types of diseases.
					CO4	To study about cytokins and antigen-antobody reactions, and this knowledge is helpful for understanding how immune system provide protection to our body.
					CO5	To learn about monoclonal Antibody production and its application, this knowledge helps to takeup research to find medicine and drugs for incurable diseases.
5	V	V	525-BT	Molecular Biology	CO1	To study about Gene, Genome, Chromosomes, DNA, which act as a genetic material and DNA responsible for life in every livining organism.
					CO2	To acquire knowledge on genome organisation and various types of replication mechanism in prokaryotes, Eukaryotes,.
					CO3	To know the mechanism of transcription and translation process i.e. protein synthesis, in living organism. To learn the molecular mechanism responsible for diseases and may take up research in this field.
					CO4	To learn about genetic code and its charecteristic and iteraction in between codon and anti codons.
					CO5	To know the level of gene expression and regulation through operon -concept, this knowledge is helpful for understanding switch on and switch off mechanism of gene expression

6	V	VI	526-BT	Recombinent DNA Technology	CO1	To acquire knowledge about various types of restriction Endonuclease enzymes, Vectors and how to construct genomic DNA library and C-DNA library for cloning
					CO2	To learn about ligation method, and selection of recombinant cells, this knowledge is useful for cloning.
					CO3	To get exposure to various techniques for identification of cloned genes and also it may help to take up research in this field.
					CO4	To Study about gene transfer methods and DNA sequencing methods. This knowledge is apply to know the sequence of DNA in different organisms.
					CO5	To gain knowledge on production of industrial product, transgenic plants and genetically modified organisms.
7	V I	VII	627-BT	Plant and Animal Biotechnology	CO1	To acquiases the knowledge in Plant tissue culture method, it may hepful for the production of transgenic plants. i.e. disease resistance plants, insect plants..etc.
					CO2	To gain knowledge in plant biotechnology it may useful in Agriculture field and produced less time more crop yeild by applying tissue culture method i.e. mycropropagation.
					CO3	To gain concept of vaccination and transgenic animal, it may take up research in this field.
					CO4	To gain and apply knowledge in stem cell therapy and gene therapy, and it may apply in the treatment of incurable diseases.
					CO5	To gain and apply knowledge of Biotechnology and science concepts to solve problems related field of Biotechnology
8	V I	VIII -A 1	628-A1-BT	Plant Tissue Culture	CO1	To learn about laboratory organisation, sterilization methods, media used in plant tissue culture and culture techniques i.e. gene tranfer method
					CO2	To learn about how to produce somatic hybrid, cybrid, Haploid plants, somatic embryos, and may take up research in this field.
					CO3	To gain and apply knowledge in the development of transgenic plant and genetically modified organisms.

					CO4	To learn about trangsgenic crop with improved quality of traits and also biofertilizers. This knowledge useful to improve soil fertility and high yield of crops.
					CO5	To learn about the role of transgenic plants in degradation of pollution and also production of industrial enzymes, synthetic seeds, Insulin, Plantibodies.And this knowledge apply in project work.
9	V I	VIII -A 2	628-A2-BT	Animal Tissue Culture	CO1	To study about laboratory organisation, sterilization methods, various types of media and culture techniques and this knowledge is apply for the production of transgenic animals.
					CO2	To learn abour gene therapy and Invitro fertilization and it may helpful for for the treatment of genetic diseases and also solved problesm in medical field.
					CO3	To gain and apply the knowledge of Biotechnology, science and Engineering concepts to solve problems related fields of Biotechnology, by applying stemcell therapy and production of vaccines, Insulin, Growth hormones..etc.
					CO4	To acquire knowledge about recombinant cytokins and its role in the treatment of various types of diseases.
					CO5	To learn about tissue engineering this knowledge is apply for synthesis of artificial organs. To design performan experiments, analyze and for investigating complex problems in Biotechnology and related fields.
10	V I	VIII -A 3	628-A3-BT (PW)	Project Work	CO1	To learn about how to handle equipment like, Autoclave, Laminare air flow, electrophorisis apparates, and centrifuge..etc.
					CO2	To learn about isolation of DNA from different samples by centrifugation method
					CO3	To learn about agarose gel electrophoresis method
					CO4	Tio learn about estimation of DNA method
					CO5	To learn about sterilization methods, media preparation and calus culture method by plant tissue culture technique.

Horticulture

1	I	I	Horti111	Basic Concepts of Horticulture & Soil Science	CO1	After the completion of the Course I of Horticulture Programme the students will be able; To appreciate the importance and scope of Horticulture
					CO2	To understand the different values of Horticulture
					CO3	To know the role of environmental factors in the crop production
					CO4	To identify the soil properties suitable for optimal production
					CO5	To recongnize the soil components and their role to keep the soil fertility
2	II	II	Horti122	Plant Propagation Methods & Nursery Management	CO1	To use the basic requirements for horticulture plants propagation
					CO2	To appreciated the importance and process of seed propagation
					CO3	To identify the various vegetative parts used for multiplication
					CO4	To produce new qualitative plants using different techniques
					CO5	To establish and maintain the suitable growing structure for nursery
3	III	III	Horti 233	Oletriculture	CO1	To understand the importance, types and values of vegetable gardens
					CO2	To select the suitable varieties of vegetable crops based on soil and climatic conditions
					CO3	To use the appropriate cultural practices for more efficient production
					CO4	To control the pests and diseases of vegetable crops

					CO5	To produce quality vegetable seeds
4	IV	IV	HRC234	Ornamenytal Horticulture	CO1	To understand the importance, types of gardens and values of gardening
					CO2	Toselect the suitable varieties of economic floral crops based on soil and climatic conditions
					CO3	To use the appropriate special horticultural practices for more efficient production
					CO4	To establish and maintain the production unit of floral nursery plants
					CO5	To use the knowledge and skill in the landscaping

Micro Biology						
1	I	I	121-MB	Introduction to Microbiology & Microbial Diversity	CO1	Gain basic knowledge about Microbiology including history,importance and applications of microbiology in daily life, health, food, sanitation and in genetic engineering.
					CO2	Learn the concept of classification microorganisms and general characteristics of algae, fungi, protozoa and viruses
					CO3	Understand bacterial cell structure and functions of components. Perform staining and observe bacterial morphology under microscope.
					CO4	Understand bacterial growth media and techniques of sterilization. Prepare bacterial growth media and perform sterilization by physical and chemical methods.
					CO5	Learn methods of isolation and preservation of bacterial pure cultures and apply them methods of preserve them in lab
2	II	II	122-MB	Microbial Biochemistry & Metabolism	CO1	Able to characterize and classify carbohydrates, nucleic acids , fats and lipids.
					CO2	Understand the principles of colorimetry, chromatography, spectrophotometry and electrophoresis. Apply them in qualitative & quatitative analysis of biomolecules.

					CO3	Able to classify enzymes and study inhibition of enzyme activity and enzyme kinetics. Demonstrate induced fit theory and lock & key models.
					CO4	Describe the nutritional requirements and nutritional groups of bacteria like autotrophs, heterotrophs, mixotrophs. Demonstrate the methods for measuring microbial growth like direct microscopy, viable count and turbidometry.
					CO5	Differentiate aerobic and anaerobic respiration through different metabolic pathways in microorganisms. Able to understand the concepts of oxygenic and anoxygenic photosynthesis in bacteria.
3	III	III	323-MB	Microbial Genetics & Molecular biology	CO1	Understand and differentiate the molecular structures of DNA and RNA and establish them as genetic materials through experimentation.
					CO2	Learn Genetic code and differentiate the process of transcription and translation in Prokarotes & Eukaryotes

					CO3	Acquire knowledge of various gene transfer mechanisms in bacteria. Understand the concept of mutations and their effects.
					CO4	Learn the concept of gene and their types, gene expression. Gene regulatory mechanisms and concept of lac operon.
					CO5	Explain the basic principles of genetic engineering. Demonstrate isolation of bacteria/plasmid DNA and separation by electrophoresis
4	IV	IV	324-MB	Immunology & Medical microbiology	CO1	Understand the role of immune system comprising ceels and organs in generating immune response. Differentiate innate and acquired immunity
					CO2	Define the structure and functions of antigens, antibodies. Perform Antigen-antobody reactions. conceptualize hypersensitivity and its implications in human body
					CO3	Understand the concepts of Normal flora, host pathogen interactions. Demonstrate the principles of collection, transport and processing of clinical samples. Perform cultural, biochemical, serological methods of laboratory diagnosis
					CO4	Develop understanding of pathogenesis, epidemiology and prevention of common bacterial, viral, fungal protozoal diseases of humans.

					CO5	Acquire knowledge of chemotherapy and mode of action of antimicrobial agents. Perform antibiotic susceptibilty and resistance tests. Understand different types of vaccines.
5	V	V	525-MB	Environmental & Agricultural microbiology	CO1	Developed a clear understanding of the diverse roles of microorganisms in soil, water and air. understand the role of microorganisms in geochemical cycles.
					CO2	Perform microbial analysis of drinking water and methods to treat water samples.
					CO3	Develop an understanding of solid and liquid waste management and role of microorganisms in treatment of sewage
					CO4	Acquire knowledge about microbial interactions and role of PGPRs in the field of agriculture. Concept of symbiotic & non- symbiotic methods of nitrogen fixation.
					CO5	Understand plant pathogens and diseases caused by viruses, fungi and bacteria in crops. Concept of biopesticides for disease control.

6	V	VI	526-MB	Food & Industrial Microbiology	CO1	Able to identify the role of microorganisms in food spoilage and food borne diseases
					CO2	Demonstrate the methods of food preservation and able to describe the role of microorganisms in the production of fermented dairy foods. Understand the concepts and benefits of SCP and probiotics.
					CO3	Able to isolate industrially important microorganisms from natural sources and improve their productivity by mutations.
					CO4	Able to formulate production media using different raw materials for employing in fermenters. Demonstrate different types of fermentation processes and methods of down stream processing.
					CO5	Have developed laboratory skills in the fermentative production of organic acids, alcohols, enzymes, antibiotics and vitamins
7	VI	VII		Microbial Biotechnology	CO1	Acquired knowledge about technological developments in microbiology and its application in agriculture, environment, food and human therapeutics
					CO2	Understand the application of recombinant DNA technology in human prophylaxis and in plant disease control.

					CO3	Understand biocatalytic processes and their industrial applications.
					CO4	Demonstrate the commercial production of biofuels from lignocellulosic wastes. understand the concept of xenobiotics and role of microorganisms in mineral recovery
					CO5	Acquire knowledge of basic concepts related to IPR and apply in biomedical Research. Learn to respond and act ethically with regard to scientific research, practice, and technology.
8	VI	VIII -A		Microbial Quality Control In Food and Pharmaceutical Industries	CO1	Have developed a very good understanding of practical aspects of microbiological safety,
					CO2	Perform different cultural and microscopic methods for testing of products in the pharmaceutical industries
					CO3	Apply Nucleic acid probes, PCR based detection and biosensors to determine microbes in samples.
					CO4	Use of enrichment culture technique for the detection of specific microorganisms. Application of various detection methodologies and use of different microbiological media in food industries.
					CO5	Acquire knowledge about Hazard analysis of critical control point and Learn to define microbial standards for different foods and water
9	VI	VIII -B		Cell Culture Techniques	CO1	Explain major components of cell and tissue culture media, e.g. minerals, growth factors, hormones, and what governs the choice of components.
					CO2	Perform the common cell culture techniques, e.g. callus culture, Embryo culture and embryogenesis in plants, culture of animal cells.
					CO3	Acquire knowledge of cell lines used in mammalian tissue culture, their origins and applications.
					CO4	Explain Cell cycle and its regulation
					CO5	Demonstrate virus cultivation in embryonated eggs and measurement of infectious units. Demonstrate virus purification by ultracentrifugation method
10	VI	VIII -C		Project Work (6 hours/week)	CO1	Learn to Identify and analyze problems having societal relevance and frame objective of the study, in consultation with the Mentor
					CO2	Design relevant experiments, conduct the experiments, record /collect and analyze data.

					CO3	Draw inferences from data and interpret the results
					CO4	Acquire skills of systematic recording of their findings in a standard format
					CO5	Learn to give project presntation for external assesment and evaluation

English					
1	I	Eng 101	ENGLISH I	CO1	To expose the students to prose, poetry and non- detailed text to develop all the language skills..
				CO2	To acquire the knowledge of language skills, vocabulary, dialogue writing, etc.
				CO3	To read and appreciate the prescribed literary selections for pleasure, and to interpret the given poem, essay, short stories to undertstand the moral behind them
				CO4	To apply the acquired knowledge of grammar and vocabulary to the real time situations through practice of conversation, essay writing and exercises.
2	II	Eng 202	ENGLISH II	CO1	To understand and appreciate the nuances of poetry and appreciate the meter, rhyme and rhythm in poetry and the idiomatic expressions in prose sections
				CO2	To develop reading, writing and comprehension skills apart from the vocabulary and usage.
				CO3	To analyze and interpret the socio cultural aspects based on the prescribed prose texts
				CO4	To apply the acquired knowledge of sentence structure, grammar, and vocabulary for general essay writing, letter writing, etc.
3	III	Eng 303	ENGLISH III	CO1	To understand the various elements of poetry such as tone, imagery, figures of speech, and other stylistics.
				CO2	To be able to locate grammar in prose, to develop prose style, and to understand the difference between the formal and the informal
				CO3	To consider culture, author, and historic context and content of the prescribed texts and to analyse them.
				CO4	To be able to use the idioms, phrases, one word substitutions, synonyms and antonyms and other vocabulary related elements in writing essays and oral communication
4	III	Foundation course I 202	Communication skills and soft skills	CO1	To encourage the all round development of the students by focusing on soft skills..

