IDEAL COLLEGE OF ARTS AND SCIENCES

(Aided, Autonomous NAAC B)

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COURSE OUTCOME 2020-2021

B.Sc., English – Programme Code – 1001, 2001, 3001

Course Code	Course Name	Course Outcome
1001.1 **2001.1** **3001.1**	A Course In Communication And Soft Skills	➢ Use grammar effectively in writing and speaking. ➢ Demonstrate the use of good vocabulary ➢ Demonstrate an understating of writing skills ➢ Acquire ability to use Soft Skills in professional and daily life. ➢ Confidently use the tools of communication skills
1001.2 **2001.2** **3001.2**	A Course In Reading & Writing Skills	➢ Use reading skills effectively ➢ Comprehend different texts ➢ Interpret different types of texts ➢ Analyse what is being read ➢ Build up a repository of active vocabulary ➢ Use good writing strategies ➢ Write well for any purpose ➢ Improve writing skills independently for future needs
1001.3 **2001.3** **3001.3**	A Course In Conversational Skills	➢ Speak fluently in English ➢ Participate confidently in any social interaction ➢ Face any professional discourse ➢ Demonstrate critical thinking ➢ Enhance conversational skills by observing the professional interviews

B.A./ B.Com. / B.Sc., Telugu – Programme Code – 1002, 3002, 2002

Course Code	Course Name	Course Outcome
1002.2 2002.2 3002.2	Kavya Sudha	Students by studying read the old poetry, they got knowledge of gathering ethical values and improve the spoken skills.
		The grammar knowledge's improve the student's ability to understand Telugu language and texts properly. The students have the better opportunities in the fields as lyric writers, script writers and anchor orator in both print and electronic media. They have better opportunity in the teaching field as a Telugu Language professionals.
1002.2 2002.2 3002.2	Adhunika Bharathi	Students by studying modern poetry, they got knowledge of writing skill of story writing, essays, short stories, Mini poems, vachana Kavitha and make orators by the using of language skills.
1002.3 2002.3 3002.3	Sahithi Sourabham	Prominence of Bhakti literature
		Romanticism in modern literature
		Knowing the meter of various verses
		Figures of Speech and Techniques
		Creative outlook by learning prosody

B.Sc., Mathematics – Programme Code – 2020

Course Code	Paper Title	Course Outcome
2020.1	DIFFERENTIAL EQUATIONS	1. Solve linear differential equations
		2. Convert non exact homogeneous equations to exact differential equations by using integrating factors
		3. Know the methods of finding solutions of differential equations of the first order but not of the first Degree.
		4. Solve higher-order linear differential equations, both homogeneous and non-homogeneous, with constant coefficients.
		5. Understand the concept and apply appropriate methods for solving differential equations.
	Credits : 6, Theory periods of one hour duration per week over a semester & 5 credits.	
2020.2	THREE DIMENSIONAL ANALYTICAL SOLID GEOMETRY	1. get the knowledge of planes.
		2. basic idea of lines, sphere and cones.
		3. understand the properties of planes, lines, spheres and cones.
		4. express the problems geometrically and then to get the solution.
	Credits : 6, Theory periods of one hour per week over a semester.	
2020.3	Abstract Algebra	1. acquire the basic knowledge and structure of groups, subgroups and cyclic groups.
		2. get the significance of the notation of a normal subgroups.
		3. get the behavior of permutations and operations on them.
		4. Study the homomorphism's and isomorphism's with applications.
		5. Understand the ring theory concepts with the help of knowledge in group theory and to prove the theorems.
		6. Understand the applications of ring theory in various fields.
	Credits : 6, Theory periods of one hour duration per week over a semester.	

2020.4	Real Analysis	1. get clear idea about the real numbers and real valued functions.
		2. obtain the skills of analyzing the concepts and applying appropriate methods for testing convergence of a sequence/ series.
		3. Test the continuity and differentiability and Riemann integration of a function.
		4. Know the geometrical interpretation of mean value theorems.
	Credits :	6, Theory periods of one hour duration per week over a semester.
2020.5	Ring Theory and vector calculus	1. Vector calculus has may application in Physics and Mechanical Engineering.
		2. Idea of Ring Theory to the algebraic structures field, sub rings and ideals.
		3.Homomorphism of rings.
		4. To find directional derivation of a f(n) along a tangent to a given curve.
		5. Finding volume integrals and surface integrals.
		6.Application of vector Integration using Gauss, green and stokes theorems.
	Credits :	6, Theory periods of one hour duration per week over a semester.
2020.6	Linear Algebra	1. Application in Computer graphics and Cryptography.
		2.Vectorspaces - understanding algebra of subspaces and linear span, Linearly independent and dependent vector.
		3.Dimension of a Quotient space.
		4. From L.T def. to Rank - nullity theorem.
		5.Application of L.T to catch up to the ideas of computer graphics and cryptography.
		6. Knowing the concepts of inner product spaces up to gram Schmidt Orthogonalisation process with different inequalities and identities.
	Credits :	6, Theory periods of one hour duration per week over a semester.

2020.7	Numerical Analysis	1. Generating error formula and finding relative error and percentage error find solution of algebraic and Transcendental equation with different methods.
		2.Interpolation of physical data estimating different function values at intermediately values of x
		3.Linear and nonlinear curve fitting,
		4. Dealing numerical differentiation and Integration methods for a discrete data, where ordinary calculus cannot be applied.
		5.Solving numerical solutions of differential equation where standard methods have restrictions.
	Credits :	6, Theory periods of one hour duration per week over a semester.
2020.8	Advanced numerical Analysis	1.Derive appropriate numerical methods to evaluate derivative at a point.
		2.Develop appropriate numerical methods to solve differential equation.
		3.Solve a linear system of equation using numerical methods.
		4.Derive numerical methods to calculate definite Integrates.
		5.Develop curve fitting methods.
	Credits :	6, Theory periods of one hour duration per week over a semester.
2020.9	**Special functions**	1.To solve linear differential equation using power - series methods.
		2.Obtaining solution of Legendre's (second order) differential equation.
		3.Deriving Bessel function and properties like orthogonolity and recurrence relation.
		4.Lagurne and Hermite polynomials with series solution and properties.
		5.Beta, Gamma function and their relation.
	Credits :	6, Theory periods of one hour duration per week over a semester.
2020.10	**Project work**	**Project work**

B.Sc., Physics – Programme Code – 2021

	Paper Title	Course Outcome
2021.1	MECHANICS AND WAVES & OSCILLATIONS	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.
		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.
		Understand postulates of Special theory of relativity and its consequences such as length contraction, time dilation, relativistic mass and mass energy equivalence.
		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
		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.
	Credits :	Theory periods of four hour duration per week over a semester.
2021.2	WAVE OPTICS	Understand the phenomenon of interference of light and its formation in (i) Lloyd's single mirror due to division of wave front and (ii) Thin films, Newton's ring and Michelson interferometer due to division of amplitude.
		Distinguish between fresnel's diffraction and fraunhoffer diffraction and observe the diffraction patterns in the case of single slit and the diffraction grating.
		Describe the construction and working of zone plate and make the comparison of zone plate with convex, lens.
		Explain the various methods of production of plane, circularly and polarized light and their detection and the concept of optical activity.
		Comprehend the basic principle of laser, the working of He-Ne laser and Ruby lasers and their applications in different fields.
		Explain about the different aberrations in lenses and discuss the methods of minimizing them.
		Understand the basic principles of fiber optics communication and explore the field of Holography and Nonlinear optics and their applications.
	Credits :	Theory periods of four hour duration per week over a semester.
2021.3	OPTICS	i. To understand Aberrations in lens, which is useful to prepare Optical lenses?

		ii. To determine the velocity of light using Michelson interferometer.
		iii. To understand about Polari meter.
		iv. To study the breakage bones in human body by taken laser beam.
		v. To understand about Telecommunication system using Fiber Optics.
	Credits : Theory periods of four hour duration per week over a semester.	
2021.4	THERMODYNAMICS & RADIATION PHYSICS	i. To understand Operations of heat engines which is useful to work in Thermal Power Station?
		ii. To understand the Liquefaction of gases using Joule-Thomson effect.
		iii. To know getting Low Temperature using Adiabatic demagnetization.
		iv. To determine Temperature of the Sun using Thermal Radiation
	Credits : Theory periods of four hour duration per week over a semester.	
2021.5	ELECTRICITY, MAGNETISM &ELECTRONICS	i. To understand about Dielectrics in the construction of Transformers & Capacitors.
		ii. To understand the types of Material like conductors, Semiconductors using Hall Effect.
		iii. To study about Electromagnetic waves propagating in space, which is useful in the transformation of radio signals?
		iv. To understand the preparation of gate circuits, which are used in the construction of signal lights?
	Credits : Theory periods of four hour duration per week over a semester.	
2021.6	MODERN PHYSICS	i. To understand about the Scattering of Radiations for the study of Spectrum analysis
		ii. To understand about dual nature of matter waves
		iii. To understand Radioactivity decay. For the determination of different radiations
		iv. To understand X-ray Crystallography for lab Technique
	Credits : Theory periods of three hour duration per week over a semester.	
2021.7	RENEWABLE ENERGY	i. To understand about Renewable Energy and Energy conservation. Second law of

		Thermodynamics
		ii. To understand the depletion of Ozone layer and Global warming and biological damage due to
		iii. How to use Solar energy in various types.
		iv. To understand Tidal energy using to generate electricity
		v. To understand biomass energy using to generate electricity
	Credits : Theory periods of three hour duration per week over a semester.	
2021.8	SOLAR THERMAL & PHOTOVOLTAIC ASPECTS	i. To understand basics of Solar radiation to using Solar intensity
		ii. To understand about Description of Flat plate Collector and liquid heating and energy balancing equations.
		iii. To understand about multifunction solar cells and production of single crystals silicons
		iv. To understand about fabrication of solar cells and I-V characteristics and inverters and batteries purpose
	Credits : Theory periods of three hour duration per week over a semester.	
2021.9	**WIND, HYDRO, AND OCEAN ENERGIES**	i. To understand about wind generation and wind energy conversion principles
		ii. To understand about Axial momentum and Rotor characteristics
		iii. To understand about wind energy applications
		iv. To understand about Environmental impact of wind forms
	Credits : Theory periods of three hour duration per week over a semester.	
2021.10	**ENERGY STORAGE DEVICES**	i. To understand about Energy storages and chemical energy storages and hydrogen for energy storage
		ii. To understand about secondary Lithium solid state solvent battery and nano tubes in electrodes
		iii. To understand about capacitor and battery compression and applications
		iv. To understand about difference between batteries and fuel cells and power conditioner advantages and disadvantages
	Credits : Theory periods of three hour duration per week over a semester.	

B.Sc., Chemistry – Programme Code – 2022

Course Code	Paper Title	Course Outcome
2022.1	**Inorganic & Physical Chemistry**	To understand the chemistry of compounds of P-block elements
		To understand the classification, properties and applications of organometallic compounds
		To learn the laws of symmetry
		To learn structures of crystals, to study crystal defects
		To study the intermolecular forces in gases and liquids
		To understand the dynamics of the molecules in the gases and liquids
		To study the liquefaction of gases
	Credits: 3, Four theory hours per week over a semester. Credits : 2, One Practical class of two hours week over a semester	
2022.2	**Organic and General Chemistry**	To have a basic understanding about the classification and nomenclature of organic compounds, fundamentals of organic reaction mechanism, aromaticity and stereochemistry
		To make students capable of understanding and studying organic reactions
		To develop skills required for qualitative analysis and inorganic preparations
		To study valence bond and molecular orbital theory
		To study the behavior of binary liquid mixtures, CST, azeotropes
		Compares The VB Theory And Molecular Orbital Theory
		Able To Appreciate The Applications of Colloids and Adsorption
		understands stereo isomerism of carbon compounds

		Credits : 3, Four theory hours per week over a semester. Credits : 2, One Practical class of two hours week over a semester
2022.3	**Inorganic and Organic Chemistry**	To understand the general characteristics of the d and f block elements
		To study the physical and chemical properties of d and f block elements
		To study the methods of preparation, properties, structure and bonding of metal carbonyls
		to understand various theories of bonding in metals
		to study the application of M.O. theory to conductors, nonconductors and Semiconductors
		To study the chemistry of some selected functional groups
		To learn the chemistry of alcohols, phenols, carboxylic acids, derivatives of Carboxylic acids
		To understand and study Organic reaction mechanisms.
		To study the preparation and applications of active methylene compound
		To develop skills in different laboratory titrations
	Credits: 3, Four theory hours per week over a semester. Credits : 2, One Practical class of two hours week over a semester	
2022.4	**Spectroscopy and Physical Chemistry**	To understand laws of absorption and applications of Spectrophotometry
		To study the principle and applications infra-red, electronic and magnetic resonance spectroscopy Under stands the application of colligative properties in the determination of molecular weight
		Understands heterogeneous equilibria and the application of phase rule
		To derive the phase rule, To study the phase diagrams of one and two component systems understand and apply the concepts in electrochemistry
		Gains knowledge of principles of electrolysis and galvanic cells
	Credits: 3, Four theory hours per week over a semester. Credits : 2, One Practical class of two hours week over a semester	
2022.5	**Inorganic, Physical &**	To study the Werner's theory of coordination compounds, isomerism in metal complexes
		To understand the properties and applications of coordination compounds

	Organic Chemistry	To study the stability of metal complexes
		To understand and study mechanism of reaction of nitro compounds and amines
		To study the laws of thermodynamics
		To understand the temperature dependence of enthalpy
		To derive Carnot's theorem
	Credits: 3, three theory hours per week over a semester. Credits: 2, one practical class of two hours per week over a semester	
2022.6	**Inorganic, Organic & Physical Chemistry**	To understand the reactivity of metal complexes
		Gains knowledge Labile and Inert complexes
		To understand the role of metals in biological systems.
		To understand rate , order and molecularity of a reaction
		To derive the rate equations for zero, first , second and third order reactions understand concept of activation energy
		To learn in detail the chemistry of carbohydrates, heterocyclic compounds, amino acids, proteins and nucleic acids
		To have a thorough idea on the structures of carbohydrates and some heterocyclic compounds.
		To understand the structure and functions of proteins
		To study photochemical reaction mechanism
	Credits: 3, three theory hours per week over a semester. Credits: 2, one practical class of two hours per week over a semester	
2022.7	**Analytical Methods in Chemistry**	To understand different types of titrations and the theory behind titrimetric analysis
		To study principles of gravimetric analysis
		To study types of errors ,how to analyse and minimize errors
		To study different separation techniques and application
		To understand various chromatographic techniques
		To study the principles and applications of paper and thin layer chromatography

	Credits: 3, three theory hours per week over a semester. Credits: 2, one practical class of two hours per week over a semester	
2022.8	**Organic Spectroscopic Techniques**	To study the Nuclear Magnetic Resonance Spectroscopic principle and applications
		To understand how the NMR helps in structural elucidation of various organic compounds and medical applications
		To study the various concepts of UV & Visible Spectroscopy
		To study the Electronic spectra of polyatomic molecules and Quantitative determination of metal ions (Mn+2, Fe+2, NO2-, Pb+2
		Electron Spin Resonance Spectroscopy its Applications including Detection of free radicals
	Credits: 3, three theory hours per week over a semester. Credits: 2, one practical class of two hours per week over a semester	
2022.9	**Advanced Organic Reactions**	To study Organic photochemistry with special reference to carbonyl compounds and concept of photo reduction.
		To study photochemical reactions including stereo chemistry
		To understand the importance of protection of functional groups in synthetic chemistry.
		To understand the importance of named reactions and phase transfer catalysts
		To understand the novel synthetic reactions in synthetic chemistry
	Credits: 3, three theory hours per week over a semester. Credits: 2, one practical class of two hours per week over a semester	
2022.10	Pharmaceutical and Medicinal Chemistry	To study the important terms in pharmaceutical chemistry
		To study the Classification, structures and therapeutic activity of various drugs
		To study the Synthesis and therapeutic activity of Sulphadrugs, Anti malaria's, Psycho therapeutic Drugs
		To study Antiasthma Drugs, Antianginals, Diuretics.
		To understand Immunity - CD-4cells, CD-8cells, Retro virus, Replication in human body.
		To understand the Drugs available in treatment of HIV

	Credits: 3, three theory hours per week over a semester. Credits: 2, one practical class of two hours per week over a semester

B.Sc., Computer Science – Programme Code – 2225

Course Code	Course Name	Course Outcome
2225.1	**Problem Solving in C**	1. Understand the evolution and functionality of a Digital Computer. 2. Apply logical skills to analyse a given problem 3. Develop an algorithm for solving a given problem. 4. Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc. 5. Apply 'C' language constructs to the algorithms to write a 'C' language program.
	Credits :3 1 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	
2225.2	**Data Structures using C**	1. Understand available Data Structures for data storage and processing. 2. Comprehend Data Structure and their real-time applications - Stack, Queue, Linked List, Trees and Graph 3. Choose a suitable Data Structures for an application 4. Develop ability to implement different Sorting and Search methods 5. Have knowledge on Data Structures basic operations like insert, delete, search,update and traversal 6. Design and develop programs using various data structures 7. Implement the applications of algorithms for sorting, pattern matching etc 8.
	Credits :3 1 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	

2225.3	**Object Oriented Programming using JAVA**	1. Understand the concept and underlying principles of Object-Oriented Programming 2. Understand how object-oriented concepts are incorporated into the Java programming language 3. Develop problem-solving and programming skills using OOP concept 4. Understand the benefits of a well-structured program 5. Develop the ability to solve real-world problems through software development in high-level programming language like Java 6. Develop efficient Java applets and applications using OOP concept 7. Become familiar with the fundamentals and acquire programming skills in the Java language.
	Credits :3 1 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	
2225.4	Data Structures	1. Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms 2. Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs. 3. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs 4. Demonstrate different methods for traversing trees 5. Compare alternative implementations of data structures with respect to performance 6. Compare and contrast the benefits of dynamic and static data structures implementations7. Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack. 8. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.
	Credits :3 1 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	

2225.5	**Data Base Management Systems**	1. Design and model of data in database. 2. Store, Retrieve data in database
	Credits :3 2 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	
2225.6	Software Engineering	1. Ability to gather and specify requirements of the software projects. 2. Ability to analyze software requirements with existing tools 3. Able to differentiate different testing methodologies 4. Able to understand and apply the basic project management practices in real life projects 5. Ability to work in a team as well as independently on software projects.

	Credits :3 2 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	
2225.7	Computer Networks	1. Identify the different components in a Communication System and their respective roles. 2. Describe the technical issues related to the local Area Networks 3. Identify the common technologies available in establishing LAN infrastructure.
	Credits :3 2 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	
2225.8	**Foundations of Data Science**	1. Able to apply fundamental algorithmic ideas to process data. 2. Learn to apply hypotheses and data into actionable predictions 3. Document and transfer the results and effectively communicate the findings using visualization techniques.
	Credits :3 2 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	

2225.9	**Big Data Technology**	1. Learn tips and tricks for Big Data use cases and solutions. 2. Learn to build and maintain reliable, scalable, distributed systems with Apache Hadoop. 3. Able to apply Hadoop ecosystem components.
	Credits :3 2 Theory period of one hour per week over a semester 1 Tutorial period of one hour per week over a semester 1 Practical period of two hour per week over a semester	
2225.10	**Project Work**	1. Motivate to work in emerging/latest technologies. 2. Help to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.
	Credits :2 1 Practical period of two hour per week over a semester	

B.Sc., Botany– Programme Code – 2523

Course Code	Paper Title	Course Outcome
2523.1	**Fundamentals of Microbes and Non Vascular Plants**	The Structure in relation to functions of Cells the fundamentals unit of life, or concerned in this course. Course along with molecular present in Cells and the flow they make the basics frame work of cell and their continuity.
		Awareness created on Diversity on Algae fungi,
		Knowledge to create on microbial diversity
	Credits : 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	
2523.2	**Basics of Vascular plants and Phyto Geography**	Diversified plants groups in vascular cryptogams
		Deals with flowering seeded plants with economic importance
		Amylase the tissue systems and their structural and functional role
		Deals with secondary growth of some important plants
	Credits : 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	
2523.3	**Plant Taxonomy and Embryology**	Understands the Taxonomic relationship between plant groups.
		Analyse the economic importance of cereals, pulses.
		Learn to grow high yielding varieties.
		Develops skills in identification of plant groups.
	Credits: 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	
2523.4	**Plant Physiology and metabolism**	Understands the different metabolisms of plants.
		Learns to apply growth hormones for promotion of plant growth.
		Develop skill to perform procedures as per laboratory standard in the area of Biochemistry
	Credits: 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	

2523.5	**Cell Biology, Genetics and plant Breeding**	Understand the Nature and basic concepts of cell Biology and genetics.
		Demonstrate the knowledge of common and advanced laboratory practices in cell biology.
		Leanrs the methods of crop improvement.
	Credits: 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	
2523.6	**Plant Ecology and Phyto geography**	Learns about the balanced Ecosystem.
		Understands the loss of Biodiversity.
		Learns to promote Biodiversity.
	Credits: 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	
2523.7	**Nursery gardening and flori culture**	Learns to grow and Manage Nursery.
		Understand the computer application in land scoping.
		Develop skills in propagation methods.
		Learns to become an entrepreneur.
	Credits: 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	
2523.8	**Plant diversity and Human Welfare**	Learns to analyse how the plants can be used for Human Welfare.
		Learns solid and liquid waste management.
		Develops skills in enumerating the avenue plantations and their diversity in local town.
	Credits: 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	
2523.9	**Ethnobotany & Medicinal Botany**	Understand the plant utilization methods by tribal population for their food, medicinal uses.
		Learns the conservation of medicinal plants.
		Develop skill an traditional knowledge about plant medicines.
	Credits: 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	

2523.10	**Pharmacognosy and Phytochemistry**	Learn the Isolation techniques of active principles from various parts of popular medicinal plants.
		Understand to Isolation technique of volatile oils from plant - extraction methods.
		Acquire knowledge about crude drugs.
		Understands the use of medicinal plants in Phytochemistry and Pharmacognosy
	Credits: 3, Theory periods of one hour per week over a semester. Credits : 2, Practical period of two hours per week over a semester.	