				CO2	To expose the students to the right and positive attitudinal and behavioural aspects of the students.
				CO3	To demonstrate knowledge of effective communication skills in both formal and informal situations
				CO4	To understand the ways in which English can be used in and around the world .
5	IV	Foundation course II 303	Communication skills and soft skills	CO1	.To effectively communicate through verbal communication and improve the LSRW skills of the students.
				CO2	To develop report writing and precis writing skills of the students.
				CO3	To develop various reading techniques
				CO4	To develop the skills of paraphrasing and summarizing.
6	IV	Foundation course III 401	Communication Skills and soft skills	CO1	To reflect & develop a planned approach towards his career & life in general.
				CO2	To equip the students with the employability skills
				CO3	To be able to prepare the functional and chronological resume.
				CO4	To be able to face personal interview through mock interviews

Hindi						
1	I	I		HIN	CO1	To empower the students with literature and its objectives.
					CO2	To educate the students about the heroic nature of the strong people who stand by the truth.
					CO3	Deals with the theme of Friendship. Helps the students to find out good friends and values in society
					CO4	Brings out the theme of the honesty. how borrower is forgiven despite poor conditions
					CO5	It deals with the Promise and Sacrifice of a soldier

2	II	II		HIN	CO1	Shows the relation between literature and culture
					CO2	Unity in diversity is the main focus
					CO3	Exploitation of women by the so called society who looks for career in cine culture
					CO4	Revolt against corruption in the society
					CO5	translation from hindi to english which helps the students to understand global language
3	III	III		HIN	CO1	Moral Values through Kabir Doha who imbibes in the young minds
					CO2	Childhood memories of Lord Srikrishna by Surdas
					CO3	Nostalgic memories of four ages in Hindi Literature
					CO4	Concept of Motherland and its patriotism
					CO5	Value of Labor who were described by the Poet

Telugu					
I	I		sahitee nandanam	CO1	To be able to understand our culture and history ethecial values through classical literature. It leads to respect our language,literature and great writers.
				CO2	To be able to create interest towards mother tongue, and modern literature and to develop crative writing to express their views on contemparory issues.
				CO3	To be able to evaluate the lifestyle of common people behind the screen of globalisation.and get skills how to balance themselves inthe present senario.
				CO4	To be able to acquire knowledge and skills in grammar-It leads to know the beauty,rythem and formation of language
				CO5	on the whole the student is able to improve himself in the aspects of huminity ,humility,integrity,and equanimity
II	II		sahitee kowmudi	CO1	Through calssical literature student get inspiration - It leads to higher order thinking pow

				CO2	To be able to understand social evils and eradicate them through modern literatur
				CO3	To be cultivate values, morals, new approaches in day-to-day life.
				CO4	To be able to get esthetic sense through figurative language rythem and metre.
				CO5	To able to improve the standards of life,inculcate leadership qualities and composure of mind.
III	III	sahitee sorabham		CO1	to be able to understand the difference between modern and ancient literature and try to write creative writings.
				CO2	To get awareness on contemporary society , traditions, and finearts there by the student should be conscious and cautious about the society.
				CO3	To be able to create much interest on native culture and lofty values which leads to personality development.
				CO4	To be cultivate SELF RESPECT and patriatism towards and nation.
				CO5	Ultimately the student is able to feel joyous , delightful and be ready to face challeges in his day to day life
IV	IV	leadership education		CO1	Tobe able to understand leadership qualities,individual behaviour and group behavior.
				CO2	To be able to acquire communication skillsand management skills
				CO3	To be able to develop enthusiasm, right attitude and positive thinkingand.
				CO4	To be able to acquire global knowledge ,and universal thinking for the development of self and nation.
				CO5	On the whole the student is able to improve personality development,and team building management,Collaboration and conflict management.

Botany

1	I	I		Microbial Diversity , Algae and Fungi	CO1	Gain knowledge about the origin and evolution of life in the world and appreciate diversity of organisms
					CO2	Understand morpholgy of virus and their replicationmethods. Gain basic knowledge about diseases caused by them.
					CO3	Understand bacterial structure and their methods of reproduction. Gain knowledge about the economic importance of bacteria
					CO4	Gain knowledge of Algae and their significance for the growing populations with lot of Economic importance
					CO5	Able to understand fungi as pathogen, to overcome and manage the fungal disease and protect the life forms on the earth.
2	II	II		Diversity Of Archaegoniates & Anatomy	CO1	To Know the structure, reproduction, Life history and evolutionary aspects of bryophytes
					CO2	To Know the Life history and evolutionary aspects Pteridophytes and their seed habit
					CO3	To know the morphology, anatomy, reproduction and life history and economic importance of plants with naked seeds
					CO4	Understand and appreciate anatomy of plants
					CO5	To understand and appreciate the patterns of anomalous and normal secondary growth
3	III	III		Plant taxonomy &Embryology	CO1	To acquire knowledge of fundamental components of taxonomy and botanical nomenclature to maintain botanical garden worldwide.
					CO2	To acquire the knowledge of classification of the plants and the comparison, origin and evolution of angiosperms which are the most important species in our daily life.
					CO3	To acquire the knowledge of systematic Taxonomy
					CO4	Gain knowlede of vegetative, reproductive characters and economic importance of some families of B & H classification.
					CO5	To know the pollination and fertilization methods, development of embryo and it’s structure to gain knowledge leading to new varieties.
4	IV	IV			CO1	To Know the various aspects of Plant water relations

				Plant physiology & Metabolism	CO2	To Know the process of various metabolic activities in plant body
					CO3	Student will understand and appreciate the Process and importance of photosynthesis
					CO4	To gain knowledge of Respiration and Nitrogen metabolism
					CO5	To know the process of Growth, development, senescence and Ageing
5	V	V		Cell Biology, Genetics &Plant breeding	CO1	To gain knowledge regarding the unit of life, structure and composition of cell wall and Plasma membrane.
					CO2	To understand the DNA Structure and appreciate its usefulness at molecular levels of genes in various aspects of life quality of genetical characters and forensic methods of the society etc.
					CO3	To Acquire the knowledge about Genetical aspects and understand the process of heredity and variation
					CO4	Student will understand appreciate plant breeding methods
					CO5	Gain knowledge of Breeding, role of Biotechnology in Crop Improvement
6	V	VI		Plant Ecology & Phytogeography	CO1	To have the knowledge of elements of environment and understand the importance of Climatic factors like light, temperature on plants and plant relations with environment
					CO2	To appreciate the structure of ecosystem and understand the aspects of community ecology
					CO3	To gain knowledge about Phytogeographical regions of the world and India
					CO4	To Know how to conserve the threatened plants in environment.
					CO5	Develop skills of working in the field of biodiversity and report writing
7	VI	VII		Plant tissue culture and its	CO1	To know about various methods in tissue culture and develop the ability to prepare artificial nutrient media independently
					CO2	Learn to apply various procedures of Bio - technology

				biotechnological applications	CO3	To understand the importance of molecular biology
					CO4	To gain knowledge about gene transfer methods and markers

					CO5	Gain knowloedge of growth patterns, vegetative characteristics of some GM crops and applications of bio technology
8	VI	VIII -A		ETHNOBOTANY AND MEDICINAL BOTANY	CO1	To know the culture and ethnology of ethnic communities and history of Various Methods in ancient Medicines
					CO2	Students can identify various plant parts used as medicines by ethnic groups,
					CO3	To understand the role of spices in Indian kitchens, their therapeutic role
					CO4	To know the uses of surrounding medicinal plants and Conservation of endangered and endemic medicinal plants:
					CO5	Gain knowledge of role of people in conservation of plant genetic resources,
9	VI	VIII -B		Pharmacognosy and Phytochemistry	CO1	To understand the isolation techniques of active principles from various parts of popular medicinal plants,
					CO2	To know the organoleptic and microscopic studies with reference to nature of active principles medicinal plants
					CO3	To learn techniques for secondary metabolite enrichment and understanding ethnopharmacological principles
					CO4	To learn biosynthesis and sources of drugs :
					CO5	Understand the efficiency of Enzymes, proteins and amino acids as drugs
10	VI	VIII -C		Project Work	CO1	Skill in operating laboratory equipment, their upkeep, and adept at various biological techniques.
					CO2	Develop Ability to prepare solutions and prepare different dilutions.
					CO3	Interpreting scientific results, and ability to present results in a scientific way through graphs, photographs, poster presentations
					CO4	Develop ICT skills and Power point presentations.
					CO5	Develop the art of scientific writing and presentation of scientific matter.Scientific writing and ethics.Writing references

Zoology						
	I	I	Zoo113	Animal diversity of Invertebrates	CO1	To enable the students understand the knowledge of different areas of Invertebrates.
					CO2	To understand the life cycles and mode of reproduction in different invertebrates
					CO3	To understand the systemic and functional morphology of various groups of Invertebrates.
					CO4	To study the economic importance, affinities and adaptations of invertebrates
	II	II	Zoo114	Animal diversity of chordates	CO1	To instill knowledge about various groups of chordates
					CO2	To acquire knowledge on the life cycles and mode of reproduction in different vertebrates
					CO3	To understand the systemic and functional morphology of various groups of chordates,
					CO4	To study their economic importance, affinities and adaptations
	III	III	Zoo116	Cytology, Genetics & Evolution	CO1	To learn the different types of cells
					CO2	To be able to identify the cell organelles and list out the cell organelles
					CO3	To know Mendals' laws and inter-relationship between organisms in population and communities
					CO4	To understand the concept of major evolutionary innovations in animal groups and functional significance of associated morphologies and behaviors.
	IV	IV	Zoo112	Embryology, Physiology, ecology, zoogeography	CO1	To study the aspects of digestion, respiration and other phyiological activities in mammals
					CO2	To learn the relationship among organisms in population and communities

					CO3	To study the population dynamics and population control and the importance of environment friendly practices.
					CO4	To study the concepts of zoogeography and, zoogeographical importance of Indian subcontinent.
	V	V	Zoo105	Animal Biotechnology	CO1	To study the concepts of animal biotechnology including recombinant DNA technology, enzymes and vectors
					CO2	To understand PCR, Cloning, Breeding, polyclones ,DNA sequencing, Hybridization techniques
					CO3	To understand the recent techniques of line Stem cell culture, cell hybridoma and its applications
					CO4	To understand the recent advances in animals and plants reproduction technology
	V	VI	Zoo106	Animal Husbandry	CO1	To learn dairy technology and various species of cattles available in India
					CO2	To learn about types and production of milk in cattles and buffallows
					CO3	To learn about different types of diseases caused by microorganisms and their preventive measures
					CO4	To learn about breeding techniques involved in the production of new varieties and methods involved in care management of cattles
	VI	VII	Zoo118	Elective VII-B Cellular metabolism & Molecular biology	CO1	To learn about Synthesis of Biomolecules
					CO2	To learn about Production of Energy
					CO3	To understand the Cell cycle
					CO4	To understand the Importance of Molecular biology in present scenario
	VI	VIII	Zoo119	Cluster B-1 – Principles of Aquaculture	CO1,2,	To understand the skills required in aquaculture and the aquaculture systems
					CO3,4	To know the principles of fishery management, aquaculture and fish biology in aquaculture industry in India and across the world
	VI	VIII	Zoo120	B-2 Aquaculture management	CO1,2,	To improve scientific, technical and vocational skills in the areas of e fisheries industry & aquaculture management

					CO3,4	To improve practical skills such as fish surveying, fish husbandry, identification and treatment of diseases and prevention methods
	VI	VIII	Zoo121	B-3 Post harvest technology	CO1	To learn about handling and principles of fish preservation
					CO2	To increase the knowledge about processing of fish products
					CO3	To understand the significance of sanitation and Quality control
					CO4	To promote familiarity on Quality assurance and management and certification

V V S Kumar

PRINCIPAL
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KURNOOL 518 002

COURSE OUTCOMES 2018-2019						
S.No	**Semester**	**Paper**	**Course Code**	**Course Name**	**CO Number**	**Course Outcome**
Mathematics						
1	I	I	111-MAT	Differential Equations	CO1	Student will be able to : Understand how to find the integrating factors for various types of linear equations
					CO2	to apply different methods for solving DEs of first order but not of first degree .
					CO3	To find the solution of higher-order linear differential equations with constant coefficients and various techniques i.e. Solution of f(D)y=0General Solution of f(D)y=Q when Q is a function of x. is Expressed as partial fractions.P.I. of f(D)y = Q , Q is b sin ax or b cos ax
					CO4	Solution of the non-homogeneous linear differential equations with constant coefficients. ,Method of variation of parameters;
					CO5	To make diffrentiate the Ordinary and Partial Differential equations- ..Lagrange's equations-Type I and II .
2	II	II	212-MAT	Solid Geometry	CO1	To understand the equation of planes and various types and Length of the perpendicular from a given point to a given plane, Bisectors of angles between two planes, Combined equation of two planes, Orthogonal projection on a plane
					CO2	To find the equation of a line; Angle between a line and a plane; some conditions; The shortest distance between two lines; The length and equations of the line of shortest distance between two straight lines; Length of the perpendicular from a given point to a given line;
					CO3	To definition and equation of the sphere; Plane sections of a sphere; Intersection of two spheres; Equation of a circle; Sphere through a given circle; Intersection of a sphere and a line; Power of a point; Tangent plane; Plane of contact; Polar plane; Pole of a Plane; Conjugate points; Conjugate planes;
					CO4	To Angle of intersection of two spheres; To know the definitions of a cone; vertex; guiding curve; generators; Equation of the cone with a given vertex and guiding curve; Enveloping cone of a sphere and others