B.Sc., ZOOLOGY PROGRAMME CODE : 2524

Course code	Course Name	Course Outcome
2524.1	**Animal Diversity – Biology of No chordates**	➢ Describe general taxonomic rules on animal classification ➢ Classify Protozoa to Coelenterate with taxonomic keys ➢ Classify Phylum Platyhemninthes to Annelida phylum usingexamples from parasitic adaptation and vermin composting ➢ Describe Phylum Arthropoda to Mollusca using examples andimportance of insects and Molluscans ➢ Describe Echinodermata to Hemichordate with suitable examples andlarval stages in relation to the phylogeny
		credits 4 Theory periods of one hour per week over a semester **1 Practical periods per batch of two hour per week over a semester**
2524.2	**Animal Diversity – Biology of Chordates**	➢ Describe general taxonomic rules on animal classification of chordates ➢ Classify Protochordata to Mammalian with taxonomic keys ➢ Understand Mammals with specific structural adaptations

		➢ Understand the significance of dentition and evolutionary significance ➢ Understand the origin and evolutionary relationship of different phyla from Prochordata to mammalian.
		credits 4 Theory periods of one hour per week over a semester **1 Practical periods per batch of two hour per week over a semester**
2524.3	**Cell Biology, Genetics and Evolution**	Understand and study concepts of embryology like gametogenesis, types of eggs, cleavage patterns and extra embryonic membranes of animals
		Understand various systems and their functioning in the animal body
		Analyze ,recognize and appreciates the nature laws and interactions of a biotic and biotic
		Perform various physiological ecological practicals which help them to develop experimental skills and research work.
		credits 4 Theory periods of one hour per week over a semester **1 Practical periods per batch of two hour per week over a semester**
2524.4	**Embryology, Physiology and Ecology**	Gains knowledge on fundamentals of cell, its organelles and their role in living organism
		Acquire knowledge on the basic concepts of gene interactions ,hereditary ,linkages & genetical errors
		Understand the evolution of life and living organisms and various theories related to evolution.
		Learns techniques involved in slide making ,develops investigation skills by solving problems related to genetics and understand the theme of survival of the fittest
		credits 4 Theory periods of one hour per week over a semester **1 Practical periods per batch of two hour per week over a semester**
2524.5	**Animal Biotechnology**	comprehensive understanding of the principles and practices of biotechnology.
		Gains experimental technical skills in methods of biotechnology.

		Ability to think and solve problems in the field of biotechnology.
		Effectively communicate with biotech and other interdisciplinary professionals.
		credits 4 Theory periods of one hour per week over a semester **1 Practical periods per batch of two hour per week over a semester**
2524.6	**Animal Husbandry**	Describe the state of the animal husbandry profession and potential career opportunities
		After completing this course student can become entrepreneur
		Aquires knowledge in the areas of regularly checking animal's living in the area
		Preparing meals for them and feeding them
		Take care of their health and providing right medicine for dairy animals
		Understands the principles of dairy and poultry farm
		credits 4 Theory periods of one hour per week over a semester **2 Practical periods per batch of two hour per week over a semester**
2524.7	**Electives: VIIB Cellular Metabolism And Molecular Biology**	Identify the 4 classes of macromolecules, their monomers, and their functions in cells. Describe the CELLULAR METABOLIC PATH WAYS and understand their significance in living organism Discuss energy transfer, enzyme function and the pathways of cellular respiration and protein synthesis. Describe structure and types of DNA and RNA and learns the structure of gene in prokaryotes and eukaryotes..
		Credits 3Theory period of one hour per week over a semester **2 Practical period per batch of two hour per week over a semester**
2524.8	**Electives VIIIB I Principles of Aquaculture**	Utilize the developed expertise in concepts, theories, and emerging methodologies to succeed in tackling real-world issues in aquaculture and aquatic science.

		Conduct himself/herself in a manner consistent with an embodied sense of environmental stewardship.
		Access, analyze, synthesize, and evaluate information objectively and deal professionally and ethically with clients, the public, and agency personnel
		Demonstrate advanced knowledge and competency in taxonomy and natural history of aquatic flora and fauna..
		Demonstrate hands-on experience in aquatic sampling inventory and measurement techniques.
		Become an independent, self-motivated professional with the ability to recognize problems in their field of aquaculture and aquatic science and apply critical thinking and problem-solving skills.
		Utilize existing technology, products, and services to maximize work efficiency and success.
		credits 3Theory periods of one hour per week over a semester **4 Practical periods per batch of two hour per week over a semester**
2524.9	**ELECTIVE: CLUSTER ELECTIVES –VIII-B 2 Aquaculture Management**	Understand the structure and functions of aquatic ecosystems
		Observe culture techniques of phytoplankton and zooplankton species
		Understand pond lay-out, construction and preparation
		Learn hatchery and nursery operations
		Understand principles of "closed" aquaculture systems
		Analyze harvesting and marketing strategies
		Learn how to set-up and maintain aquarium systems
		Study of biology and life cycle of cultured species
		Learn various breeding and water quality monitoring techniques
		Study pathogens and diseases and their treatments

2524.10	**CLUSTER ELECTIVE: – VIII-B3 : . Postharvest Technology**	Understand technologies of post-harvest technology and its role in providing better quality produce to the consumer. Processing and preservation of fish and fish by-products
		Understand utilization of the produce and methods for shelf-life extension Learn storage and cold chain management i.e,Handling and Principles of fish Preservation
		Learns Processing and preservation of fish and fish by-products
		Study Quality Assurance, Management and Certification

B.A – HISTORY – Programme Code - 1011

Course code	Course Name	Course Outcome
1011.1	Ancient Indian History & Culture (From Indus Valley Civil. to 13 Century A.D)	➢ Identify and define various kinds of sources and understand how history books are shaped ➢ Compare and contrast various stages of progress from IVC to Vedic age and analyze the Jain, Buddhist and Vedic faiths ➢ Increase the awareness and appreciation of Transition from Territorial States to Emergence of Empires ➢ Analyze the emergence of the Mauryan and Gupta empires during the "classical age" in India ➢ Evaluate the key facets of ancient society, polity and culture in South India—the feudalism, and the rise of technology and commerce. ➢ Critically examine the nature of monarchic rule and develop a comprehensive understanding of cultural evolution during ancient period ➢ Visualize where places are in relation to one another through map pointing
	Credits : 4 Theory periods Weekly 5 hours	
1011.2	Medieval Indian History & Culture (1206 A.D To 1764 A.D) min	➢ Understand the socio, economic and cultural conditions of medieval India ➢ Describe the advent of Islam in India and study the traces of political and cultural expansion of Turks & Afghans ➢ Explain the Administration and art and architecture of Vijayanagar Rulers, Mughals and also analyse the rise of the Marathas and the contribution of Shivaji ➢ Evaluate the establishment of the British rule in India and understand the dangerous

		consequences disunity at all levels ➢ Analyze the emergence of composite culture in Indian ➢ Visualize where places are in relation to one another through map pointing
	Credits : 4 Theory periods Weekly 5 hours	
1011.3	**Indian History and Culture from 1526 to 1761**	Studying the Survey of the Source Moughal and Marothas
		Studying Second Afghen Empire - Shershow Achievement and his Administration
		Learn Administration and Deline of Moughal Empire
		Know about Society, Economy, Agriculture trade and commerce, Religion and Hindu, Muslima relations
		Know about Rise of Marathas : Sivaji Age of Peshawar utes per week over a semester.
	Credits : 4 Theory periods Weekly 5 hours	
1011.4	**Indian History and Culture from 1757 to 1964**	Studying Advent of European Powers, Indian under East India Company
		Studying Anti Colonial upsurge. Peasant and Tribal movements - Pavoll of 1857
		Studying - Factors of Socian changes Indian penaisance : Socio Religious Movements
		Know about Indian National Movement
		Studying Emergence of Communal Trends Independent India
	Credits : 4 Theory periods Weekly 5 hours	
1011.5	**History of Modern world 1453 to 1821**	Studying Feudalism - Geographical discoveries
		Know the Renaisance Movement Preformation and counter Reformation Movements
		Learn Emergence of Nation States
		Studying the French Revaluation
	Credits : 4 Theory periods Weekly 5 hours	
1011.6	**History and Culture of Andhra**	Learn Andhra during 12th and 13th Centuries A.D. Kakateyas and the age of Reddy Kingdoms.

	Peoes from Satavahanas to 1857AD	Learn Andhra Between 14th & 16th countries A.D. Vijayanagara Empire
		Learn Andhra through 16th and 17th Centuries A.D. the Qutcub Shahis of Golkonda
		Learn the 18th and 19th Centuries in Andhra East Indian Company's Authority
		Learn 18th and 19th Centuries in Andhra Impact of Company Rule in Andhra
		Land Revenue Settlements Impact of 1857 Revenue in Andhra
	Credits : 4 Theory periods Weekly 5 hours	
1011.7	**History of Modern Europe (From 19th Century to 1945 A.D.)**	Learn about Industrial Revaluation
		Studying Unification Movements in Italy & Germany
		Studying Communist Revolution Russia
		Know about world war I and League Nations
		Studying World War II Fascism & Nazism and the United Nations
	Credits : 4 Theory periods Weekly 5 hours	
1011.8	**Cultural tourism in Andhra Pradesh**	Know about the concepts of Tourism
		Know the Types of Tourism
		History and Tourism
		Studying Planning and Development of A.P. Tourism
		Studying Modalities of Tourism
	Credits : 4 Theory periods Weekly 5 hours	
1011.9	**Popular movements in Pradesh**	Learn for comparatives Social and Self-respect Movements
		Studying Freedom Movement in Andhra (1885-1920)
		Studying Freedom Movement in Andhra (1920-1947)
		Studying Movement for separate Andhra State (1953)
		Learn about Movement for formation of Andhra Pradesh (1956)
	Credits : 4 Theory periods Weekly 5 hours	
1011.10	**Contemporary History of Andhra Pradesh (1956-**	Know about Socio, Economic changes in Andhra Pradesh
		Learn the Growth of Lebtist Ireology

	2014)	Learn the Dalit Movement
		Studying early trends towards Bifurcation
		Studying Bifurcation of Andhra Pradesh Power Politics
	Credits : 4 Theory periods Weekly 5 hours	

B.A – ECONOMICS – Programme Code – 1012

Course Code	Course Name	Course Outcome
1012.1	**Microeconomic Analysis**	1. Remembers and states in a systematic way(Knowledge) a) the differences between microeconomic analysis and macro economic analysis b) various laws and principles of microeconomic theory under consumption, 2. Explains(understanding) a) Various terms and concepts relating to microeconomic analysis with the help of examples of real life. a. Consumer's equilibrium and consumer's surplus using indifference curve analysis. b. various laws and principles of consumption, production, and income distribution c. determination of price and output discriminating different market conditions in short term and long term. 3. Critically examines using data and figures (analysis and evaluation) a. various laws and principles of microeconomic analysis and market conditions b. Application of the concept of demand elasticity and its relation with Average and Marginal Revenue. c. the relationship between average and marginal cost/revenue both in long term and 4. Draws critical diagrams and graphs to explain and examine the application of various laws and principles of micro economic analysis
1012.2	Macro Economic Analysis	1. Remembers and states in a systematic way(knowledge): Various concepts, definitions, laws and principles of macroeconomic theory with reference to income, employment, money, banking and finance 2. Explains(understanding): a) The difference between various concepts and components of national income with illustrations and methods of measuring national income b) various terms, concepts, laws and principles, theories relating to income, employment, consumption, investment, money, price-level and phases of trade cycles c) functions of commercial banks and central bank, creation and control of credit 3. Critically examines using data and figures (analysis and evaluation)

		a) in order to understand the interrelationship between various components of national income. b) the theories of macroeconomics with reference to their assumptions ,implications and applicability. c) Empirical evidences of Consumption and Investment Functions and factors influencing them 4. Draws critical formulae, diagrams and graphs. a. consumption and investment functions; concepts of multiplier and accelerator b. price indices, inflation and trade cycles
		Credits:4; 5 Periods of One hour per week over a semester
1012.3	**Macro Economics**	On Completion of the course the students are able to Understand
		Macro Economic Analysis.
		Concepts, Estimation and Difficulties in Measuring National Income.
		Functions, Classification and Theories of Money.
		Implementation and Effects of Demonetization in India.
		Theories of Output and Employment.
		Consumption and Investment Functions.
		Credits:4; 5 Periods of One hour per week over a semester
1012.4	**Macro Economics**	On Completion of the course the students are able to Understand
		Causes and Consequences of Business Cycles.
		Effects and Measures to Control Inflation.
		Advantages and Theories of International Trade
		Stock Markets and Concepts of Insurance.
		Measurement of Economic Development
		Fiscal, Monetary and Exchange rate Policies.
		Credits:4; 5 Periods of One hour per week over a semester