					CO5	To undersatnd the Intersection of a line and a quadric cone; Tangent lines and tangent plane at a point; varoius Condition that a plane may touch a cone;Definition of a cylinder; Enveloping cylinder of a sphere; The right circular cylinder; Equation of the right circular cylinder with a given axis and radius.
3	III	III	313-MAT	Abstract Algebra & Real Analysis-I	CO1	To review Algebraic structure – Group definition and elementary properties Finite and Infinite groups – examples – order of a group. Composition tables with examples.
					CO2	To the significance of the notions of cosets, normal subgroups, and factor group, Lagrange's Theorem -Analyze consequences of Lagrange's theorem
					CO3	To know definition of normal subgroup – various normal subgroups– Hamilton group – quotient group – criteria for the existence of a quotient group and related theorems
					CO4	To attain the knowledge of real numbers and sequences-related theorems
					CO5	To attain the knowledge series and various tests to find their convergence
4	IV	IV	414-MAT	Abstract Algebra & Real Analysis-II	CO1	To know about the structure preserving maps between groups and their consequences - homomorphisms-fundamental theorem on Homomorphism and applications
					CO2	Definition of permutation groups and Cyclic Groups and properties – Cayley's theorem.
					CO3	Understanding the concepts of Limits and types Continuous functions
					CO4	To know the calculus tools- differntiation - related theorems
					CO5	To knw the another tool like Riemann Integral, Fundamental theorem of integral calculus, integral as the limit of a sum, Mean value Theorems.
5	V	V	515-MAT	Ring Theory and Vector Calculus (Commaon Paper Core))	CO1	To attain knowledge in Rings, Sub rings, Ideals
					CO2	Further learning of homomorphisms and polynomial rings
					CO3	To learnVector differential operators and related topics
					CO4	To understand line, surface and volume integrals
					CO5	To know the theorems of Gauss and Stokes, Green's and applications

6	V	VI	516-MAT	Linear Algebra (Commaon Paper Core)	CO1	To understand real vector spaces, subspaces, , Algebra of subspaces, Linear Sum of two subspaces, linear combination of Vectors basis, dimension and their properties.
					CO2	To know basis of Vector space, Finite dimensional Vector spaces, basis extension, co-ordinates, Dimension of a Vector space, , subspace, Quotient space and Dimension of Quotientspace
					CO3	To Linear transformations-,Rank and Nullity- Rank Nullity Theorem
					CO4	To recognize consistent and inconsistent systems of linear equations by the row echelon form of the augmented matrix, using rank. Cayley – Hamilton Theorem.
					CO5	Inner product spaces, Orthogonality, Orthonormal set, complete orthonormal set, Gram – Schmidt orthogonalisation process. Bessel's inequality and Parseval's Identity
7	V	VII	617-MAT	Cluster Elective-VI (A)- Laplace Transform	CO1	To know about piecewise continuous functions, Dirac delta function, Laplace transforms and its properties.
					CO2	To know Shifting Theorems, Laplace Transform of the derivative of f(t), Initial Value theorem and Final Value theorem.
					CO3	To know Laplace transforms of Bessel' functions, error function sine and cosine integrals
					CO4	to learn the process of Inverse Laplace Transform. -related theorems- use of partial fractions, Examples
					CO5	To understand the convolution Theorem – proof and Applications – Heaviside's Expansion theorem and its Applications.
8	VI	VIII(A)-1	618-MAT-A1	Integral Transforms-Paper VIII(A)-1 (Cluster elective)	CO1	To know about piecewise continuous functions, Dirac delta function, Laplace transforms and its properties.Understanding how to apply LTto DE's
					CO2	Solution of simultaneous ordinary Differential Equations.Solutions of partial Differential Equations
					CO3	Equations-Abel's, Integral Equation-Integral Equation of Convolution Type, Integral Differential Equations. Application of L.T. to Integral Equations.
					CO4	To familiarize with Fourier transforms of functions belonging to between Laplace and Fourier transforms.Class-relation

					CO5	To know Finite Fourier tranforms and its techniques
9	VI	VIII(A)-2	618-MAT-A2	Advanced Numerical Analysis- Paper - VIII(A)-2 (Cluster elective)	CO1	To know what is Curve fitting and its applications
					CO2	To know Newton's forwardand backward difference formula, Central difference formula, Stirling's interpolation formula, divided difference formula.
					CO3	To know Numerical Integration- Euler transformation.
					CO4	Learning the Solutions of simultaneous Linear Systems of Equations: Method of factorization, Solution of Tridiagonal Systems,. Iterative methods. Jacobi's method, Gauss-siedal method
					CO5	To find numerical solution of first order ordinary differential equations: by Taylor's Series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge – Kutta methods
10	VI	VIII(A)-3	618-MAT-A3	Cluster Elective - Paper - VIII(A)-3: Project Work- (Integral Transforms and Advanced Numerical Analysis)	CO1	To know to the methods to initiate any project
					CO2	Group wise selecting some theme and anylize method to form project
					CO3	Tis project work involving applications of theory to assimilate basic concepts of mathematics.
					CO4	To solve complex problems by identifying feasible divisions into simpler sub-problems;
					CO5	Learning skills for final submssion of project work and analyzing the results in group manner and presenting the same in viva voce

PHYSICS						
1	I	I	111-PHY	Mechanics and properties of matter	CO1	Acquire Knowledge about the scal and vector fields. Gradient of a scalar field, Divergence and curl of vector field, different types of integrals stokes and Guss theorem
					CO2	Understand the variable mass and motion of the rocket, collisions in two and three dimensions, solve the problems on Rutherford scattering

					CO3	Provide a theoretical basis for doing experiments in compound pendulum and torsional pendulum,understand the mechanics of Rigid bodies. Describe elastic nature of the materials, types of beams,loads, supports and bending moment
					CO4	Gain knowledge on Central forces and its conservative nature, Kepler's laws and their verification useful to understand the motion of the planets
					CO5	Students will get knowledge on Galilean and Lorentz transformations, Michelson-Morley experiment, Postulates of special theory of relativity and applications
2	II	II	212-PHY	Waves and Oscillations	CO1	Learn about physical properties of Simple Harmonic Motion (SHM), Combination of two mutually perpendicular S.H.M, Lissajous figures.
					CO2	Describe equation and solution of damped harmonic and Forced oscillators, Energy and Power dissipation ,concept of resonance.students can analyse different types of complex vibrations using Fourier's theorem
					CO3	Can derive the General Solution of Longitudinal vibrations in , Derive the equation for the frequency of Longitudinal Vibrations in a bar in different cases, working principle of Tuning fork
					CO4	Develope Clear understanding about the different cases of modes of vibrations of stretched string, harmonics, overtones and mechanical impedance, Power dissipation.
					CO5	Get the knowledge about the properties, production ,detection and applications of Ultrasonics
3	III	III	313-PHY	wave optics	CO1	Caluculation of image formed by optical systems and the defects involved.
					CO2	Understanding the wave nature of light through the phenomenon of interference and diffraction
					CO3	Confirmation of transverse nature of light through phenomenon of polarisation.Appilications of polarization in different fields.
					CO4	Gain Fundamental knowledge in lasers, holography.
					CO5	Use of Optical fiber communication in information and technology

4	IV	IV	414-PHY	Thermodynamics and Radiation physics	CO1	Learning and analysis of various thermodynamic process and calculation of work done in each of these process
					CO2	Understanding the reversible and irreversible process, working of a Carnot engine, and knowledge of calculating change in entropy for various process.
					CO3	Realize the importance of potential(energy) functions to describe thermodynamical systems and applications of Maxwell's relations.
					CO4	Use of experimental tools to produce low temperatures and their application in superconductivity
					CO5	Understanding the thermal radiation-Black body and its theoritical explanation by Quantum mechanics.
5	V	V	515-PHY	Electricity,Magnetism and Electronics	CO1	Understanding the fundamental law of nature-Coulombs law and Principle of superposition.Calculation of Electric field and Potentials.Appilications and Importance of Gauss law.Energy storage in Capacitors.
					CO2	Calculate the magnitude and direction of the magnetic field due to a current distributions using the Biot-Savart law and Ampere's Law for symmetric current distributions.
					CO3	Describe and analyze electromagnetic wave propagation in free-space from Maxwell equations.Calculation of EM energy and mentum carried by a wave.
					CO4	Acquire knowledge and applications of Diode and Transistors.
					CO5	know about various number systems and their applications.Logic gates and their importance in information technology.
6	V	VI	516-PHY	Modern Physics	CO1	Gain Fundamental knowledge in various atomic models in understanding Hydrogen spectrum.For multi electron systems-Vector atom model and L-S, J-J coupling schmes.
					CO2	Realize the importance of Raman effect,Zeeman effect and stark effect and their appilications in understanding various molecular phenomenon.
					CO3	Understand the basic postulates of quantum physics.Ability to construct and apply Schrodinger wave equation for free particle

						in a box.Also to understand free and bound states as well as to analyze and interpret the results
					CO4	Expected to gain knowledge of crystal structure.X-ray diffraction and superconductivity,its underlying principles and its applications in modern world .
					CO5	Acquire knowledge and deep understanding of Radio activity,nuclear Fission and Nuclear Fusion,the relevance of nuclear transformation.
7	VI	VII	617-PHY	Renewable energy	CO1	Recollects the knowledge on basic ideas about energy aspects.
					CO2	Awareness on environmental degradation due to production and utilization.
					CO3	Perception on solor energy and utilization
					CO4	Gains Knowlede on utilization of ocean,tidal and wave energy.
					CO5	Awareness on resources of energies from hydrogen and bio mass.
8	VI	VIII -A	618-PHY-A1	Solar Thermal and Photovoltaic aspects	CO1	Basic idea of structure of sun,solar irradiance and solar radiation.
					CO2	Different laws related to solar irradiance.Various parameters related to solar irradiance and its measurment.
					CO3	Knowledge of Flat Plate Collector and receving efficiency.
					CO4	Understanding of construction and working of PVC and its types.
					CO5	Applications of solar cells in Demostic and industrial appliances.
9	VI	VIII -B	618-PHY-A2	Wind,Hydro and Oceaan energies	CO1	Knowledge on basic principles of wind enery.
					CO2	Understanding of wind measurment tecgniques-types of animo meter.
					CO3	Applications of wind energy in different fields.
					CO4	Knowledge on conversion of ocean energy into electrical energy.
					CO5	Basic ideas on tidal energy,modes of operation of different tidal systems.Advantages and Disadvantages of tidal energy.
10	VI	VIII -C	618-PHY-A3	Energy storage devices	CO1	Acquire the basic knowledge on Need of energy storage systems, different modes of energy storage systems and their applications.
					CO2	Describe the construction and working principle of different Batteries and Carbon nanotubes.

					CO3	Explain the construction, principle, applications, advantages and disadvantages of Electromagnetic energy storage systems
					CO4	Understand the components, construction, principle,advantages, disadvantages and applications of Fuel Cells
					CO5	Gain the knowledge on the construction and working of different types of fuel cells and their applications

CHEMISTRY						
1	I	I	111-CHE	Inorganic and Physical Chemistry	CO1	Gain the knowledge of synthesis and applications of various compounds like Borazine, Diborane, Boron nitride, silicones and interhalogen compounds.
					CO2	One can understand the classification, synthesis and application of Organometallic compounds in synthetic organic chemistry especially in carbon-carbon bond (C-C) bond formation reactions.
					CO3	Able to differentiate both the crystalline and amorphous solids. Claasify the crystal systems based on the arrangement of particles (atoms) in a cube. Can study the diffraction pattern of X-rays also gain the knowledge of semiconductors and its applications.
					CO4	Able to define the ideal and real gases by using ideal gas equation, derive the gas equation at different conditions like low, high pressure and volume. Understand the Andrews isotherms of CO2 gas. Able to derive the vander waals gas equation for real gases by using ideal gas equation also can derive the relationship between Vander-Waals gas constants and critical constants.
					CO5	Can understand the importance of liquid crystals, Able to define the ideal and non ideal solutions, can classify the solutions wrt critical solution temperature eg.phenol-water, acetone-ater and ethanol-water systems.
2	II	II	212-CHE	Organic and General Chemistry	CO1	Able to understand the fundamentals in organic chemistry like types of reagents, intermediates and reactions encountered in synthetic organic chemistry.
					CO2	Gained the knowlwgwde of synthesis and applications of acyclic and alicyclic compounds.

					CO3	Can understand the concept of resonance, resonance energy and resonance hybrid wrt benzene. Also understand the various electrophilic substitution reactions of aromatic compounds.
					CO4	Able to define the colloids, gels and emulsions. Also gain the knowledge of physical and chemical adsorptions. Can apply the Valence Bond theory and Molecular Orbital theory to simple homo and hetero nuclear di atomic molecules.
					CO5	Gained the knowledge of representing organic molecules like wedge, Fischer, Newmann and Sawhorse formulae. Also understand the concept of chirality, stereoisomerism and optical activity. Can apply the CIP rules in the D,L and R,S nomenclature of organic compounds.
3	III	III	313-CHE	Inorganic and Physical Chemistry	CO1	Can understand the characteristics of d- and f-block elements like electronic configuratioin, oxidation states, magnetic properties, catalytic properties and ability to form complexes with various ligands.
					CO2	Can understand the theories of bonding in metals. Able to distinguish and apply the knowlwdge of the conductors, semiconductors and insulators using Band theory. Able to apply the EAN rule to the various metal carbonyls.
					CO3	Able to define and derive the Raoults law euqtion, also apply for the calculation of terms involved in the formula. Can able to intereralte all the colligative properties such as Lowering of vapour pressure, elevation in boiling point, depression in freezing point and the Osomotic pressure.
					CO4	Able to understand and calculate the conductivity values and determine the conductivities of the different samples of solutions.
					CO5	Can apply the knowledge of phase rule to various systems in industries.
4	IV	IV	414-CHE		CO1	Able to understand the terminology in spectroscopy. Also can draw the block diagrams of single and double beam spectrophotometers.
					CO2	Can determine the structure of unknown organic compound using electronic, vibrational and NMR spectroscopy.
					CO3	Able to assign the nomenclature and classification of organic compounds.
				Spectroscopy and Organic Chemistry	CO4	Able to synthesize various organic compounds such a s Hydroxy, Carbonyl and Carboxylic acids.

					CO5	Can apply the synthetic procedures for the preparation of various organic compounds in many pharamaceutical industries.
5	V	V	515-CHE	Inorganic, Physical and Organic Chemistry	CO1	Acquire the knowledge of Werners theory, Sidgwick theory, VBT and CFT for different geometrical Co-ordination compounds..
					CO2	Able to identify and calculate the magnetic moment of several metal complexes. Can distinguish the concept of thermodynamic and kinetic stability.
					CO3	Can apply the knowledge to synthesize various N-Compounds.
					CO4	Can derive the temperature dependence of enthalpy of formation of Kirchoff's equation and Carnots theorem.
					CO5	Able to identify the spontnity of chemical reactions by using various thermodynamic paramaeters such as Internal energy, Enthalpy, Gibbs free energy and Entropy.
6	V	VI	516-CHE	Inorganic, Physical and Organic Chemistry	CO1	Can understand the substitution reactions in metal complexes. Acquire the knowledge of biological significance of essential elements.
					CO2	Can able to derive and determine the various order of reactions.
					CO3	Able to understand and calculate the efficiency of the photochemical reactions.
					CO4	Can acquire the knowledge of synthesis and applications of heterocyclic compounds such as pyrrole, furan, thiophene and pyridine.
					CO5	Can able to determine the structure of monosaccharides and interconversions encountered in carbohydrates. Gain the knowledge of synthesis and applications of aminoacids.
7	VI	VII	617-CHE	Environmental Chemistry	CO1	Able to distinguish the renewable and non-renewable energy sources.
					CO2	Able to suggest the methods of reduction for the air and soil pollution.
					CO3	Acquire the knowledge of softening of water.
					CO4	Understand the toxic effects of Hg, Pb, As and Cd.
					CO5	Able to understand the mechanism of bio-geo-chemical cycles.
8	VI	VIII -A1	618-CHE-A1	Polymer Chemistry	CO1	Able to understand the basic knowlwdge regarding polymers.
					CO2	Can apply the number and weight average molecular weight determination methods to different polymers.
					CO3	Able to understand the concept of glass transition temperature.
					CO4	Gain the knowlwdge and usage of plastic additives such as fillers, Plasticizers, softmners and Lubricants.

					CO5	Can explain the applications of various polymers such as PE, PVC, Teflon, PAN, Terelene, Nylon 6,6 and silicones in industries.
9	VI	VIII -A2	618-CHE-A2	Instrumental Methods of Analysis	CO1	Recall and remembering the various analytical methods.
					CO2	Able to understand the various components present in the IR, FTIR, UV-Visible and NMR spectrophotyometers.
					CO3	Can determine the structure of unknown organic compounds.
					CO4	Can understand and impliment the various chromatographic techniques.
					CO5	Able to understand the elemental analysis, atomic absorption , atomic emission and X-ray spectroscopic techniques.
10	VI	VIII -A3	618-CHE-A3	Analysis of Drugs, Foods, Dairy Products and Biochemical analysis	CO1	Gain the knowledge of structure and medicinal activity of antipyretics, antianalgesic, antimalarial and antituberculosis.
					CO2	Gain the knowledge of structure and medicinal activity of antihistamine and sedative drugs sucha as citrizine, alprazolam, lorazepem, zolpidem.
					CO3	Gain the knowledge of structure and medicinal activity of anti epileptic, anti convulsant drugs and anti cardiovascular drugs.
					CO4	Able to analyse the milk and milk products in daily life.
					CO5	Able to estimate the blood cholesterol, RBC and WBC.

Computer Science						
1	I	I		Computer Fundamentals and Photoshop	CO1	To understand the working of a computer, data representation in various number systems.
					CO2	To demonstrate the basic parts of a computer and basics of windows operating system
					CO3	To demonstrate the process of image editing using Photoshop.
					CO4	To construct artistic images, image backgrounds,colour manipulations using Photoshop tool box.
					CO5	To construct presentations and adds using layer styles, opacity layers and various filters.
2	II	II		Programming in C	CO1	To describe the basic terminology used in computer programming.To explain the different data types in a computer program.
					CO2	To design programs involving decision structures, loops and using recursive and non recursive functions with call by value and call by reference mechanisms..
					CO3	To construct C programs using multidimensional arrays and strings.
					CO4	To apply the dynamics of memory by the use of pointers.

					CO5	To use different data structures and functions for creating , modifying text files and binary files.
3	III	III		Object Oriented Programming using java	CO1	To demonstrate the concept and underlying principles of OOP.
					CO2	To illustrate simple java primitives and problem solving using OOP concept.
					CO3	To implement java programs using runtime polymorphism, multiple inheritance using interfaces
					CO4	To Analyze the behaviour of Threads and to manage the errors and exceptions
					CO5	To create java applications using applets and packages and I/O streams
4	IV	IV		Data structures	CO1	To demonstrate the concept of Abstract data type , data structures and taxonomy of data structures
					CO2	To use data structures stacks, queues and variants of queues in the construction of linear data structures
					CO3	To demonstrate the construction of binary trees and their operations
					CO4	To construct the grpahs and minimal spanning trees.
					CO5	To implement searching and sorting of elements in a data structure.
5	V	V		Database Management Systems	CO1	To demonstrate the advantages , limitations of database management system and Concept of data model
					CO2	To construct concpetual data model(E-R Model) of a database for any organization.
					CO3	To discuss about relational datamodel, design of relational algebra and relational calculus queries
					CO4	To demonstrate the SQL sub languages and to implement SQL queries for various real world transactions using different SQL constructs.
					CO5	To implement stored procedures and construct active databases
6	V	VI		Software Engineering	CO1	To acquire the knowledge of basic software engineering methods, processes and their appropriate applications.
					CO2	To apply requirements gathering methods to create a SRS document for a defined problem.
					CO3	To discuss about software architecture and effective modular using by incorporating coupling and cohesion
					CO4	To demonstrate and design effective user interfaces
					CO5	To demonstrate software quality metrics and software reliability using various testing methods and standards.
7	VI	VII		Web Technologies	CO1	To create web pages using XHTML and Cascading style sheets
					CO2	To build dynamic web pages using dynamic HTML
					CO3	To create dynamic web applications through XML

					CO4	To create web applications through Ruby
					CO5	To develop Java server faces web applications and to demonstrate webservices.
8	VI	VIII -A		Distributed Systems	CO1	To demonstrate the models for distributed systems.
					CO2	To discuss about the implementation of Remote Procedure Call(RPC)
					CO3	To understand the design and implementation Distributed shared memory system.
					CO4	To describe the load balancing approach and load sharing approach in distributed systems
					CO5	To describe file sharing and authentication, access control of data files in a distributed environment
9	VI	VIII -B		Cloud computing	CO1	To compare the strengths and limitations of cloud computing
					CO2	To identify the core issues of cloud computing such as security, privacy and interoperability
					CO3	To Identify the architecture, infrastructure and delivery models of cloud computing
					CO4	To understand public and private clouds and to disinguish infrastructure as a service(Iaac) clouds.
					CO5	To apply suitable virtualization concept in cloud computing
10	VI	VIII -C		Grid computing	CO1	To understand the genesis of grid computing
					CO2	To describe grid monitoring systems and service level agreements.
					CO3	To learn the technology and tool kits for facilitating grid computing
					CO4	To understand the data management challenges and collective datamanagement services in grid computing
					CO5	To understand the list of globally available middleware for grid computing

Web Technology						
1	I	I		Fundamentals of computers, web, Internet & Python programming	CO1	To understand the working of a computer
					CO2	To demonstrate disk operating system, windows operating system commands
					CO3	To create MS word documents by applying various styles
					CO4	To use python language constructs such as control structures, functions,lists.tuples,dictionaries, arrays, string for implementing programs in python

					CO5	To use various python modules and packages to develop programs in python language
2	II	II		HTML,CSS, Java Script	CO1	To implement web pages using HTML, CSS
					CO2	To design a responsive web pages using HTML forms and by incorporating audio, video plugins
					CO3	To apply styles for webpages using CSS forms and to demonstrate CSS3
					CO4	To understand the dynamic html and use of java script in html pages
					CO5	To implement client side validation using java script
3	III	III		Graphic Designing	CO1	To identify and specify file formats and image resolution for print and web.
					CO2	To use image sharpening techniques.
					CO3	To apply layers and filters in image editing
					CO4	To demonstrate GUI of illustrator and transforming and moving of objects
					CO5	To create a story board using animation
4	IV	IV		PHP & MySql, Wordpress	CO1	To demonstrate installation of PHP and Apache web server, MySQL on Windows and Linux platforms.
					CO2	To write PHP Script with functions and Arrays.
					CO3	To create forms and access the input from forms using Super Globals
					CO4	To construct PHP and MySQL database connectivity for data retrieval and manipulation through webpages.
					CO5	To create customized Wordpress website
5	V	V		Advanced Java Script JQUERY/AJAX/JSON/Angular JS	CO1	To understand basics of jQuery, jQuery attributes and DOM methods
					CO2	To implement Event handling in jQuery
					CO3	To customize jQuery UI widgets
					CO4	To understand the need of Ajax in real websites
					CO5	To understand the design of single-page applications and how AngularJS facilitates their development.
6	V	VI			CO1	To understand objectives and functions of operating system

				Mobile Application Development	CO2	To understand the installation and running of applications on Eclipse platform.
					CO3	To demonstrate best practices in android programming
					CO4	To construct user interfaces using android programming
					CO5	To describe intents and broadcasts, launching activities in mobile applications
7	VI	VII		OOP Using Java	CO1	To implement Object Oriented programming concepts using basic syntaxes of controls Structures, strings and function for developing skills of logic building activity.
					CO2	To identify classes, objects, members of a class and the relationships among them needed for a finding the solution to specific problem
					CO3	To demonstrates how to achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.
					CO4	To demonstrate understanding and use of different exception handling mechanisms and concept of multithreading for robust faster and efficient application development
					CO5	To Identify and describe common abstract user interface components to design GUI in Java using Applet & AWT along with response to events
8	VI	VIII -A		Java Servlets	CO1	To understand Servlet life cycle and Java servlet API
					CO2	To deploy the Servlet application using a web server.
					CO3	To implement ServletRequest Interface and handle Servlet initialization
					CO4	To implement HttpServletRequest and HttpServletResponse interfaces and to deomonstrate managing of sessions and cookies.
					CO5	To construct Web.Xml file and implement the communication between application, applet to servlet.
9	VI	VIII -B		JSP(Java Server Pages)	CO1	To demonstrate the JSP lifecycle, JSP tags.
					CO2	To demonstrate working of Java Beans and Action tags in JSP

					CO3	To use JSP exception handling in the development of JSP programming
					CO4	To understand JSP Expression language
					CO5	To work with JSP standard tag library to create effective web applications
10	VI	VIII -C		JDBC(Java Database Connectivity)	CO1	To understand various JDBC drivers and their API.
					CO2	To describe JDBC statements and work with Resultset and meta data
					CO3	To use Advanced JDBC Concepts in database connectivity
					CO4	To construct Transactions that use SQL/XML support for retrieving auto generated keys
					CO5	To discuss ACID properties of database transactions and to demonstrate wrapper interfaces

COMMERCE						
1	I	I	141-F.A	Fundamentals of Accounting- I	CO1	The students will get conceptual understanding of fundamentals of financial accounting system and will be imparted with skills in accounting for various kinds of business transactions.
					CO2	The students will understand the rules in preparing the subsidiary Books like cash book and other books
					CO3	The students will gain knowledge in the preparation of Bank Reconciliation statement for monthly or as and when requires. They can also find the errors and can also rectify them.
					CO4	They can also gain knowledge in Depreciation methods of Accounting
					CO5	They can also know the procedure for the preparation of final statements of the business organizations
2	I	I	142-B.O	Business Organization	CO1	The students will gain knowledge in the nature and scope of business organization, concepts and functions of Business
					CO2	They can acquire the knowledge in the forms of Business Organizations and procedure of establishment of Business organizations

					CO3	They can get awareness about different forms Companies and can prepare the documents required before and after the formation of Companies.
					CO4	They can understand the importance of Entrepreneurship .
					CO5	The students will understand the quilities of an Entrepreneur.
3	I	I	143-B.E	Business Economics - I	CO1	Students will be able to know the nature and scope of the Business Economics .
					CO2	Students will be acquainted with the demand and supply analysis .
					CO3	Students will be able to know the Production analysis and returns to scale of production
					CO4	Students will understand the production costs .
					CO5	The students will gain knowledge in Break even analysis.
4	I	I	143-F.C.P	Computer Fundamentals and photoshop	CO1	The students can understand the concept of input and output devices of Computers and how it works and understand the concepts, structure, types and design of operating Systems.
					CO2	The can understand the concept of input and output devices of Computers in detail.
					CO3	The students can get knowledge in Adobe Photoshop.
					CO4	The students will get an awareness about the images and Layers working with Tool Box.
					CO5	The Students know how to apply filters and lighting effects and different types of filters applying the images.
5	II	II	244- F.A	Fundamentals of Accounting- II	CO1	The students will understand concept ,meaning and defination and causes of depreciation and methods of recording depreciation
					CO2	The students can distinguish between provision and reserve and preparation of bad debts of A/c ,provision for doubtful debts A/c ,provision for discount on Debtors and reserve for discount on creditors
					CO3	The students will understand the need for negotiable instruments and procedure of Accounting for bills honoured and dishonoured.
					CO4	The students can understand need and meaning of consignment, distingish between a consignment and a sale, types of commission,accounting treatment in the books of consignor and consignee.