1012.5	**Contemporary Indian Economy**	On Completion of the course the students are able to Understand
		Trends in Indian National Income.
		Remedial Poverty, Unemployment.
		Occupational Structure in India and in the State of Andhra Pradesh
		Structure, Objectives, Aims and Achievements of Indian PlanningNITI Ayog.
		Agriculture in India and in the State of Andhra Pradesh
		Tax Reforms and GST.
		Credits: 4; 5 Periods of One hour per week over a semester
1012.6	**Quantitative Techniques**	On Completion of the course the students are able to Understand
		Functions and Importance of Statistics.
		Collection of Data.
		Measures of Central Tendency.
		Measures of Dispersion.
		Measures of Correlation and Regression
		Determination of Matrix.
		Credits:4; 5 Periods of One hour per week over a semester
1012.7	**Agricultural Economics**	On Completion of the course the students are able to Understand
		Role of Agricultural Sector in Indian Economy.
		Inter-Dependence Between Agriculture and Industrial Sectors.
		Input-Output and product Relationship in Farm Production.
		Growth and Productivity Trends in Indian Agriculture.
		Farm size and productivity Relationship in Indian Agriculture.
		Agro-Industries in Agribusiness enterprises.
		Credits:4; 5 Periods of One hour per week over a semester
1012.8	**Agri business Environment in Andhra Pradesh**	On Completion of the course the students are able to Understand
		Role of agriculture process in Andhra Pradesh
		Backward and forward linkages of agriculture
		Sources pf Agricultural finance

		Trands in exports of Agriculture products
		Structure of Agricultural markets
	Credits 4 : 5 periods of One hour per week over a semester	
1012.9	**Agricultural Output Marketing**	On Completion of the course the students are able to Understand
		Marketing structure of major agricultural products
		Challenges in Agricultural marketing
		Support prices for Agri products
		Inter regional and International Trade in Agriculture
		W T O and Indian Agricultura
	Credits 4 : 5 periods of One hour per week over a semester	
1012.10	**Agricultural Input Marketing**	On Completion of the course the students are able to Understand
		Distinative feature of Agri input marketing
		Strangth and weakness on Indian seed Industry
		Fertilizer, Production and Marketing
		Bio pastisides, role and supply
		Need for the development of Agricultural machanization
	Credits 4 : 5 periods of One hour per week over a semester	

B.A., Politics Science – Programme Code – 1013

Course Code	Paper Title	Course Outcome
1013.1	**Introduction To Political Science**	➢ Recall the previous knowledge about Political Science and understand the nature and scope, traditional and modern approaches of Political Science. ➢ Understand concepts intrinsic to the study of Political Science. ➢ Have solid theoretical understanding of Rights and its theories along with the basic aspects of certain political ideologies. ➢ Apply the knowledge to observe the field level phenomena
1013.2	**Basic Organs Of The Government**	➢ Understand the Origin and Evolution of the concept of Constitutionalism andclassification of Constitutions. ➢ Acquaint themselves with different theories of origin of State. ➢ Understand and analyses organs and forms of Governments along with a deep insight intothe various agents involved in the political process. ➢ Apply the knowledge to analyse and evaluate the existing systems
1013.3	**Indian Constitution**	1. Learn to the making of the constitution.
		2. Understand philosophical premises of the Indian Constitution.
		3. It provides fundamental rights and directive principles of state Policy.
		4. Learn to Indian Federalism.
		5. Understanding working of the Indian Constitution.
1013.4	**Indian Political Process**	1. Approaches to study the political processes in Indian.
		2. Understand Social structure and democratic process.
		3. Learn religion and Politics
		4. Understand party and eloctoral processes in Indian.

1013.5	**Indian Political Thought**	1. The course helps to know the traditions of Ancient Indian Political thought.
		2. Learn renaissance thought.
		3. Understand early Nationalism.
		4. Learn religious nationalism.
		5. Approaches to study democratic egalitarianism.
1013.6	**Western Political Thought**	1. Learn classical Western Political thought.
		2. Approaches to study early medieval to the beginning of modern thought.
		3. Understand liberal thought.
		4. Learn liberal democratic thought.
		5. Understand Philosophical idealism and its critique.
1013.7	**Principles of Public Administration**	1. Learn the nature of Public Administration.
		2. Understanding administration theories.
		3. Learn the Principles of organization.
		4. Approaches to study structure of organization.
		5. Understand theories of motivation
1013.8	**International Relations**	1. Understand basic concepts of International relations.
		2. Approaches to the study of International relations.
		3. Phases of International relations 1914-1915.
		4. Phases of International relations 1945 onwards.
		5. Learn the International organisation.
1013.9	**Indian Foreign Policy**	1. Evolution of Indian Foreign Policy.
		2. Learn the non- Alignment and UNO.

		3. Understand Indian relation with US and China.
		4. Learn the India and her neighbors.
1013.10	**Contemporary Global issues**	1. Understand conceptions of Globalizations.
		2. Learn the Anchors of Global Political Economy.
		3. Understand Nation State and Globalization.
		4. Learn the contemporary Global issues.

B.Com., Commerce – Programme Code – 3030

Course code	Course Name	Course Outcome
3030.1	FUNDAMENTALS OF ACCOUNTING	➢ Identify transactions and events that need to be recorded in the books of accounts. ➢ Equip with the knowledge of accounting process and preparation of final accounts of sole trader. ➢ Develop the skill of recording financial transactions and preparation of reports in accordance with GAAP. ➢ Analyze the difference between cash book and pass book in terms of balance and make reconciliation. ➢ Critically examine the balance sheets of a sole trader for different accounting periods. ➢ Design new accounting formulas & principles for business organizations
3030.2	Business Organization & Management	➢ Understand different forms of business organizations. ➢ Comprehend the nature of Joint Stock Company and formalities to promote a Company. • Describe the Social Responsibility of Business towards the society. ➢ Critically examine the various organizations of the business firms and judge the best among them. ➢ Design and plan to register a business firm. Prepare different documents to register a company at his own. ➢ Articulate new models of business organizations.
3030.3	BUSINESS ENVIRONMENT	➢ Understand the concept of business environment. ➢ Define Internal and External elements affecting business environment.

		➢ Explain the economic trends and its effect on Government policies. ➢ Critically examine the recent developments in economic and business policies of the Government. ➢ Evaluate and judge the best business policies in Indian business environment. ➢ Develop the new ideas for creating good business environment.
3030.4	FINANCIAL ACCOUNTING	➢ Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment. ➢ Analyze the accounting process and preparation of accounts in consignment and joint venture. ➢ Distinguish Joint Venture and Partnership and to learn the methods of maintaining records under Joint Venture. ➢ Determine the useful life and value of the depreciable assets and maintenance of Reserves in business entities. ➢ Design an accounting system for different models of businesses at his own using the principles of existing accounting system.
3030.5	BUSINESS ECONOMICS	➢ Describe the nature of economics in dealing with the issues of scarcity of resources. • Analyze supply and demand analysis and its impact on consumer behaviour. ➢ Evaluate the factors, such as production and costs affecting firms behaviour. ➢ Recognize market failure and the role of government in dealing with those failures. ➢ Use economic analysis to evaluate controversial issues and policies. ➢ Apply economic models for managerial problems, identify their relationships, and formulate the decision making tools to be applied for business.
3030.6	BANKING THEORY AND PRACTICE	➢ Understand the basic concepts of banks and functions of commercial banks. ➢ Demonstrate an awareness of law and practice in a banking context. ➢ Engage in critical analysis of the practice of banking law. ➢ Organize information as it relates to the regulation of banking products and services. • Critically examine the current scenario of Indian Banking system. ➢ Formulate the procedure for better service to the customers from various banking innovations.
3030.7	Corporate Accounting	Discern the Financial position of a company
		Identify the new format of Balance sheet as per revised schedule VI in company Act 2013
		An understanding of the Principles of Accounting for investments in associates.
3030.8	Business Statistics	Statistical reasoning and international methods
		Data analysis using statistical computing tools and software

		Probability and the mathematical foundations of statistics
3030.9	Banking Theory & Practice	To carry out Financial analysis of banks and insurance companies
		To keep up with developments in Financial markets
		To import knowledge on Banking and Insurance concepts and to gain an insist on Financial Services
3030.10	Accounting for service organization	Preparation of Financial position of a Banking companies
		Preparation of the double Accounting system in Electricity Companies
		Prepare Financial Statements in Insurance Companies
3030.11	Business Law	To impact knowledge of the important business laws along with relevant case laws.
		To develop knowledge about various Agreements and contracts and also various modes of Discharge of contracts.
		To acquire knowledge about sale of goods Act, 1930, conditions and warranties, contract of sale and Agreement to sell, cyber laws etc.,
3030.12	Income Tax	To get knowledge about the Income Tax Laws and also basic concepts of Income Tax
		To get information how to calculate Income from salary, deductions from Salary
		To know about Income from Salary and other sources, capital gains, calculation of total Income and Individual Income and Assessment
3030.13	Cost Accounting	Apply cost accounting, Methods to evaluate and project business performance
		To develop knowledge and understanding of the operations and maintenance of cost systems
		To prepare Financial statements in accordance with general accepted Accounting Principles
3030.14	Commercial Geography	Evaluating the impacts of human activities on Natural Environment
		To improve student understanding of Indian Geography
		To develop the skills to locate important latitudes and congitudes passing through India
3030.15	Central Banking	To develop knowledge about Banking system in India, Central Bank and R.B.I
		To a quire knowledge about evolution of Central Bank, Functions, Credit control methods followed by Central Bank

		To know about reserve Bank of India. Functions and objectives of RBI, monetary policy CRR,CLR,SLR, Repo rate, currency circulation Bank rate, Inflation, Foreign Exchange rates etc.,
3030.16	Rural and Form credit	To obtain knowledge in Rural credit policies, classification of Rural Credit, GCC Financial Inclusion.
		To get knowledge in Rural Credit Agency farm credit, Kisan Credit Cards (KCC) principles of Farm credit.
		To study farm credit Analysis, Analysis of 3 Rs. Analysis of 3 c's of credit, Rural Credit Survey Report
3030.17	Business Leadership	To Develop knowledge about Business leadership, Traifs, skills and styles
		To get knowledge about taking Decision making Leadership practices, organisational culture
		New profiles of a fes inspirational leaders in Business, JRP TATA, Aditya Birla, LN Mittal etc.,
3030.18	Project work – I	To aim at educate the students what is project work and its concepts and obtaining knowledge how to prepare project work
		To objective of the project is to get real knowledge about the constitution of Bank and their functions
		To know the Activies, Loans sanctions interest rates and functions and also loan recoveries adopted policies by the Banks like SBI, HDFC etc.,
3030.19	Marketing	identity care concepts of Marketing and Role of Marketing in
		Knowledge of Social, Legal, ethical and Technological forces on Marketing Decision making
		Ability to develop Marketing strategies based on product, price, place and promotion
3030.20	Auditing	To impart knowledge pertaining to basic concepts of Auditing
		To acquire oneself with auditing procedures and Report writing
		Recognize circumstances providing for increased exposure to frand and define preventive internal control measures
3030.21	Management Accounting	To acquire knowledge in Management Accounting, Financial Statement analysis and in terpretatism