					CO5	The students can understand the meaning of joint venture, dstinguish between joint venture and consinment and methods of recording joint venture transaction.
6	II	II	245-P.M	Principles of management	CO1	The students will get knowledge about evolution of management thoughts and Principles of Management
					CO2	They can get better understanding of planning and decision making process.
					CO3	They can get an idea about organization structure, different types of organizations
					CO4	They will be familiarized with recruitment and selection process and stages in selection and also know about the effective guidelines of delegation of Authority
					CO5	They will also know the effective guidelines of delegation of Authority.
7	II	II	246-B.E	Business Economics - II	CO1	The students get knowledge in Cobb-Douglas Production function
					CO2	They will also get knowledge regaurding market structure and types of markets.
					CO3	They will get knowledge regurding Trade Cycles
					CO4	They will understand the concept of National income and its Measurements
					CO5	They will also understand Economics systems and Structural Reforms.
8	II	II	246-C	Programming in C	CO1	Students can understand how to create algorithm and flow charts
					CO2	**The students will understand how to create a program using control statements and how to execute a program.**
					CO3	Students will know functions and types of functions
					CO4	The students will gain knowledge in an Array and also know types of arrays and example programs.
					CO5	The students will understand the pointer and use of address variables to store the data in to the memory.
9	III	III	347-C.A	Corporate Accounting	CO1	The students will get awareness about the conceptual aspect of corporate accounting and Company final Accounts.
					CO2	The students will understand the issue of shares and redemption of shares in the Corporate Sector.
					CO3	They will understand the issue of debentures to the public.

					CO4	They will understand the valuation of Goodwill
					CO5	The students will get the knowledge in the Draft Final Accounts of companies according to section 128 of the companies Act,2013
10	III	III	348-B.T.P	Banking theory and Practice	CO1	The Students will be acquainted with the fundamentals of banking and functions of Banks.
					CO2	Students will acquire knowledge in respect of Online services like ATMs – RTGS .
					CO3	The studentswill acquire knowledge with regard to Development Banking like- SIDBI-NABARD-EXIM Bank
					CO4	The students will be enlightened regarding the General and Special relationship between the Customer and Banker.
					CO5	The students will understand the duties and responsibilities of Collecting and Paying Banker.
11	III	III	349-B.S	Business Statistics	CO1	The students will understand the Importance of Statistics in the Business Organizations
					CO2	The students will understand that how to show the business data in a Graphic presentation using Computer
					CO3	The students will understand usage of the methods of Central tendency in the business requirements
					CO4	They will also know about the measures of Dispersion and Skewness
					CO5	The Students will know the types of measures of co-relation and regression its helps to students to analyses & calculate in future research work.
12	III	IV	4410-B.L	Business Laws	CO1	The students will understand Indian companies Act and Indian Contract Act.
					CO2	The students will know about essentials of Offer and Acceptance
					CO3	The students will also understand the concept of capacity of parties like Minor .
					CO4	They will be enable to know the Sale of Goods Act and the Information & Technology Act, 2000.
					CO5	Students will easily understand the information technology act 2000.

13	III	IV	4411-I.T	INCOME TAX	CO1	The students will acquire knowledge in basic concepts like Assessee,Assessment Year,Previous year.
					CO2	The students will get an awareness on the Residential Status of an Individual,firm,company etc.
					CO3	The students will get knowledge with regard to Income from salaries and can apply the knowledge they gained in practical way.
					CO4	The students will get an awareness with regard to income from House property.
					CO5	The students will get knowledge in Capital gains.
14	III	IV	4412-ASO	Accounting for Service Organizations	CO1	To know the Accounting Procedures in Non-trading Organizations.
					CO2	To understand the accounting system in Electricity Companies.
					CO3	To understand the accounting procedures in Banking Companies
					CO4	To know the types of Insurance Companies and the accounting procedures in Insurance Companies.
					CO5	The students will know the types of Insurance Companies and the accounting procedures in Insurance Companies.
15	IV	IV	4412-OAT	Office automation Tools	CO1	The students will get knowledge features of Ms word. Students can understand How to create a documents and printing a document. Creating aMacro, creating a mail merge.
					CO2	The students will know how to create a Presentation using Ms power point with animation effects.
					CO3	They will Understand how to create a excel sheet, applying formulas and functions, filters etc.,
					CO4	They will also create different types of charts and chart parts and converting charts.
					CO5	The students will understand how to create tables ,forms, query’s and reports in Ms access.
16	IV	IV	403-EPS	Entrepreneurship Education	CO1	The studentswill know about Entrepreneurship development
					CO2	The students will get an awareness on various Entrepreneurship Development Programmes and project formulation
					CO3	The students will be familiarized with the EDP schemes
					CO4	The students will gain knowledge about MSME

					CO5	The students will get knowledge in latest techniques with reguard to EDP.
17	V	V	5413-CG	Commercial Geography	CO1	The students will understand the Geography and the structure of the earth interior system.
					CO2	The students will get knowledge reguarding Agriculture crops and distribution.
					CO3	The students will understand Rivers Drainage system and Interlinking rivers.
					CO4	They also will understand the Mining and Minerals resources in India. Forests and its importance and the role of the forests in the development of Industries.
					CO5	They will get knowledge reguarding the role of Forests and its importance and the role of the forests in the development of Industries.
18	V	V	5414-CA	Cost Accounting	CO1	The students will get knowledge of cost accounting and to provide knowledge about the ascertainment of cost and profitability of each of the products and advise the management to maximize its profits.
					CO2	They will get awareness about Material control and methods of pricing issues
					CO3	They will also know Labour Cost ,Methods of wage payment methods and Overhead distribution
					CO4	Thei will Prepare the process cost accounts, treatment of normal and abnormal process lossess.
					CO5	They will understand various techniques and methods of cost accounting and standard costing using variance analysis.
19	V	V	5415-AUD	Auditing	CO1	They will get knowledge of practical of auditing.
					CO2	Students will understand the audit process from the planning stage to completion of the audit, as well as the rendering of an audit opinion via the various report options.
					CO3	Students will understand auditors‟ legal liabilities, and be able to apply case law in making a judgment whether auditors might be liable to certain parties. Student will explain the internal audit process including the professional standards applicable to the internal audit profession.

					CO4	Students will understand to levels of persuasiveness of different types of audit evidence and explain the broad principles of audit sampling techniques.
					CO5	The student will understand the need for an independent or external audit and describe briefly the development of the role of the assurance provider and will apply professional ethics including Code of Conduct to specific scenarios describe the various.
20	V	V	5416-DBMS	DBMS	CO1	Students can understand about data, information and DBMSand file based systems and data models.
					CO2	students can understand about E-R models, relationships between entities .
					CO3	students can learn SQL and commands. How to create a tables in database.
					CO4	They will also learn about PL/SQL language,how to create a program and execute a program.
					CO5	The students will gain knowledge in functions ,arrays, procedures, packages and triggers.
21	V	V	5417-E-COM	E-Commerce	CO1	The students know about the E-commerce, Importance & Scope of E-commerce. To learn the different types of online business in different ways that is through Business to Business, Business to Consumers, and Consumers to Consumers.
					CO2	The students know the evaluation of the internet,how to use for business and categories of networks, and each business is building their own web sites so customers can easily accesses to their business concerns.
					CO3	The students know about electronic market and how it is performing now a day’s like internet shopping, web advertisements, ordering journals electronically, selling on web, E-commerce for services, travel and tourism and trading stock online.
					CO4	They also know how to get involved in security schemes of Electronic payment systems like credit card system, debit card system, value card systems, E-cash system, electronic fund transfer system.
					CO5	Students acquire skill in E-security, Internet protocol, Digital signatures, secure electronic Transactions and fire walls.

22	V	V	5416-AMP	Advertisement and Media Planning	CO1	The students know the importance of Advertisements, the role of Advertisements on the Indian economy.
					CO2	They also know the Consumer Behavior and Consumer decision making process.
					CO3	They will understand the Creativity Advertising Process and Slogan elements of design and principles of design.
					CO4	They make Media planning and strategies in designing Print Advertisements
					CO5	The students get knowledge in the strategies in designing PrintAdvertisements
23	V	V	5417-BM	Brand Management	CO1	The students will understand the Brand Concepts, significance of brand and loyalty.
					CO2	The students will know about Brand Equity -Cost, Price and Consumer Based methods and brand reinforcement
					CO3	The students will understand brand building and brand positioning.
					CO4	The students will acquire knowledge in Brand Segmentation , Portfolio.
					CO5	The students will know the evaluation of branding in different sectors.
24				Project Work/ Lab : DBMS, E-Commerce		The students will get good practical knowledge.
25	VI	VI	6419-Mar	Marketing	CO1	The students will get knowledge reguarding an idea about marketing and its functions
					CO2	Thei will know about consumer behavior
					CO3	They will familiarize about product and its classifications ,product design, new product, product environment,
					CO4	They can understand pricing and introduce the concept of sales policies promotion
					CO5	The students will aware of on the Promotion Mix and distribution of products and services
26	VI	VI	6420-MA	Management Accounting	CO1	The students will understand about management accounting concepts related to the management functions of planning, control, and decision making and the ability to analysis interpret and use accounting information in managerial decision making.

					CO2	The student is expected to have analysis and interpretation of Accounting Ratios.
					CO3	They know the Funds flow in organization and to prepare and to submit the Funds flow statements to the management.
					CO4	They know the cash flow in organisation and prepare and submit the cash flow statement to the management
					CO5	The students will understand of Marginal Costing which relates the break even Analysis.
27	VI	VI	6421-DM	Direct Marketing	CO1	The Students know the Features and different strategies of Direct Marketing, mailing like SMS-MMS. And New channels of direct marketing.
					CO2	Students have to improve their marketing intelligence and creative process in marketing fields.
					CO3	Students will learn to produce advertisements through magazines, news papers, Radio/TV.
					CO4	In the same way students grasp to produce advertisements through social media and digital marketing like face book, twitter, E-mailing. Mobile Marketing- Integrating media and channels.
					CO5	Students will understand the role of Digital Marketing on the Indian Economy.
28	VI	VI	6422-GST	Goods and service Tax Fundamentals	CO1	The students will understand the GST concepts and the short comings and advantages by introducing the GST.
					CO2	The students will acquire knowledge with regard to the structure of GST .
					CO3	The students will get knowledge inrespect of various models of GST.
					CO4	The studens will get an awareness in respect ofInter-State transactions under IGST.
					CO4	The students will understand theApplication of the Input Tax Credit in respect of GST.
29	VI	VI	6423-SPM	Sales Promotion	CO1	Students will pursue different types of sales organization, Sales executive functions, Sales promotion and control.
					CO2	Students will analyze market potentials, sales potentials and sales forecasting methods.

					CO3	Students attain knowledge to prepare sales budget, sales territories, sales quotas, sales contest-coupons &discounts and free offers to promote marketers goods and services.
					CO4	Students will get to know the sales manager qualities and functions, types of sales man and they know different types of customer's psychology. So they can promote their sales according to customer's will.
					CO5	Students study about the sales force management-recruitment and how the selections were carried on, training, and how they motivate of sales personnel to the consumers.
30	VI	VI	6421-TLY	Tally	CO1	The students know the fundamentals of Tally and the Creation of Accounting in Masters in Tally.ERP 9
					CO2	They know how to create accounting masters in tally.ERP9
					CO3	They know about the software procedure in Inventory Master Creating, Altering, Displaying, Deleting Stock items .
					CO4	They know the Voucher Entry using in Tally software.
					CO5	They will understand the preparation of Reports like Trial Balance, Balance Sheet, Profit & Loss A/c, Cash Book, Bank Book - Inventory Books and Registers - Practice Exercises.
31	VI	VI	6423-WT	Web Technology	CO1	The students will understand the how to create a web pages using HTML different types of tags and execution of webpages.
					CO2	They will understand XML and advantages of XML.
					CO3	They also understand the Cascading Style Sheets like Introduction, using Styles, simple examples, your own styles
					CO4	They will understand the concept of JavaScript.
					CO5	They will understand Objects in JavaScript.
32	VI	VI		Project Work : Direct Marketing, Sales Promotion	CO1	The students will get good practical knowledge in preparing project report
					CO2	
					CO3	
					CO4	
					CO5	
33	VI	VI			CO1	The students will get good practical knowledge in preparing project report

				Project Work /Lab: Web technology, TallyPromotion	CO2 CO3 CO4	

Political Science						
1	I	I	131-POL	Basic Concepts of Political Science	CO1	Acquiring the knowledge about Political science.
					CO2	Getting awareness about approaches to the study of politics.
					CO3	Getting information about origin and evolution of the modern state.
					CO4	Knowing about the rights and citizenship.
					CO5	To understand the freedom, equality and justice.
2	II	II	232-POL	Political Institutions (Concepts, Theories and Institutions)	CO1	To understand the concept of state, nation and civil society.
					CO2	To analyze the meaning of organs of government and theory of separation of power.
					CO3	To know about the meaning sovereignty, types and characteristics.
					CO4	To understand the forms of government in various countries and their working pattern
					CO5	To compare with procedure of various social institutions and government institutions.
3	III	III	333-POL	Indian Constituion	CO1	To understand the meaning, nature, and significance of the Indian Constitution.
					CO2	To understand the meaning, nature, and significance of the Indian Constitution.
					CO3	To provide insights into the philosophy of the Indian Constitution.
					CO4	To throw light on the making of the Constitution.