		To gain knowledge about Ratio Analysis, Liquidity, Profitibality and also solvency Ratio
		To know about cash Flow statement, Fund flow statements and Break-Even - Analysis
3030.22	Financial Services	To impair knowledge to study Financial services system adopted in Inda in order to assist
		To get knowledge about Banking and Non-Banking companies, venture capital and De-mart services etc.,
		To know about credit Ratings, Types and symbols, Crisil, Care, NSDL, CSDL and Mutual funds etc.,
3030.23	Marketing & Financial Services	Learning outcomes, after studying this courses, you should be able to understand and identity customers, consumers and clients and their needs and expectations
		Honours Bachelor of Business administration recommend profitable B2 B and B2 C customer relations management strategies that are consistent with organisational marketing objectives
		Communicate the major concepts in the functional areas of accounting, marketing, Finance, information technology and Management
3030.24	Project Work – II	To Develop the knowledge in Financial services rendered by Banking and Non-Banking activities prepared by the students as a project
		To get knowledge through Project Work done by the students in the field of lease and High purchase of some organisation like BAJAJ, SONO VISION etc.,
		To get knowledge in CREDIT CARDS, NSDL, CSDL etc.,

B.VOC.,

INDUSTRIAL AQUACULTURE AND FISHERIES - FIRST SEMESTER

CODE	NAME OF PAPER	OUT COME
IAF-T2	Biology of Finfishes and shellfishes	➢ By the end of the course the student will be equipped with the knowledge of taxonomy, morphology & physiology of fin & Shell fishes. ➢ Knowledge on the basic taxonomic tools for the identification of fin & shell fishes will be learnt by the student.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
IAF-T3	Principles of Aquaculture	➢ By the end of the course the student will be equipped with the aquatic ecosystem ➢ Knowledge on the pond ecosystem will be learnt by the student. ➢ Knowledge on the cultivable fishes will be learnt by the student.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
IAF-T4	Fresh Water Aquaculture	➢ At the end of the course student can able to gain the knowledge on the fresh water aquaculture practices. ➢ Knowledge on the culture systems be learnt by the student.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		

INDUSTRIAL AQUACULTURE AND FISHERIES - SECOND SEMESTER		
CODE	**NAME OF PAPER**	**OUT COME**
IAF-T6	Brackish water Aquaculture and Mari culture	➢ Knowledge on the biology and biological cycle of the brackish water & marine cultivable species will be learnt. ➢ Knowledge on the brackish water culture practices will be learnt by the student. ➢ Knowledge on the Mari culture will be learnt by the student.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
IAF-T7	Hatchery Technology in Aquatic Organisms	➢ Knowledge on the biology and biological cycle of the brackish water & marine cultivable species will be learnt. ➢ Knowledge on the brackish water culture practices will be learnt by the student. ➢ Knowledge on the Mari culture will be learnt by the student.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
IAF-T8	Gear and Craft in Aquaculture	➢ Student will learn the knowledge on the crafts. ➢ Mechanism involved in the operation of the fishing gear will be learnt by the student. Tools for the identification of fishery resources will be learnt by the student.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		

INDUSTRIAL AQUACULTURE AND FISHERIES - THIRD SEMESTER		
CODE	**NAME OF PAPER**	**OUT COME**
IAF - T10	Inland and marine fisheries	➢ By the end of the course the student will be equipped with the knowledge of marine, brackish, fresh water, pelagic, demersal and deep sea fisheries. ➢ Knowledge on the classification, types and identification of costal fisheries. ➢ Knowledge on the different organizations and institutes involved in fisheries and aquaculture and research and development.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
IAF – T11	Aquaculture nutrition	➢ By the end of the course the student will be equipped with the aquaculture nutritional aspect on finfish and shellfish fisheries. ➢ Knowledge on the field ingredients, nutritional formulations, feed management and quality assessment. ➢ Knowledge on the practical aspects on evolution types of feed and nutritional deficiency diseases.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
IAF – T12	Fish genetics and aquaculture biotechnology	➢ At the end of the course student can able to gain the knowledge of biotechnology principles, fish genetics and biotechnology studies. ➢ Knowledge on the genetical studies and breeding programmes on aquatic species. ➢ Knowledge on molecular applications on aquaculture.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		

INDUSTRIAL AQUACULTURE AND FISHERIES - IV SEMESTER		
CODE	**NAME OF PAPER**	**OUT COME**
IAF – T14	Pathology in aquaculture	➢ Knowledge on the microbial diseases in aquaculture species. ➢ Knowledge on the bacterial diseases and nutritional diseases and effect of aquaculture species. ➢ Knowledge on the immunology and fish health management.
Credits: 4 four theory hours for week over a semester Credits: 2 one practical class of two hours for week over a semester		
IAF – T15	Ornamental fisheries	➢ Knowledge on the aquarium design and setup, water quality management. ➢ Student will learn the knowledge of biology of ornamental fisheries. ➢ Knowledge on nutritional and pathology in aquarium fisheries.
Credits: 4 four theory hours for week over a semester Credits: 2 one practical class of two hours for week over a semester		
IAF – T16	Fishery microbiology and byproducts	➢ Student will learn the knowledge on the micro biological aspects. ➢ Knowledge on microbial culture effect on aquatic species and various environments. ➢ Knowledge on value fishery additional byproducts.
Credits: 4 four theory hours for week over a semester		

INDUSTRIAL AQUACULTURE AND FISHERIES - V SEMESTER		
CODE	**NAME OF PAPER**	**OUT COME**
IAF – T18	Fish processing technology and quality control	➢ Student will learn the knowledge fish processing, freezing and preservation technics. ➢ Knowledge on fish packing and quality assurance of finfish and shellfish. ➢ Student will learn quality of sea food, basic concepts and quality control of fish processing and standards of sea food.
Credits: 4 four theory hours for week over a semester Credits: 2 one practical class of two hours for week over a semester		
IAF – T19	Aquatic pollution	➢ Student will learn the knowledge of water quality and characteristics of water. ➢ Knowledge of variant pesticides, different waste materials. ➢ Knowledge on microbial pollution and ground water pollution. ➢ Knowledge on monitoring and control of pollution and functions of pollution control board.
Credits: 4 four theory hours for week over a semester Credits: 2 one practical class of two hours for week over a semester		
IAF - T20	Fisheries policy, law and disaster management	➢ Student will learn the knowledge role of central and state government regulatory activities of aquaculture and fisheries. ➢ Learn the knowledge about various fisheries legislations and disaster management in fisheries. ➢ Knowledge on pre-disaster, during disaster, post disaster management strategies.
Credits: 4 four theory hours for week over a semester		

INDUSTRIAL AQUACULTURE AND FISHERIES - V SEMESTER		
CODE	**NAME OF PAPER**	**OUT COME**
IAF – T22	Fisheries economics and marketing	➢ Student will learn the knowledge basic economic terminologies in fisheries. ➢ Knowledge on the micro economics and macro economics. ➢ Knowledge on the international trade import and export policy. ➢ Knowledge on role of fisheries in economic development.
Credits: 4 four theory hours for week over a semester Credits: 2 one practical class of two hours for week over a semester		
IAF – T23	Aquaculture engineering	➢ Student will learn the knowledge of design and construction of farm and hatcheries structures. ➢ Knowledge on different regulations in aquaculture systems. ➢ Knowledge on classification of surveying and effluent treatment plant.
Credits: 4 four theory hours for week over a semester Credits: 2 one practical class of two hours for week over a semester		
IAF – T24	Fisheries co-operative and marketing	➢ Student will learn about structure, functions, status and problems of co-operatives management in fisheries. ➢ Knowledge on role of credit for fisheries development. ➢ Role of NABARD in fisheries development. ➢ Knowledge and export and import policies in fisheries sector.
Credits: 4 four theory hours for week over a semester		

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.Voc., Food Processing and Quality Management		
Paper Code	**Paper Name**	**Outcome**
FPQM T1	**Food Science and Nutrition -1**	To understand the nutrition and health
		To Understand the dietary allowances for Indians
		To study the dietary guidelines
		To study the new concepts of Food
		To study the bioavailability, enrichment, deficiency and toxicity of vitamins and minerals
		To understand the basal metabolic rate and factors effecting BMR
		To develop skills in meal planning for different groups of people
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T2	**Basic Food Microbiology**	To understand the cultivation of Bacteria
		To study the algae protozoa and its destruction
		To study the history of food microbiology
		To understand the microorganism associated with food
		To understand the usage of microbes in food biotechnology
		To understand the extrinsic and intrinsic parameters affecting growth and survival of microbes
		To study the organic acids lipids, pectic substances
		To study the contaminants of various food stuffs
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T3	**Principles of Food Preservation**	To study the mechanism of food spoilage and its end products
		To understand the various food preservation methods
		To understand the usage of food additives
		To study the pasteurization and sterilization and canning
		To study the freezing methods and IQF technology
		To study the drying techniques and water activity of food
	Credits: 4. Four theory hours per week over a semester	
FPQM T4	**Food Science**	To study the levels of body composition and body compartments

	and Nutrition – 2	To develop skills estimation of body composition
		To develop skills skin fold measurements
		To study the glycemic index and glycemic load
		To understand the metabolic utilization and regulation of blood glucose
		To study the digestion, absorption, transportation of protein
		To understand the urea cycle
		To study the digestion, absorption, transportation of lipids in body
		To understand the plasma lipoprotein and cholesterol biosynthesis
		To understand the inborn errors of protein metabolism
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T5	**Processing of Milk and Milk Products**	To study the nutritional importance of Milk
		To understand the physiochemical properties of Milk
		To understand the microbial spoilage of milk roll of milk products in cookery.
		To study the Clarification and filtration process, standardization by using Pearson's square method,
		To understand the Cream separation- centrifugal cream separator, bactofugation.
		To understand the various categories of milk in industry
		To gain develop skills of manufacturing various dairy products
		To understand SIP system of dairy plant,
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T6	**Basics of Food Engineering**	To study the base and derived engineering units
		To understand the Modes of heat transfer
		To study the construction of various heat exchangers
		To understand the Mixing index, Mixing Equipment
		To study the Clarification and concentration process
		To study the physical properties of various fruits and grains
		To understand the Irradiation in foods
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

FPQM T7	**Food Quality Management**	To study the Quality Management System- ISO 9000 and its Management Principles
		To study the Food Safety Management System- Key role, Principles of FSMS, ISO-22000
		To study Sanitation principles and Sanitizing methods
		To understand Risk assessment and management during food preparation.
		To gain a knowledge on industrial practices
		To study the HACCP principles and limitations
		To study the various food laws
	Credits: 4. Four theory hours per week over a semester	

Food Processing and Quality Management 2nd year: III & IV semesters		
Paper Code	**Paper Name**	**Outcome**
FPQM T8	**Food Additives**	To study the role of additives in processing line
		To study the benefits of additives
		To study the risk of harmful additives
		To gain knowledge on limitation of additives usage
		To understand various types of Additives like colors, emulsifiers, stabilizers, flavor enhancers.
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T9	**Processing of cereals, pulses and oilseeds**	To learn about the processing of major cereals and pulses.
		To study structure of cereals and its importance
		To gain knowledge on cereal based processed products
		To gain knowledge about grain storage structure and handling devices.
		To study the various oil extraction methods
		To learn about byproducts of cereal. Pulses and oil seeds
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T10	**New Product Development and Sensory Science**	To gain knowledge on innovation strategies on product development.
		To study various methodologies of new product development
		To study the conversion of product concept to new product
		To study the various consumer studies and surveys
		To acquaint the students with the Sensory evaluation techniques
		To learn the steps for the development of new food products.
	Credits: 2. Two theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

FPQM T11	**Functional foods and Nutraceuticals**	To understand the basics of nutraceuticals and functional foods.
		To study the significance of nutraceuticals and their role in disease prevention.
		To understand the carotenoids metabolism in human body
		To identify new strategies for marketing of traditionally known nutraceuticals.
		To study the probiotics mechanism, health benefits and products.
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T12	**Food Safety and Microbial Standards**	To study food poisoning in various food products
		To study the various toxic phenolic substances
		To gain knowledge about toxic symptoms
		To study the various Anti microbial agents
		To understand the food borne infections
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T13	**Processing Technology of fruits and vegetables**	To acquire knowledge about the selection of fruits for processing and value addition
		To introduce the latest technologies and manufacturing processes
		To gain knowledge about effective control of safety and quality during processing
		To study process flow of various fruits and vegetable processed products
		To study the FSSAI specifications for processed products
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T14	**Food Quality and Analysis**	To develop an understanding and methodologies of instrumental techniques in food analysis
		To understand objective methods of food quality parameters.
		To learn about physical and chemical contaminants in foods.
		To understand different sampling techniques employed in chemical analysis of foods.
		To study the various contaminants in food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

FPQM T15	**Food Chemistry**	To understand the structure of water, effect of hydrogen bonding
		To study the determination methods of moisture in food
		To understand the composition , structure, reactions of Carbohydrates
		To study the various properties of Starch
		To understand the composition , structure, reactions, functions of Proteins
		To study the classification of proteins
		To understand the enzyme specificity and its mechanism
		To understand the composition , structure, reactions, functions of fats and oils
		To study the structure, chemical and physical properties of pigments and flavors in food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

BVOC., SUSTAINABLE AGRICULTURE - FIRST SEMESTER

CODE	NAME OF PAPER	OUT COME
SAGT1	Fundamentals of soil science	Knowledge about soil forming rocks and minerals, their weathering and soil forming processes and climatic factors affect them
		Understand the role of soil forming factors and processes in soil formation
		To study the physical properties of soil
		To study the classification of soils in india
		To The knowledge gained in this course will be useful in understanding the behavior of soils in crop production and management
		To study about soil PH and soil colliods
		To study about soil organic matter
		To study about soil pollution
		To develop skills in collection of different soil samples and testing methods
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
SAGT2	Fundamentals of agronomy	➢ Express knowledge gained on the principles of agronomy ➢ Recognize the various nutrients and their effects on plant health ➢ Plan irrigation measures for plant growth and development ➢ Manage weeds in a field ➢ Plan for sustainable agricultural production ➢ Apply scientific methods and tools in field preparation and for designing cropping

Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
SAGT3	Fundamentals of horticulture	By the end of the course the student will be equipped with the knowledge of Orchard planning Training and pruning in horticultural crops
		Water management , Manures and manuring Weed management in Orchard, Plant growth regulators
		plant propagation methods potting repotting pre planting treatment knowledge
		Digging and filling of pits, Water management Manures and manuring
		Weed management in Orchard Plant growth regulators Maturity indices for fruits Fruit drop
		Along with propagation they know nursery management ,management of propagation and propagation structures like green houses ,playhouses, shade net
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
SAGT4	Fundamentals of entomology and insect ecology	➢ Classify the phylum of arthropoda,identify the insects based on different order and types of insects and pupae Insect orders of agricultural importance ➢ Insect ecology ,environment and its components,effect of biotic factors –food,natural enemies ➢ Pests definition ,categaries of pests,causes for pest outbreak,losses caused by pests. ➢ Gain the knowledge of identification ,symptoms of damage caused by pests of rice,coconut,banana,pepper ➢ Pests of brinjal bittergourd and cowpea,nematode pests of crops, ➢ Common stored pests,pest monitoring,pest surveillance and pest forecasting,
Credits: 4 Four theory hours per week over a semester		

BVOC., SUSTAINABLE AGRICULTURE - SECOND SEMESTER

CODE	NAME OF PAPER	OUT COME
SAGT5	Manures ,fertilizers and soil fertility management	By the end of the course the student will be equipped with the knowledge of Importance of organic manures, properties and methods of preparation of bulky and concentrated manures.
		INM, chemical fertilizers classification, complex fertilizers, Nano fertilizers, soil amendments, fertilizers storage

		Deficiency and toxicity symptoms of essential plant
		nutrients, factors affecting nutrient availability to plants
		Soil testing, plant analysis ,rapid plant tissue tests.
		Methods of fertilizer recommendations to crops, factor influencing nutrient use efficiency, methods of application under rained and irrigated conditions.
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
SAGT6	Plantation crops ,spices and fruits	To know about the production of quality planting materials
		To study on nursery management
		To gain knowledge on management of plantation crops
		To study about the distribution, management, irrigation methods in spices
		To acquire knowledge on production and export of fruits
		To know about maturity indices, grading, packaging of different fruits
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
SAGT7	Fundamentals of plant breeding and seed technology	To be able to classify the field crops based on different criteria
		To study about the morphology of different plant parts
		To gain knowledge on modes of reproduction and methods of breeding
		To understand the characters of good quality seeds
		To learn seed testing procedures
		To demonstrate seed treatments
		To understand about seed packaging and storage
Credits: 4 Four theory hours per week over a semester Credits: 2 One practical class of two hours for week over a semester		
SAGT8	fundamentals of agricultural engineering	to study about the primary tillage and secondary tillage equipments
		to study about working and different types of of sprayer
		to study about different soil conservative methods
		to study about different material conveying equipments

		to study about combine harvester and horticultural tools and gadgets
		to study about farm ponds and percolation tanks
		to study about drip and sprinkler irrigation
	Credits: 4 Four theory hours per week over a semester	

BBA (Digital Marketing) SEMESTER - I

Course code	Course Name	Course Outcome
BBADM1	**PRINCIPLES OF MANAGEMENT**	1. To enable the students to study the functions, principles and challenges of Management in Global Scenario.
		2. It aims at understanding the planning process and in the organization.
		3. Student will get knowledge about organization, and concepts about authority.
		4. It focuses on ability to directing, leadership and effective communication.
		5. Aims at understanding and formulating best methods of control.
BBADM2	**Managerial Economics**	1. To understand the basic concept of microeconomics that are useful in business decision making
		2. It aims at understanding the demand and supply analysis in business applications.
		3. To understand consumer behavior and the concept of utility and satisfaction and its application in economics.
		4. It focuses on understanding the production and cost structure under different stages of production.
		5. Enables the student in analyzing the Demand Forecast and decision making.
BBADM3	**Fundamentals of Digital Marketing and Digital Markets**	1. It enables the student to understand the Marketing Concepts and Marketing environment in current scenario.
		2. It aims at understanding the product concept, its branding and life cycle.
		3. Focuses on pricing decisions, understanding the pricing strategies in marketing and various channels and intermediaries available in the market.
		4. Aims at application of digital marketing in the globalized market and usage of E-mail advertisement and mobile marketing.
		5. Focuses on understanding the concept of Blogs and makes student capable of

		creating and maintaining their own blogs.

SEMESTER - II

Course code	Course Name	Course Outcome
BBADM4	**ACCOUNTING FOR MANAGERS**	1. The objective of the course is to equip students with the accounting concept, tools and techniques influencing business organization.
		2. Aims at learning the techniques of posting from Subsidiary Books to Ledger.
		3. The objective of the course is to equip students to explain the purpose of preparing the bank reconciliation statement.
		4. Understand what is trial balance and what purposes it can serve. Also Learn the technique of taking balances from ledger accounts to prepare trial balance.
		5. Aims at learning the basic corporate accounts rules and issue of shares and debentures.
BBADM5	**DIGITAL AND SOCIAL MEDIA MARKETING**	1. Gives the ability to Understand the Social Media space and tools. Analyze the effectiveness of your company's and competitors' social media programs
		2. It gives knowledge on Managing social media platforms and Do's and Don'ts of Social media.
		3. student will gain knowledge on optimizing the social media and achieving social media goals.
		4. Focuses on understanding various social media platforms and creating business pages.
		. Focuses on understanding the usage of social analytics tools like google, Buzzsumo etc.,
BBADM6	**E-Commerce**	1. Understand the basic concepts and technologies used in the field of e-commerce.
		2. Focuses on understanding the impact of E-commerce on business models and strategy.
		3. It gives knowledge on Electronic payment systems and gateways
		4.Focuses on understanding the Customer relationship management and components and E-CRM
		5.Understand the processes of developing and implementing HTML.

SEMESTER - III

Course code	Course Name	Course Outcome
BBADM7	**Organizational Behaviour**	1. Understands the basic concepts of Organizational Behaviour and its applications in contemporary organizations.
		2.Enable Learners to understand various forces driving human behavior.
		3. Will understand what makes an organization, how organizations evolve and what makes them effective.
		4. Aims students with the appropriate concepts, theories, models and other tools to make better understanding of behavioral dynamics.
		5. Focuses on understanding the Concepts related to Organization Structure and cultivate an understanding of organizational culture and structure.
BBADM8	**Search Engine Optimization**	1.At the end of the course student will understand Search Engines & Ranking Concepts and How to perform Keyword Research.
		2.Equips knowledge with Search engine Friendliness and Specific Rankings.
		3. Understands SEO Best Practices to incorporate on a Website.
		4.Aims at understanding Off-page SEO and its functions.
		5.Focuses on performing Web 2.0 and other important considerations Website ecosystem, SEO for blogs.
BBADM9	**Financial Management**	1. Aims at understanding financial management in terms of the major decision areas that confront the financial manager.
		2. Develop knowledge on Applying capital budgeting projects using traditional methods.
		3. Analyze different methods of raising capital and their respective advantages and disadvantages in different circumstances.
		4. Explain alternative sources of finance and investment opportunities and their suitability in particular circumstances.
		5. Analyse a company's performance and make appropriate recommendations.

SEMESTER - IV

Course code	Course Name	Course Outcome
BBADM10	**Training and Development**	1.Student will gain knowledge related to job Training .
		2.Focuses on understanding various steps in training and its principles
		3.Equips knowledge with different methods of training in real time scenario.
		4.understands the concepts of management development and executive development.
		5.Aims in understanding the concepts of coaching and counseling during training.
BBADM11	**Business Law**	1. Understands the basic concepts of forming an enforceable contract and agreement.
		2. Enumerate the types of companies its management and its rules of corporate governance.
		3. Equips knowledge with Factories act 1948.
		4. Acquire knowledge and develop understanding of The Sales of Goods Act, 1930.
		5.Equips knowledge with The essential Commodity Act. The Consumer Protection Act, 1986.
BBADM12	**Micro, Small, Medium Enterprises Management**	1.Focuses in understanding Small and Medium Enterprises and their Significance in Indian economy.
		2.Aims at understanding Project identification, formulation and generating reports.
		3.Understands Functions of Management in Small and Medium Enterprises.
		4.Focuses on understanding the causes for the Sickness in Small and Medium enterprises and Remedial measures for sickness.
		5.Equips knowledge with Ancillary Industries.
BBADM13	**International Business**	1. Have knowledge of business administration and insight into international business.
		2. Focuses in understanding Foreign Exchange rate fluctuations and Foreign market operations
		3. Have in-depth knowledge of BOP and measures of correction of BOP.
		4. Equips knowledge with WTO and Trade blocks.
		5. Equips knowledge with Export and Import procedure, principal and auxiliary documents.
BBADM14	**Search Engine Marketing &**	1. Understand concepts of search engine marketing including various elements of

	Affiliate Marketing	search engine marketing plan.
		2. Focuses in understanding Create effective landing pages by understanding web users' behavior.
		3. Affiliate marketing helps in building performance-base. It helps broaden your audience.
		4. Affiliates can boost your reputation. It's cost effective. Affiliates can rapidly scale your traffic and sales.
BBADM15	**Cyber Law**	1. Define and describe the nature and scope of cybercrime.
		2. Develop knowledge of major incidents of cybercrime and their resulting impact.
		3. Analyze and discuss national and global digital law enforcement efforts
		4. Critically consider specific laws and policies governing cybercrime detection and prosecution.