					CO5	To identify the sources that had inspired the framers of the Constitution to improvise and incorporate these into our Constitution.
4	IV	IV	434-POL	Indian Political Process	CO1	To acquire knowledge about caste system and communities in India.
					CO2	To understand the theory of modernization.
					CO3	To elucidate the role of state towards religion.
					CO4	To understand the electoral trends & voting behavior in India
					CO5	To understand the evolution of party systems in India.
5	V	V	535-POL	Indian Political Thought	CO1	To trace the evolution of Indian political thought from ancient India to modern India.
					CO2	To analyze the nationalist thought of Raja Rammohon Roy, Bankim, Vivekananda and Tagore.
					CO3	To discuss the nationalism of Gandhi, M. N. Roy, Narendra Deva and Syed Ahmed Khan.
					CO4	To understand the social and religious reforms during renaissance.
					CO5	To understand the Ambedkar's views on Social Justic, annihilation and the depressed classes.
6	V	VI	636-POL	Western Political Thought	CO1	To elucidate the richness and variations in the political perceptions of Western Thinkers.
					CO2	To provide a foundation to students of Political Science in familiarizing themselves to the Thought & Theory of Western Philosophy.
					CO3	To examine the features of Medieval Political Thought
					CO4	To provide an insight into the dominant features of Ancient Western Political Thought
					CO5	To emphasise on Ancient Greek political thought with focus on Aristotle and Plato
7	VI	VII	637-PS	Local Self - Government	CO1	To understand the constitutional provisions and their importance.

				in Andhra Pradesh	CO2	To analyse the structure and functions of Panchayat Raj.
					CO3	To elucidate the role of rural and urban local bodies.
					CO4	To provide insight to patterns of leadership and its emerging challenges.
					CO5	To understand the importance of committees in Local Self-Government.
8	VI	VIII -A	638-PS-A1	International Relations	CO1	To analyze the history of international relational through the causes and phases of colonialism.
					CO2	To know the impact of first world war and second world war and its causes and consequences
					CO3	To criticize the various ideologies which lead to the destruction of world.
					CO4	To appreciates the post war developments through the emergence of third world.
					CO5	To understand the concept of power, national, regional, global and peace security.
9	VI	VIII -B	638-PS-A2	Foreign Policy	CO1	To explain different theories of foreign policy analysis;
					CO2	To analyze strengths and weaknesses of different approaches to foreign policy analysis;
					CO3	To apply theories of foreign policy analysis to specific cases;
					CO4	To understand the issues and processes described and to relate them to current affairs and present-day issues of significance.
					CO5	To contrast and compare the strength of theoretical approaches used in foreign policy analysis.
10	VI	VIII -C	638-PS-A3	Contemporary Global Issues	CO1	To identify key issues in global politics and understand their historical contexts;
					CO2	To develop the capacity to research key issues in ways that enable them to analyse different approaches to understanding and addressing these issues;
					CO3	To debate and evaluate different approaches to major issues;

					CO4	To write and present a political argument in a clear, coherent, and engaging manner.
					CO5	To understand the international organizations and their role in global issues.

Economics						
1	I	I	131 - ECO		CO1	Able to understand the nature and scope of Economics.
					CO2	To acquire knowledge on various methodologies adopted by various economists to analyse economics.
					CO3	To gain knowledge related to utility analysis.
					CO4	To acquire these skills in real life
					CO5	To understand the different courses analysis.
2	II	II	232 - ECO		CO1	Able to understand the concept of production function.
					CO2	To acquire knowledge on various types of the market structures and the role of markets in real life.
					CO3	To able to understand the marginal productivity theory of distribution theory of distribution.
					CO4	Able to understand the ease, rent, interest and profits.
					CO5	To the interest of the student.
3	III	III	333 - ECO		CO1	To understand the concepts of micro and macro economics.
					CO2	The dance of microeconomics and paradoxes of macroeconomics.
					CO3	To understand the consumption investment functions.
					CO4	To understand the classical and modern theories of employment.
					CO5	To acquire knowledge measuring functions and classification of money.
4	IV	IV	434 - ECO		CO1	To illustrate the meaning of inflation.
					CO2	To understand the causes, effects and measures to control inflation.

					CO3	To identify various types of banks, aquare knowledge on various functions of commercial banks.
					CO4	To understand the meaning of shares and debentures, functions of stock market.
					CO5	To know about the objectives and instruments of macroeconomic policy.
5	V	V	535 - ECO		CO1	To illustrate the meaning of economic growth and development to know the various theories.
					CO2	To understand the concepts of sustainable development.
					CO3	To understand the various choices of techniques.
					CO4	To understand the basic features of Indian economy.
					CO5	To assess the importance of national income in India.
6	V	VI	536 - ECO		CO1	To understand the importance and structure of Indian agriculture.
					CO2	The agricultural infrastructure and agricultural price policies.
					CO3	To know the structure and growth of Indian industry.
					CO4	To gain knowledge on disinvestment and foreign direct investment.
					CO5	To be aware of Andhra Pradesh economy.
7	VI	VII	637 - ECO		CO1	To understand the meaning and scope of public finance.
					CO2	To understand the difference between public and private finance.
					CO3	To assess the sources of public revenue.
					CO4	To acquire knowledge on public expenditure.
					CO5	To acquire knowledge on meaning and components of budget.
8	VI	VIII -A	638 - ECO - A1		CO1	To understand the nature and scope of statistics.
					CO2	To acquire knowledge on primary and secondary data.
					CO3	To acquire the skill of how to classify and tabulate the data.
					CO4	To acquire the skill of drawing various diagrams.
					CO5	To the interest of student.
9	VI	VIII -B	638 - ECO - A2		CO1	To understand the various methods of central tendency.
					CO2	To acquire the skill of various problems of Central tendency.
					CO3	To understand the various methods of dispersion.
					CO4	To acquire the skill of solving various problems of disperation.
					CO5	To interest of the student.
10	VI	VIII -C			CO1	To understand the concept of skewness.

			638 - ECO - A3		CO2	To acquire the skill of solving the problems.
					CO3	To understand the concept of Correlation.
					CO4	To assess the role of time series in Indian economy.
					CO5	To know about the concept of index numbers, like laspeare, paasche, Fisher's.

History						
1	I	I	131-HIS	Ancient Indian History & Culture upto 600 AD	CO1	By Studying this module Students will gain knowledge about indian history and culture and Diverse Geographycal features of India
					CO2	To understand the chronological events and changes that took in the time line of pre-historic to historic times
					CO3	Students can analyze the political systems, socio, religious and economic conditions right from vedic period to later guptas
					CO4	These conditions will give insides about the position of women, verna system and administrative hierarchy
					CO5	They acquire knowledge towards the changing status agrarian economy trade and commers
2	II	II	232-HIS	Early Medieval Indian History and Culture (600 Ad to 1526 AD)	CO1	Students will come to know about the antic and astonishing architectural styles from Pallavas to Vijayanagara Period
					CO2	To observe the administrative structure from Cholas to Vijayanagara period
					CO3	Inseption of Delhi Sultanate and how expansion and consolidation of Khilji Dynasty
					CO4	To Understand administrative structure of Delhi Sultanates and its decline
					CO5	To Know about the emergence of the new composite culture called indo-islamic culture and rise of Bhasti and sufi moments and its impact on Indian Society
3	III	III	333-HIS		CO1	To have knowledge on the conditions in India during the medieval period
					CO2	To understand the developments under the Mughals and their downfall
				Late Medieval & Colonial History of	CO3	To analyse the European settlements, expansion policies and consolidation of British Empire

				India(1526 - 1857 A.D.)		
					CO4	To have knowledge of the different policies of the British
					CO5	To observe the causes and consequences of revolts of peasants,sepoys and tribes in 19th century
4	IV	IV	434-HIS	Social Reform Movement & Freedom Struggle (1820-1947 A.D.)	CO1	To understand the impact of several social, religious and self-respect movements
					CO2	To observe the growth of nationalism in India due to the impact of British colonial policies
					CO3	To acquire knowledge of freedom movement and different phases of the movement
					CO4	To have knowledge of the contributions of Gandhiji and Subhas Chandra Bose in the freedom struggle
					CO5	To understand how people suffered due to partition and know Sardar Vallabhai Patel's role in the integration of princely states
5	V	V	535-HIS	Age of Rationalism and Humanism (History of Modern World 1453 to 1821 AD)	CO1	To Understand the exotic and path breaking Geographical discoveries, Sea routes and Scientific inventions
					CO2	To Understand the renaisance and reformation moment in modern Euro
					CO3	To Observe the emegence and impact of Nation States
					CO4	To attain a broder perspective of revaluations in America, Europe and its impact on global Scenario
					CO5	To know how liberty, Equality and fraternity served as a new pillars of society
6	V	VI	536-HIS	History & Culture of Andhra Desa(12th - 19th Century A.D.)	CO1	To observe how trade, socioeconomic life, culture, architecture flourished under Kakatiyas and Reddy Kings
					CO2	To have knowledge of the glory of Vijayanagara Empire and the special contribution of Sri Krishna Devaraya to Andhra culture
					CO3	To understand the evolution of composite culture and influence of Qutub Shahis on Andhra
					CO4	To know how the British occupied Andhra and established their authority
					CO5	To analyse the conditions of Andhra under the company rule and impact of Industrial Revolution
7	VI	VII	637-HIS	History of Modern Europe (From 19th	CO1	Student will acquire knowledge about industrial revaluation before and after in Europe and how it use global world
					CO2	Students will Gather knowledge about unification of Germany and unification of Italy and their impact

				Century to 1945 AD)	CO3	To acquire knowledge about communist revaluation and its causes, course and results
					CO4	Student will come to know about the historic World War-1 and atrocities and casualities and rise of Cold war
					CO5	Student will able to analyze how the failure of league of nations and unequal power domination let to another World War-II and acquire knowledge of UNO and its functions
8	VI	VIII -A 1	638-HIS	Cultural Tourism in Andhra Pradesh	CO1	Students will know concept of Tourism, Scope of Tourism, Nature of Domestic and International Tourism
					CO2	And also about the knowledge of Tourism in General and Indian Tourism in Particular
					CO3	Students will gather information regarding the planning and development of AP Toursim, Its aims and objectives and various geographycal sceneries in AP
					CO4	Students will get an insides of various heritage sites, various acts for preservation and especially about archeological survey of India
					CO5	Students had an empherical understanding by visining a site and prepartion of project report on it
9	VI	VIII -A 2	638-HIS	Popular Movements in Andhra Desa (1848 - 1956 A.D.)	CO1	To appreciate the several social and self-respect movements, special reference to Kandukuri Veeresalingam
					CO2	To gain knowledge of the Vandematram movement in different parts of Andhra
					CO3	To observe the progress of the freedom movement in Andhra, special reference to the non cooperation movement
					CO4	To understand the causes which led to the formation of separate Andhra
					CO5	To acquire knowledge of the main incidents and stages seen in the formation of Andhra Pradesh
10	VI	VIII -A 3	638-HIS	Contemporary History of Andhra Pradesh (1956 - 2014)	CO1	To analyse the developments in various sectors in Andhra Pradesh and emergence of Telugu Desam Party
					CO2	To observe the growth of communist ideology and activities
					CO3	To gain knowledge about Dalit's struggles against social injustice
					CO4	To understand the causes leading to the Bifurcation of Andhra Pradesh
					CO5	To know the consequences of the bifurcation and formation of Telangana state

Bio Technology						
1	I	I	121-BT	Microbiology and Cell biology	CO1	To study about basic microbiology History, development of Microbiology, contributions of Variour scientistics i the field of Microbiology. To learn about various types of Microscopes, and staining methods. This is helpful for the study of Microorganism in detail.
					CO2	To learn about Microorganisms like bacteria, virus, and bateriophages, structure, life cycle classifications and their importance. To apply knowledge about microorganisms in daily life like maintain and taking care from harmful microorganisms to protect from diseas for healthy life.
					CO3	To study Nutritional requirements of microorganism and types of midia for the growth of microorganism. To acquire the ability to decide which midia should be suitable for their growth, and also applied this knowledge for carrying out project. To know about the various types of sterilization methods of microorganism. To use knowledge in controling harmful microorganism.
					CO4	To study about growth and its measurement of growth of microorganism and this knowledge is apply for the selection of more number of cells in cultures and it may take up Project work.
					CO5	To study the deyailed structure of Cell and subcellular components, mechanism occuring in cell and cell devisions, which helps incase there is abnormal cell divisions occurs in the cell.
2	II	II	222-BT	Biomolecules, Enzymology and Bioenergetics	CO1	To learn about the discovery, structure and properties of various kinds of DNA and RNA, to use the knowledge in understanding of the basic molecule of life like DNA, for inspiring research in various fields.
					CO2	To study about the structure, Properties and classification of aminoacids, they are the building blocks of proteins and also to learn about the structure of proteins and its importance in our life.
					CO3	To learn about classification, structure and properties of carbohydrates and lipids i.e. major nutrients for humanbeings. Various diseases arising due to lack of improper intake of carbohydrates like diabeties, obesity, malnutrition etc..

					CO4	To learn about enthalpy, entropy, free energy and oxidative Phosphorylation.
					CO5	To study about the structure , classification, nomenclature, inhibition of Enzymes, and this knowledge which is helpful for applying in medical field to cure various various diseases. To study regulation, metabolic reactions of pathways like glycolysis, TCA cycletaking place in living organisms.
3	III	III	323-BT	Biophysical Techniques	CO1	To acquire knowledge on the principle, basic concepts, instrumentation, application of spectrophotometriy are studied and this knowledge is applied for estimation of DNA, RNA and proteins in research work.
					CO2	To learns about the priciple, mechanism amd applications of various types of Chromotography methods. This knowledge is useful for separation of molecules in pureform. i.e.. aminoacids, pigments..etc..
					CO3	To study about priciple, Instumentation, mechanism of electrophoresis methods and this menthods are used for detection of DNA and RNA and also carry out PCR technique, southern blotting..etc.
					CO4	To learn about isotopic tracer technique, how to calculate the measurement of radioactivity and they can also learn how to apply different isotopes in medical, therapeutic, diagnostic fields in life.
					CO5	To learn about different types of centrifuses, this knowledge is useful for the isolation of cell components and also used for the ditermination of molecular weight of molecules. To study about mean, median, mode, stardard deviation and ANOVA used to calculate or solved the problems
4	I V	IV	424-BT	Immunology	CO1	To learn about basic Immunology, types of Immunity, various types of immune cells and lymphoid organs, pathways off Innate and adoptive immune responses.
					CO2	To learn about the structure, classes, types of antbodies and antigens and factors affecting antigenicity. To understand how diseases causing microorganisms killed by the production of antibodies.

					CO3	To study about Vaccination,MHC and Hypersensitivity, this knowledge is useful for to gain better understanding about blood transfusion, allergy, Graft rejection and various types of diseases.
					CO4	To study about cytokins and antigen-antobody reactions, and this knowledge is helpful for understanding how immune system provide protection to our body.
					CO5	To learn about monoclonal Antibody production and its application, this knowledge helps to takeup research to find medicine and drugs for incurable diseases.
5	V	V	525-BT	Molecular Biology	CO1	To study about Gene, Genome, Chromosomes, DNA, which act as a genetic material and DNA responsible for life in every livining organism.
					CO2	To acquire knowledge on genome organisation and various types of replication mechanism in prokaryotes, Eukaryotes,.
					CO3	To know the mechanism of transcription and translation process i.e. protein synthesis, in living organism. To learn the molecular mechanism responsible for diseases and may take up research in this field.
					CO4	To learn about genetic code and its charecteristic and iteraction in between codon and anti codons.
					CO5	To know the level of gene expression and regulation through operon -concept, this knowledge is helpful for understanding switch on and switch off mechanism of gene expression
6	V	VI	526-BT	Recombinent DNA Technology	CO1	To acquire knowledge about various types of restriction Endonuclease enzymes, Vectors and how to construct genomic DNA library and C-DNA library for cloning
					CO2	To learn about ligation method, and selection of recombinant cells, this knowledge is useful for cloning.
					CO3	To get exposure to various techniques for identification of cloned genes and also it may help to take up research in this field.
					CO4	To Study about gene transfer methods and DNA sequencing methods. This knowledge is apply to know the sequence of DNA in different organisms.

					CO5	To gain knowledge on production of industrial product, transgenic plants and genetically modified organisms.
7	V I	VII	627-BT	Plant and Animal Biotechnology	CO1	To acquiases the knowledge in Plant tissue culture method, it may hepful for the production of transgenic plants. i.e. disease resistance plants, insect plants..etc.
					CO2	To gain knowledge in plant biotechnology it may useful in Agriculture field and produced less time more crop yeild by applying tissue culture method i.e. mycropropagation.
					CO3	To gain concept of vaccination and transgenic animal, it may take up research in this field.
					CO4	To gain and apply knowledge in stem cell therapy and gene therapy, and it may apply in the treatment of incurable diseases.
					CO5	To gain and apply knowledge of Biotechnology and science concepts to solve problems related field of Biotechnology
8	V I	VIII -A 1	628-A1-BT	Plant Tissue Culture	CO1	To learn about laboratory organisation, sterilization methods, media used in plant tissue culture and culture techniques i.e. gene tranfer method
					CO2	To learn about how to produce somatic hybrid, cybrid, Haploid plants, somatic embryos, and may take up research in this field.
					CO3	To gain and apply knowledge in the development of transgenic plant and genetically modified organisms.
					CO4	To learn about trangsgenic crop with improved quality of traits and also biofertilizers. This knowledge useful to improve soil fertility and high yield of crops.
					CO5	To learn about the role of transgenic plants in degradation of pollution and also production of industrial enzymes, synthetic seeds, Insulin, Plantibodies.And this knowledge apply in project work.
9	V I	VIII -A 2	628-A2-BT	Animal Tissue Culture	CO1	To study about laboratory organisation, sterilization methods, various types of media and culture techniques and this knowledge is apply for the production of transgenic animals.
					CO2	To learn abour gene therapy and Invitro fertilization and it may helpful for for the treatment of genetic diseases and also solved problesm in medical field.

					CO3	To gain and apply the knowledge of Biotechnology, science and Engineering concepts to solve problems related fields of Biotechnology, by applying stemcell therapy and production of vaccines, Insulin, Growth hormones..etc.
					CO4	To acquire knowledge about recombinant cytokins and its role in the treatment of various types of diseases.
					CO5	To learn about tissue engineering this knowledge is apply for synthesis of artificial organs. To design performan experiments, analyze and for investigating complex problems in Biotechnology and related fields.
10	VI	VIII -A 3	628-A3-BT (PW)	Project Work	CO1	To learn about how to handle equipment like, Autoclave, Laminare air flow, electrophorisis apparates, and centrifuge..etc.
					CO2	To learn about isolation of DNA from different samples by centrifugation method
					CO3	To learn about agarose gel electrophoresis method
					CO4	Tio learn about estimation of DNA method
					CO5	To learn about sterilization methods, media preparation and calus culture method by plant tissue culture technique.

Horticulture						
1	I	I	Horti111	Basic Concepts of Horticulture & Soil Science	CO1	After the completion of the Course I of Horticulture Programme the students will be able; To appreciate the importance and scope of Horticulture
					CO2	To understand the different values of Horticulture
					CO3	To know the role of environmental factors in the crop production
					CO4	To identify the soil properties suitable for optimal production

					CO5	To recongnize the soil components and their role to keep the soil fertility
2	II	II	Horti122	Plant Propagation Methods & Nursery Management	CO1	To use the basic requirements for horticulture plants propagation
					CO2	To appreciated the importance and process of seed propagation
					CO3	To identify the various vegetative parts used for multiplication
					CO4	To produce new qualitative plants using different techniques
					CO5	To establish and maintain the suitable growing structure for nursery
3	III	III	Horti 233	Oletriculture	CO1	To understand the importance, types and values of vegetable gardens
					CO2	To select the suitable varieties of vegetable crops based on soil and climatic conditions
					CO3	To use the appropriate cultural practices for more efficient production
					CO4	To control the pests and diseases of vegetable crops
					CO5	To produce quality vegetable seeds
4	IV	IV	HRC234	Ornamenytal Horticulture	CO1	To understand the importance, types of gardens and values of gardening
					CO2	Toselect the suitable varieties of economic floral crops based on soil and climatic conditions
					CO3	To use the appropriate special horticultural practices for more efficient production
					CO4	To establish and maintain the production unit of floral nursery plants
					CO5	To use the knowledge and skill in the landscaping

Micro Biology						
1	I	I	121-MB	Introduction to Microbiology & Microbial Diversity	CO1	Gain basic knowledge about Microbiology including history,importance and applications of microbiology in daily life, health, food, sanitation and in genetic engineering.
					CO2	Learn the concept of classification microorganisms and general characteristics of algae, fungi, protozoa and viruses
					CO3	Understand bacterial cell structure and functions of components. Perform staining and observe bacterial morphology under microscope.
					CO4	Understand bacterial growth media and techniques of sterilization. Prepare bacterial growth media and perform sterilization by physical and chemical methods.
					CO5	Learn methods of isolation and preservation of bacterial pure cultures and apply them methods of preserve them in lab
2	II	II	122-MB	Microbial Biochemistry & Metabolism	CO1	Able to characterize and classify carbohydrates, nucleic acids , fats and lipids.
					CO2	Understand the principles of colorimetry, chromatography, spectrophotometry and electrophoresis. Apply them in qualitative & quatitative analysis of biomolecules.
					CO3	Able to classify enzymes and study inhibition of enzyme activity and enzyme kinetics. Demonstrate induced fit theory and lock & key models.
					CO4	Describe the nutritional requirements and nutritional groups of bacteria like autotrophs, heterotrophs, mixotrophs. Demonstrate the methods for measuring microbial growth like direct microscopy, viable count and turbidometry.
					CO5	Differentiate aerobic and anaerobic respiration through different metabolic pathways in microorganisms. Able to understand the concepts of oxygenic and anoxygenic photosynthesis in bacteria.
3	III	III	323-MB	Microbial Genetics & Molecular biology	CO1	Understand and differentiate the molecular structures of DNA and RNA and establish them as genetic materials through experimentation.
					CO2	Learn Genetic code and differentiate the process of transcription and translation in Prokarotes & Eukaryotes

					CO3	Acquire knowledge of various gene transfer mechanisms in bacteria. Understand the concept of mutations and their effects.
					CO4	Learn the concept of gene and their types, gene expression. Gene regulatory mechanisms and concept of lac operon.
					CO5	Explain the basic principles of genetic engineering. Demonstrate isolation of bacteria/plasmid DNA and separation by electrophoresis
4	IV	IV	324-MB	Immunology & Medical microbiology	CO1	Understand the role of immune system comprising ceels and organs in generating immune response. Differentiate innate and acquired immunity
					CO2	Define the structure and functions of antigens, antibodies. Perform Antigen-antobody reactions. conceptualize hypersensitivity and its implications in human body
					CO3	Understand the concepts of Normal flora, host pathogen interactions. Demonstrate the principles of collection, transport and processing of clinical samples. Perform cultural, biochemical, serological methods of laboratory diagnosis
					CO4	Develop understanding of pathogenesis, epidemiology and prevention of common bacterial, viral, fungal protozoal diseases of humans.
					CO5	Acquire knowledge of chemotherapy and mode of action of antimicrobial agents. Perform antibiotic susceptibilty and resistance tests. Understand different types of vaccines.
5	V	V	525-MB	Environmental & Agricultural microbiology	CO1	Developed a clear understanding of the diverse roles of microorganisms in soil, water and air. understand the role of microorganisms in geochemical cycles.
					CO2	Perform microbial analysis of drinking water and methods to treat water samples.
					CO3	Develop an understanding of solid and liquid waste management and role of microorganisms in treatment of sewage
					CO4	Acquire knowledge about microbial interactions and role of PGPRs in the field of agriculture. Concept of symbiotic & non- symbiotic methods of nitrogen fixation.
					CO5	Understand plant pathogens and diseases caused by viruses, fungi and bacteria in crops. Concept of biopesticides for disease control.

6	V	VI	526-MB	Food & Industrial Microbiology	CO1	Able to identify the role of microorganisms in food spoilage and food borne diseases
					CO2	Demonstrate the methods of food preservation and able to describe the role of microorganisms in the production of fermented dairy foods. Understand the concepts and benefits of SCP and probiotics.
					CO3	Able to isolate industrially important microorganisms from natural sources and improve their productivity by mutations.
					CO4	Able to formulate production media using different raw materials for employing in fermenters. Demonstrate different types of fermentation processes and methods of down stream processing.
					CO5	Have developed laboratory skills in the fermentative production of organic acids, alcohols, enzymes, antibiotics and vitamins
7	VI	VII		Microbial Biotechnology	CO1	Acquired knowledge about technological developments in microbiology and its application in agriculture, environment, food and human therapeutics
					CO2	Understand the application of recombinant DNA technology in human prophylaxis and in plant disease control.
					CO3	Understand biocatalytic processes and their industrial applications.
					CO4	Demonstrate the commercial production of biofuels from lignocellulosic wastes. understand the concept of xenobiotics and role of microorganisms in mineral recovery
					CO5	Acquire knowledge of basic concepts related to IPR and apply in biomedical Research. Learn to respond and act ethically with regard to scientific research, practice, and technology.
8	VI	VIII -A		Microbial Quality Control In Food and Pharmaceutical Industries	CO1	Have developed a very good understanding of practical aspects of microbiological safety,
					CO2	Perform different cultural and microscopic methods for testing of products in the pharmaceutical industries
					CO3	Apply Nucleic acid probes, PCR based detection and biosensors to determine microbes in samples.
					CO4	Use of enrichment culture technique for the detection of specific microorganisms. Application of various detection methodologies and use of different microbiological media in food industries.