B.Sc., ARTIFICIAL INTELLIGENCE AND ROBOTICS SEMESTER - I

Course code	Course Name	Course Outcome
AIR1	Web Technologies	1. This subject enables the student to create flexible, attractive, user-friendly web sites comprised of both static and dynamic web pages.
		2.Learn HTML programming for website designing
		3. Designing attractive websites using CSS
		4. Along with that students will also learn about interactions with web pages through Java script and host own web site on internet.
		5. After Studying this subject students would have capability to make their own web site and host on internet. Also students would have enough knowledge about the technologies used in internet.

SEMESTER - II

Course code	Course Name	Course Outcome
AIR2	Artificial Intelligence	1. The objective of the course is to present an overview of artificial intelligence (AI) principles and approaches.
		2. Develop a basic understanding of the building blocks of AI as presented in terms of intelligent agents
		3. Search, Knowledge representation, inference, logic, and learning.
		4. Students will acquire a fundamental understanding of the principles of artificial intelligence and its foundations and apply those basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation and learning.
		5. Acquire PROLOG programming knowledge which is used for Artificial Intelligence

SEMESTER - III

Course code	Course Name	Course Outcome
AIR3	Expert Systems	1.Students will be able to explain and describe the concepts central to the creation of knowledge bases and expert systems.
		2.Students will be knowledgeable about the tools and the processes used for the creation of an expert system.
		3.Student will know methods used to evaluate the performance of an expert system.
		4. At the end students will be able to get an understanding of how to transform human knowledge into an expert system and design a knowledge base. Learn LISP Program
		5. A basic understanding of natural language processing and pattern recognition is acquired.

SEMESTER – IV PAPER - 1

Course code	Course Name	Course Outcome
AIR4	Fundamentals of IoT & Robotics	1. The goal of the course is to familiarize the students with the fundamental concepts and techniques in robotic engineering and computer systems for their control and information processing.
		2. Students will be exposed to fundamentals of IoT and a broad range of topics in robotics with emphasis on basics of manipulators, coordinate transformation and kinematics, trajectory planning and control techniques
		3. Familiarization with Arduino / Raspberry PI

		4. Students are encouraged to explore the surrounding problems and design Solutions based on IoT. Some examples shown below i. Health Monitoring System ii. Smart Irrigation System using Cloud iii. Smart Waste Management System
		5. They can built different Robots and they can Set robot for any one industrial application after industrial visit

SEMESTER – IV PAPER - 2

Course code	Course Name	Course Outcome
AIR5	Machine Learning	1. To introduce students to the basic concepts and techniques of Machine Learning. To develop skills of using recent machine learning software for solving practical problems. To gain experience of doing independent study and research.
		2.On completion of the course students will be expected to have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc
		3.And also gain an understanding of the strengths and weaknesses of many popular machine learning approaches.
		4. Students gain knowledge on Neural Networks

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.SC, Food Technology 1st year 1st and 2nd semester		
Paper Code	**Paper Name**	**Outcome**
FT T1	**Food Science and Nutrition -1**	To understand the nutrition and health
		To Understand the dietary allowances for Indians
		To study the dietary guidelines
		To study the new concepts of Food
		To study the bioavailability, enrichment, deficiency and toxicity of vitamins and minerals
		To understand the basal metabolic rate and factors effecting BMR
		To develop skills in meal planning for different groups of people
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T2	**Fundamentals of Food Microbiology**	To understand the cultivation of Bacteria
		To study the algae protozoa and its destruction
		To study the history of food microbiology
		To understand the microorganism associated with food
		To understand the usage of microbes in food biotechnology
		To understand the extrinsic and intrinsic parameters affecting growth and survival of microbes
		To study the organic acids lipids, pectic substances
		To study the contaminants of various food stuffs
	Credits: 4. Four theory hours per week over a semester	

	Credits : 2. One practical class of two hours week over a semester	
FT T3	**Fundamental of Food Chemistry**	To understand the structure of water, effect of hydrogen bonding
		To study the determination methods of moisture in food
		To understand the composition , structure, reactions of Carbohydrates
		To study the various properties of Starch
		To understand the composition , structure, reactions, functions of Proteins
		To study the classification of proteins
		To understand the enzyme specificity and its mechanism
		To understand the composition , structure, reactions, functions of fats and oils
		To study the structure, chemical and physical properties of pigments and flavors in food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T4	**Basic Principles of Food Preservation**	To study the mechanism of food spoilage and its end products
		To understand the various food preservation methods
		To understand the usage of food additives
		To study the pasteurization and sterilization and canning
		To study the freezing methods and IQF technology
		To study the drying techniques and water activity of food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T4	**Basic Principles of Food Preservation**	To study the status of food processing industries in india
		To study about food industries exports laws
		To develop skills about MOFPI
		To study the objectives and functions of APEDA

		To understand the national and international food projects
		To study the food laws
		To understand the classification of food crops
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T6	**Food Quality Management**	To study the Quality Management System- ISO 9000 and its Management Principles
		To study the Food Safety Management System- Key role, Principles of FSMS, ISO-22000
		To study Sanitation principles and Sanitizing methods
		To understand Risk assessment and management during food preparation.
		To gain a knowledge on industrial practices
		To study the HACCP principles and limitations
		To study the various food laws
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

B.Voc (Software Development)

SEMESTER - I

Course code	Course Name	Course Outcome
SD1	**Applied Maths - 1**	1.Use propositional and predicate logic in knowledge representation and truth verification.
		2.Demonstrate the application of discrete structures in different fields of computer science.
		3.Solve problems using recurrence relations and generating functions.
		4.Application of different mathematical proofs techniques in proving theorems in the courses.
		5.Compare graphs, trees and their applications.
	Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.	
SD2	**Introduction to IT Tools**	1.Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming
		2.Bridge the fundamental concepts of computers with the present level of knowledge of the students.
		3.Understand binary, hexadecimal and octal number systems and their arithmetic.
		4.Understanding MS office History , Ms Word Concepts.
		5.Understanding Powerpoint Concepts and Usage.
	Credits : 4 , Four theory hours per week over a Semester. Credits : 2 One practical class of two hours for a week Over a Semester.	

SD3	**IT Foundations & Programming Concepts**	1.Understanding the Problem Definition and Steps.
		2.Understanding the Software Concepts
		3.Understanding the Algorithms and Raptor Tool.
	Credits : 2 , Two theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.	
SD4	**Photoshop and Flash**	1. Use basic selection tools and edge refinement to isolate and edit parts of an image.
		2.Manipulate layers through ordering, positioning, scaling, rotation, and adjustments.
		3.Create composite images that demonstrate advanced selection and layering techniques.
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		

Semester - II

Sub Code	Subject Name	Course Outcomes
SD5	**Applied Mathematics - 2**	1.Apply key concepts of probability, including discrete and continuous random variables, probability distributions, conditioning, independence, expectations, and variances.
		2.Define and explain the different statistical distributions (e.g., Normal, Binomial, Poisson) and the typical phenomena that each distribution often describes
		3.Apply the basic rules and theorems in probability including Bayes's theorem and the Central Limit Theorem (CLT).
		4.Apply the concepts of hypothesis testing and p-value.
Credits : 4 , Four theory hours per week over a Semester		
SD6	**C Programming**	1. Read, understand and trace the execution of programs written in C language

		2. Write the C code for a given algorithm.
		3. Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.
		4. Write programs that perform operations using derived data types.
		5. Understand the problem solving techniques.
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
SD7	**Networking & Internet Applications**	1. Describe the basis and structure of an abstract layered protocol model
		2. Independently understand basic computer network technology.
		3. Identify the different types of network topologies and protocols.
		4. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
		5. Identify the different types of network devices and their functions within a network
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
SD8	**Microsoft Advanced Excel**	1. Examine spreadsheet concepts and explore the Microsoft Office Excel environment.
		2. Understanding the --Create, open and view a workbook. ,Save and print workbooks. , Enter and edit data , Modify a worksheet and workbook.
		3. Learn to use functions and formulas. ,Create and edit charts and graphics, Filter and sort table data.
		4. Understanding the Work with pivot tables and charts. Import and export data.
Credits : 2 , Two theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		

SEMESTER - III

Course code	Course Name	Course Outcome
SD9	**Numerical Analysis**	1.Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.
		2.Apply numerical methods to obtain approximate solutions to mathematical problems.
		3.Derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.
		4.Analyse and evaluate the accuracy of common numerical methods.
		5.Write efficient, well-documented Matlab code and present numerical results in an informative way.
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
SD10	**Data Structures Using C**	1. Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.
		2. Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs
		3. Demonstrate different methods for traversing trees, Compare alternative implementations of data structures with respect to performance.
		4. Compare and contrast the benefits of dynamic and static data structures implementations.

		5. Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.
Credits: 4 Four theory hours per week over a semester Credits: 1 One practical class of two hours per week over a semester		
SD11	**Introduction to Python Programming**	1. Understand the concepts of python programming
		2. Students should be able to develop logic for Problem Solving
		3. Create new GUI based programming to solve industry standard problems
		4. Demonstrate how to use lists, tuples, and dictionaries in Python programs.
		5. Demonstrate how to identify Python object types.
Credits: 4 Four theory hours per week over a semester Credits: 1 One practical class of two hours per week over a semester		
SD12	**Object Oriented Programming Through JAVA**	1. Demonstrate good object-oriented programming skills in Java
		2. Able to describe, recognize, apply and implement selected design patterns in Java
		3. Understand the capabilities and limitations of Java
		4. Be familiar with common errors in Java and its associated libraries
		5. Develop excellent debugging skills
Credits: 2 Two theory hours per week over a semester Credits: 1 One practical class of two hours per week over a semester		

SEMESTER - IV

Course code	Course Name	Course Outcome
SD13	**Advanced Numerical Analysis**	1.Identify and interpret the fundamental concepts of Polynomials and roots of equations, Finite differences, Eigen values and Eigen vectors and corresponding algorithms and computer programs.
		2.Solution of ODE using spline interpolation, Eigen value problems numerically using computer programs
		3.Apply the knowledge and skills of numerical methods to solve algebraic and transcendental equations.
		4. Analyze the physical problem to establish mathematical model and use appropriate method to solve and optimize the solution of roots of equations in engineering practice, interpolating the polynomial, Boundary value problems of ODE and PDE, Eigen value problems numerically using computer programs
		5.Distinguish the overall mathematical knowledge gained to demonstrate and analyze the problems of finding the roots of equations, Interpolation, Differential equations, Eigen value problems arising in real-life situation
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
SD14	**Discrete Mathematical Structures**	1. Demonstrate skills in solving mathematical problems
		2. Comprehend mathematical principles and logic
		3. Demonstrate knowledge of mathematical modeling and proficiency in using mathematical software
		4. Manipulate and analyze data numerically and/or graphically using appropriate Software

		5. Demonstrate skills in solving mathematical problems
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
SD15	**Object Oriented Software Engineering**	1. Show the importance of systems analysis and design in solving complex problems.
		2. Show how the object-oriented approach differs from the traditional approach to systems analysis and design.
		3. Construct various UML models (including use case diagrams, class diagrams, interaction diagrams, state chart diagrams, activity diagrams, and implementation diagrams) using the appropriate notation.
		4. Recognize the difference between various object relationships: inheritance, association, whole part, and dependency relationships.
		5. Show the role and function of each UML model in developing object-oriented software
Credits: 4 Four theory hours per week over a semester Credits: 1 One practical class of two hours per week over a semester		
SD16	**Operating Systems**	1. Understand the main components and Structure of Operating System& their functions.
		2. Analyze various ways of Process Management& CPU Scheduling Algorithms.
		3. Analyze various ways of Process Management& CPU Scheduling Algorithms.
		4. Apply different methods for Preventing Deadlocks in a Computer System.
		5. Create and build an Application/Service over the UNIX operating system.
Credits: 4 Four theory hours per week over a semester Credits: 1 One practical class of two hours per week over a semester		
SD17	**Web Programming**	1. Able to use Building Blocks of PHP, Access array elements.
		2. Able to use various functions and handle data using files.
		3. Able to use working with Forms.