					CO5	Acquire knowledge about Hazard analysis of critical control point and Learn to define microbial standards for different foods and water
9	VI	VIII -B		Cell Culture Techniques	CO1	Explain major components of cell and tissue culture media, e.g. minerals, growth factors, hormones, and what governs the choice of components.
					CO2	Perform the common cell culture techniques, e.g. callus culture, Embryo culture and embryogenesis in plants, culture of animal cells.
					CO3	Acquire knowledge of cell lines used in mammalian tissue culture, their origins and applications.
					CO4	Explain Cell cycle and its regulation
					CO5	Demonstrate virus cultivation in embryonated eggs and measurement of infectious units. Demonstrate virus purification by ultracentrifugation method
10	VI	VIII -C		Project Work (6 hours/week)	CO1	Learn to Identify and analyze problems having societal relevance and frame objective of the study, in consultation with the Mentor
					CO2	Design relevant experiments, conduct the experiments, record /collect and analyze data.
					CO3	Draw inferences from data and interpret the results
					CO4	Acquire skills of systematic recording of their findings in a standard format
					CO5	Learn to give project presntation for external assesment and evaluation

English					
1	I	Eng 101	ENGLISH I	CO1	To expose the students to prose, poetry and non- detailed text to develop all the language skills..
				CO2	To acquire the knowledge of language skills, vocabulary, dialogue writing, etc.
				CO3	To read and appreciate the prescribed literary selections for pleasure, and to interpret the given poem, essay, short stories to undertstand the moral behind them
				CO4	To apply the acquired knowledge of grammar and vocabulary to the real time situations through practice of conversation, essay writing and exercises.
2	II	Eng 202	ENGLISH II	CO1	To understand and appreciate the nuances of poetry and appreciate the meter, rhyme and rhythm in poetry and the idiomatic expressions in prose sections
				CO2	To develop reading, writing and comprehension skills apart from the vocabulary and usage.

				CO3	To analyze and interpret the socio cultural aspects based on the prescribed prose texts
				CO4	To apply the acquired knowledge of sentence structure, grammar, and vocabulary for general essay writing, letter writing, etc.
3	III	Eng 303	ENGLISH III	CO1	To understand the various elements of poetry such as tone, imagery, figures of speech, and other stylistics.
				CO2	To be able to locate grammar in prose, to develop prose style, and to understand the difference between the formal and the informal
				CO3	To consider culture, author, and historic context and content of the prescribed texts and to analyse them.
				CO4	To be able to use the idioms, phrases, one word substitutions, synonyms and antonyms and other vocabulary related elements in writing essays and oral communication
4	III	Foundation course I 202	Communication skills and soft skills	CO1	To encourage the all round development of the students by focusing on soft skills..
				CO2	To expose the students to the right and positive attitudinal and behavioural aspects of the students.
				CO3	To demonstrate knowledge of effective communication skills in both formal and informal situations
				CO4	To understand the ways in which English can be used in and around the world .
5	IV	Foundation course II 303	Communication skills and soft skills	CO1	.To effectively communicate through verbal communication and improve the LSRW skills of the students.
				CO2	To develop report writing and precis writing skills of the students.
				CO3	To develop various reading techniques
				CO4	To develop the skills of paraphrasing and summarizing.
6	IV	Foundation course III 401	Communication Skills and soft skills	CO1	To reflect & develop a planned approach towards his career & life in general.
				CO2	To equip the students with the employability skills
				CO3	To be able to prepare the functional and chronological resume.
				CO4	To be able to face personal interview through mock interviews

Hindi						
1	I	I		HIN	CO1	To empower the students with literature and its objectives.
					CO2	To educate the students about the heroic nature of the strong people who stand by the truth.
					CO3	Deals with the theme of Friendship. Helps the students to find out good friends and values in society
					CO4	Brings out the theme of the honesty. how borrower is forgiven despite poor conditions
					CO5	It deals with the Promise and Sacrifice of a soldier
2	II	II		HIN	CO1	Shows the relation between literature and culture
					CO2	Unity in diversity is the main focus
					CO3	Exploitation of women by the so called society who looks for career in cine culture
					CO4	Revolt against corruption in the society
					CO5	translation from hindi to english which helps the students to understand global language
3	III	III		HIN	CO1	Moral Values through Kabir Doha who imbibes in the young minds
					CO2	Childhood memories of Lord Srikrishna by Surdas
					CO3	Nostalgic memories of four ages in Hindi Literature
					CO4	Concept of Motherland and its patriotism
					CO5	Value of Labor who were described by the Poet

Telugu					
I	I		sahitee nandanam	CO1	To be able to understand our culture and history ethecial values through classical literature. It leads to respect our language,literature and great writers.
				CO2	To be able to create interest towards mother tongue, and modern literature and to develop crative writing to express their views on contemparory issues.

				CO3	To be able to evaluate the lifestyle of common people behind the screen of globalisation.and get skills how to balance themselves inthe present senario.
				CO4	To be able to acquire knowledge and skills in grammar-It leads to know the beauty,rythem and formation of language
				CO5	on the whole the student is able to improve himself in the aspects of huminity ,humility,integrity,and equanimity
II	II		sahitee kowmudi	CO1	Through calssical literature student get inspiration - It leads to higher order thinking pow
				CO2	To be able to understand social evils and eradicate them through modern literatur
				CO3	To be cultivate values, morals, new approaches in day-to-day life.
				CO4	To be able to get esthetic sense through figurative language rythem and metre.
				CO5	To able to improve the standards of life,inculcate leadership qualities and composure of mind.
III	III	sahitee sorabham		CO1	to be able to understand the difference between modern and ancient literature and try to write creative writings.
				CO2	To get awareness on contemporary society , traditions, and finearts there by the student should be conscious and cautious about the society.
				CO3	To be able to create much interest on native culture and lofty values which leads to personality development.
				CO4	To be cultivate SELF RESPECT and patriatism towards and nation.
				CO5	Ultimately the student is able to feel joyous , delightful and be ready to face challeges in his day to day life
IV	IV	leadership education		CO1	Tobe able to understand leadership qualities,individual behaviour and group behavior.
				CO2	To be able to acquire communication skillsand management skills
				CO3	To be able to develop enthusiasm, right attitude and positive thinkingand.
				CO4	To be able to acquire global knowledge ,and universal thinking for the development of self and nation.

				CO5	On the whole the student is able to improve personality development,and team building management,Collaboration and conflict management.

Botany						
1	I	I		Microbial Diversity , Algae and Fungi	CO1	Gain knowledge about the origin and evolution of life in the world and appreciate diversity of organisms
					CO2	Understand morpholgy of virus and their replicationmethods. Gain basic knowledge about diseases caused by them.
					CO3	Understand bacterial structure and their methods of reproduction. Gain knowledge about the economic importance of bacteria
					CO4	Gain knowledge of Algae and their significance for the growing populations with lot of Economic importance
					CO5	Able to understand fungi as pathogen, to overcome and manage the fungal disease and protect the life forms on the earth.
2	II	II		Diversity Of Archaegoniates & Anatomy	CO1	To Know the structure, reproduction, Life history and evolutionary aspects of bryophytes
					CO2	To Know the Life history and evolutionary aspects Pteridophytes and their seed habit
					CO3	To know the morphology, anatomy, reproduction and life history and economic importance of plants with naked seeds
					CO4	Understand and appreciate anatomy of plants
					CO5	To understand and appreciate the patterns of anomalous and normal secondary growth
3	III	III		Plant taxonomy &Embryology	CO1	To acquire knowledge of fundamental components of taxonomy and botanical nomenclature to maintain botanical garden worldwide.
					CO2	To acquire the knowledge of classification of the plants and the comparison, origin and evolution of angiosperms which are the most important species in our daily life.
					CO3	To acquire the knowledge of systematic Taxonomy

					CO4	Gain knowlede of vegetative, reproductive characters and economic importance of some families of B & H classification.
					CO5	To know the pollination and fertilization methods, development of embryo and it's structure to gain knowledge leading to new varieties.
4	IV	IV		Plant physiology & Metabolism	CO1	To Know the various aspects of Plant water relations
					CO2	To Know the process of various metabolic activities in plant body
					CO3	Student will understand and appreciate the Process and importance of photosynthesis
					CO4	To gain knowledge of Respiration and Nitrogen metabolism
					CO5	To know the process of Growth, development, senescence and Ageing
5	V	V		Cell Biology, Genetics &Plant breeding	CO1	To gain knowledge regarding the unit of life, structure and composition of cell wall and Plasma membrane.
					CO2	To understand the DNA Structure and appreciate its usefulness at molecular levels of genes in various aspects of life quality of genetical characters and forensic methods of the society etc.
					CO3	To Acquire the knowledge about Genetical aspects and understand the process of heredity and variation
					CO4	Student will understand appreciate plant breeding methods
					CO5	Gain knowledge of Breeding, role of Biotechnology in Crop Improvement
6	V	VI		Plant Ecology & Phytogeography	CO1	To have the knowledge of elements of environment and understand the importance of Climatic factors like light, temperature on plants and plant relations with environment
					CO2	To appreciate the structure of ecosystem and understand the aspects of community ecology
					CO3	To gain knowledge about Phytogeographical regions of the world and India
					CO4	To Know how to conserve the threatened plants in environment.
					CO5	Develop skills of working in the field of biodiversity and report writing
7	VI	VII		Plant tissue culture and its	CO1	To know about various methods in tissue culture and develop the ability to prepare artificial nutrient media independently
					CO2	Learn to apply various procedures of Bio - technology

				biotechnological applications	CO3	To understand the importance of molecular biology
					CO4	To gain knowledge about gene transfer methods and markers
					CO5	Gain knowloedge of growth patterns, vegetative characteristics of some GM crops and applications of bio technology
8	VI	VIII -A		ETHNOBOTANY AND MEDICINAL BOTANY	CO1	To know the culture and ethnology of ethnic communities and history of Various Methods in ancient Medicines
					CO2	Students can identify various plant parts used as medicines by ethnic groups,
					CO3	To understand the role of spices in Indian kitchens, their therapeutic role
					CO4	To know the uses of surrounding medicinal plants and Conservation of endangered and endemic medicinal plants:
					CO5	Gain knowledge of role of people in conservation of plant genetic resources,
9	VI	VIII -B		Pharmacognosy and Phytochemistry	CO1	To understand the isolation techniques of active principles from various parts of popular medicinal plants,
					CO2	To know the organoleptic and microscopic studies with reference to nature of active principles medicinal plants
					CO3	To learn techniques for secondary metabolite enrichment and understanding ethnopharmacological principles
					CO4	To learn biosynthesis and sources of drugs :
					CO5	Understand the efficiency of Enzymes, proteins and amino acids as drugs
10	VI	VIII -C		Project Work	CO1	Skill in operating laboratory equipment, their upkeep, and adept at various biological techniques.
					CO2	Develop Ability to prepare solutions and prepare different dilutions.
					CO3	Interpreting scientific results, and ability to present results in a scientific way through graphs, photographs, poster presentations
					CO4	Develop ICT skills and Power point presentations.
					CO5	Develop the art of scientific writing and presentation of scientific matter.Scientific writing and ethics.Writing references

Zoology						
	I	I	Zoo113	Animal diversity of Invertebrates	CO1	To enable the students understand the knowledge of different areas of Invertebrates.
					CO2	To understand the life cycles and mode of reproduction in different invertebrates
					CO3	To understand the systemic and functional morphology of various groups of Invertebrates.
					CO4	To study the economic importance, affinities and adaptations of invertebrates
	II	II	Zoo114	Animal diversity of chordates	CO1	To instill knowledge about various groups of chordates
					CO2	To acquire knowledge on the life cycles and mode of reproduction in different vertebrates
					CO3	To understand the systemic and functional morphology of various groups of chordates,
					CO4	To study their economic importance, affinities and adaptations
	III	III	Zoo116	Cytology, Genetics & Evolution	CO1	To learn the different types of cells
					CO2	To be able to identify the cell organelles and list out the cell organelles
					CO3	To know Mendals' laws and inter-relationship between organisms in population and communities
					CO4	To understand the concept of major evolutionary innovations in animal groups and functional significance of associated morphologies and behaviors.
	IV	IV	Zoo112	Embryology, Physiology, ecology, zoogeography	CO1	To study the aspects of digestion, respiration and other phyiological activities in mammals
					CO2	To learn the relationship among organisms in population and communities

					CO3	To study the population dynamics and population control and the importance of environment friendly practices.
					CO4	To study the concepts of zoogeography and, zoogeographical importance of Indian subcontinent.
	V	V	Zoo105	Animal Biotechnology	CO1	To study the concepts of animal biotechnology including recombinant DNA technology, enzymes and vectors
					CO2	To understand PCR, Cloning, Breeding, polyclones ,DNA sequencing, Hybridization techniques
					CO3	To understand the recent techniques of line Stem cell culture, cell hybridoma and its applications
					CO4	To understand the recent advances in animals and plants reproduction technology
	V	VI	Zoo106	Animal Husbandry	CO1	To learn dairy technology and various species of cattles available in India
					CO2	To learn about types and production of milk in cattles and buffallows
					CO3	To learn about different types of diseases caused by microorganisms and their preventive measures
					CO4	To learn about breeding techniques involved in the production of new varieties and methods involved in care management of cattles
	VI	VII	Zoo118	Elective VII-B Cellular metabolism & Molecular biology	CO1	To learn about Synthesis of Biomolecules
					CO2	To learn about Production of Energy
					CO3	To understand the Cell cycle
					CO4	To understand the Importance of Molecular biology in present scenario
	VI	VIII	Zoo119	Cluster B-1 – Principles of Aquaculture	CO1,2,	To understand the skills required in aquaculture and the aquaculture systems
					CO3,4	To know the principles of fishery management, aquaculture and fish biology in aquaculture industry in India and across the world
	VI	VIII	Zoo120	B-2 Aquaculture management	CO1,2,	To improve scientific, technical and vocational skills in the areas of e fisheries industry & aquaculture management

					CO3,4	To improve practical skills such as fish surveying, fish husbandry, identification and treatment of diseases and prevention methods
	VI	VIII	Zoo121	B-3 Post harvest technology	CO1	To learn about handling and principles of fish preservation
					CO2	To increase the knowledge about processing of fish products
					CO3	To understand the significance of sanitation and Quality control
					CO4	To promote familiarity on Quality assurance and management and certification