		4. Able to use working with Sessions, Cookies.

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		5. Able to implement JavaScript.
Credits: 4 Four theory hours per week over a semester Credits: 1 One practical class of two hours per week over a semester		
SD18	**Basics of Cloud Computing**	1. Get acquainted with the term Cloud computing.
		2. Understand various types of free and commercial clouds.
		3. Understands various types of cloud services like SaaS. PaaS and IaaS.
		4. Know how the Cloud Computing is changing software industry.
		5. understanding of Cloud Computing benefits and key concepts
Credits: 4 Four theory hours per week over a semester Credits: 1 One practical class of two hours per week over a semester		

Paper Code	Paper Name	Outcome
FT T1	**Food Science and Nutrition -1**	To understand the nutrition and health
		To Understand the dietary allowances for Indians
		To study the dietary guidelines
		To study the new concepts of Food
		To study the bioavailability, enrichment, deficiency and toxicity of vitamins and minerals
		To understand the basal metabolic rate and factors effecting BMR
		To develop skills in meal planning for different groups of people
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T2	**Basic Principles of Food Preservation**	To study the mechanism of food spoilage and its end products
		To understand the various food preservation methods
		To understand the usage of food additives
		To study the pasteurization and sterilization and canning
		To study the freezing methods and IQF technology
		To study the drying techniques and water activity of food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T3	**Food Production Trends**	To study the status of food processing industries in india
		To study about food industries exports laws
		To develop skills about MOFPI

		To study the objectives and functions of APEDA
		To understand the national and international food projects
		To study the food laws
		To understand the classification of food crops
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T4	**Food Science and Nutrition-2**	To study the levels of body composition and body compartments
		To develop skills estimation of body composition
		To develop skills skin fold measurements
		To study the glycemic index and glycemic load
		To understand the metabolic utilization and regulation of blood glucose
		To study the digestion, absorption, transportation of protein
		To study the structure and composition of oilseeds
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

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Paper Code	**Paper Name**	**Outcome**
FT T1	**Food Science and Nutrition -2**	To study the levels of body composition and body compartments
		To develop skills estimation of body composition
		To develop skills skin fold measurements
		To study the glycemic index and glycemic load
		To understand the metabolic utilization and regulation of blood glucose
		To study the digestion, absorption, transportation of protein
		To study the structure and composition of oilseeds
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T2	**Processing of Cereals Pulses and oil Seeds**	To understand the Processing technology of food grains
		To study the structure and chemical composition of Cereals
		To study the parboiling technology of paddy
		To understand the byproducts of food grains
		To understand the structure and composition of pulses
		To understand the processing technology of pulses
		To study the structure and composition of oilseeds
		To study the extraction and purification technology of crude oil
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T3	**Food Business**	To understand the basic fundamentals for managing the food processing operations.

	Management	
		To study the raw material procurement
		To understand consumers behaviour
		To study the international trade.
		To understand the marketing strategy
		To study the world consumption of food
		To understand the business management
		To study the WTO, GATT
		To study the import export organization's
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T4	**Processing of Milk and Milk Products**	To study the nutritional importance of Milk
		To understand the physiochemical properties of Milk
		To understand the microbial spoilage of milk roll of milk products in cookery.
		To study the Clarification and filtration process, standardization by using Pearson's square method,
		To understand the Cream separation- centrifugal cream separator, bactofugation.
		To understand the various categories of milk in industry
		To gain develop skills of manufacturing various dairy products
		To understand SIP system of dairy plant,
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T5	**Basics of Food**	To study the base and derived engineering units

	Engineering	
		To understand the Modes of heat transfer
		To study the construction of various heat exchangers
		To understand the Mixing index, Mixing Equipment
		To study the Clarification and concentration process
		To study the physical properties of various fruits and grains
		To understand the Irradiation in foods
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T6	**Food safety and microbial standards**	To study the microbial standards in foods
		To study the history of food poisoning
		To study the microbial toxins
		To understand Risk of metal toxins
		To gain a knowledge on mushroom toxins
		To study the protozoan toxins
		To study the antimicrobial agents
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T7	**New product development**	**To Sensory evaluation techniques and steps for the development of new food products.**
		To study concepts of product formulation and development
		To study general characteristics and knowledge management of npd
		To understand the methodology of new product development
		To study the role of consumer in product development

		To understand the sensory analysis
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T8	**Food additives**	**To study the concepts of food additives**
		To study the additives functions and need in food industries
		To understand the different types of food additives
		To study the major food additives
		To study the Minor food additives
		To understand the concepts of stabilizers and thickeners
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semeste	
FT T9	**Processing technology of fruits and vegetables**	To acquire knowledge about the selection of fruits for processing and valueaddition
		To study the post harvesting technology of fruits and vegetables
		To study the processing of jams and jellies
		To study the processing of apple and orange
		To study the processing concepts of mango and tomato
		To study the processing of vegetables
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semeste	

M.B.A. HRM, Finance, Marketing Programme Codes : 4030, 4031, 4032

Course code	Course Name	Course Outcome

4030.1 4031.1 4032.1	Perspectives of Management	1. The objective of the subject is familiarizing the students with basic principles and practice of Management which is essential for entrepreneurs as well as employees. 2. The subject is designed in such a way which introduces the concept of management in initial units and its practical implications in the following units. 3. In the first and second chapters evolution and basic principles are introduced to the members. 4. In third and fourth units various day to day functions of management are explained 5. in the last unit control mechanism for effective functioning of the organization along with case studies is discussed. Credits: 4 Theoretical period of 4 hours per week over a semester
4030.2 4031.2 4032.2	Accounting for Managers	1. This subject is very significant any organization apart of financial decision making. Management accounting provide needful accounting information for preparation of financial statement i.e. Trading Account, Profit and Loss account and Balance Sheet. Management accounts are responsible for identifying collecting, measuring, analyzing and communicating information to the management. 2. Cost accounting is branch of accounting which deals control of cost preparation of cost sheet and it helps preparation of budget. The students are able to understand methods of costing, Element of cost, marginal costing techniques ie. BEP , CVP analysis. 3. The marginal cost statement is basic document format for management accounting. 4. The objective of management accounting is to help managers active the mission and strategies established for business enterprises. 5. Budgeting is a formal process of financial planning and control. Budgeting control measure for performance of various department . The concept of Zero base budgeting is not adjusted in Indian Scenario due to cost product analysis basis. Credits 4. Theoretical periods of 4 hours per week over a semester

4030.3 4031.3 4032.3	Business Environment	1. The objective of the subject is familiarize the students with domestic as well as international business environment in the light of globalization. 2. Scope, important, challenges of Indian as well as International environment are discussed in detail. 3. Competitive act, changes in business environment, challenges of sustainable development are explained. 4. Balance of payment, Trade Theories, Barriers of trade, Exchange rate mechanism are discussed. 5. Detailed knowledge regarding globalization, MNC's , Economic integration, Opportunity and threats are elaborately discussed with the help of case studies. Credits 4. Theoretical periods of 4 hours per week over a semester
4030.4 4031.4 4032.4	Managerial Economics	1. To understand nature and scope of managerial economics and able to distinguish profit maximization vs wealth maximization. 2. Understand the concepts relating to demand analysis which includes determinants of demand, Law of demand and elasticity of demand. 3. Understand the concept relating to production analysis like production function and economics of large scale. 4. Able to understand all types of market structure. 5. Understand National Income concepts like inflation types and causes of inflation and measures to control inflation. Credits 4. Theoretical periods of 4 hours per week over a semester

4030.5 4031.5 4032.5	Managerial Communication Skills	1. The objectives of this course is to develop communication skills through equipping the students with the necessary techniques and skills. 2. In this course the first chapter deals with improving verbal and non verbal communication skills and developing listening skills. 3. Managing organization in that formal and informal intra and inter personal communication are discussed. 4. Managing motivation to influence interpersonal communication, Interpersonal perception, Role of emotion in inter personal communication are discuss. 5. Business writing skills, oral presentation, meeting report writing structure and organization of press report are discussed in the remaining chapters 6. The ultimate objective of this subject is to inspire them and enlight their actives and willing cooperation in the performance of their jobs Credits 4. Theoretical periods of 4 hours per week over a semester
4030.6 4031.6 4032.6	Organisational Behavours	1. Able to understand challenges and opportunities of organizational behavior and identify foundations of individual behavior 2. Understand motivation and leadership theories and its effect on individual performance. 3. Identity organisational conflicts, its causes and consequences and resolving conflicts. 4. Understand the significance of organisational change and learn how change leads to orgnisatonal development. 5. Understand the concept of organizational culture and its components and know how to create and ethical organsiation. Credits 4. Theoretical periods of 4 hours per week over a semester

4030.7 4031.7 4032.7	Quantitative Techniques for management	1. To get familiarized in mathematical and statistical techniques and their application in business decision. 2. The first chapter contains introduction of quantitative techniques and their scope, functions which helps the student to create basic idea about statical techniques. 3. Second chapter contains central tendency, correlation and regression. It gives basic knowledge of variables and how these are interrelated and find degree of correlation bm variables by using different mathematical techniques 4. Third chapter deals with probability and probability distribution. It make student to understand the basic concept of uncertainty and how to deal with uncertainty in business decision making. 5. Last fourth and fifth chapters are designed with testing of Hypothesis. It deals with sampling techniques and practical implementation of sampling techniques using z, t f and chi tests Credits 4. Theoretical periods of 4 hours per week over a semester
4030.8 4031.8 4032.8	Marketing management	1.To understand importance and scope of marketing Management and marketing management tasks 2.To understand the role of marketing information system and Marketing Research in Marketing decisions 3. Understanding Consumer Environment and Customer buying decision process 4. able to design and develop marketing mix strategies using the elements product, price, place ,promotion 5.Desigining and managing marketing communications and promotion mix strategies and to observe emerging trends in marketing Credits 4. Theoretical periods of 4 hours per week over a semester

4030.9 4031.9 4032.9	Financial Management	1.This subject is very important to the students with to learn the basic principles of Financial Management and Techniques 2. Financial Management helps to the Business Enterprise for the purpose of resource mobilization and funds allocation. It is concerned with acquisition, Financing and Management to asset to achieve organizational goals 3.Fiancial Management goals are wealth maximization and profit maximization which is related to the financing mix and capital structure 4.Funds flow and cash flow statement are analyzed by the firms for working capital position and changes of statement of working capital 5.Captial Budget techniques' are used for long term investment projects 6. Dividend decisions related to dividend policies ,payment of dividend represents the financial position of firms 7.Fiancial Management helps the firm for funds moblisation through capital formation and leads to efficient investment decisions Credits 4. Theoretical periods of 4 hours per week over a semester
4030.10 4031.10 4032.10	Human Resource Mangement	1. The subject aims at inculcating and developing human resource management skills. The growing importance of human resources for the success of the organization can't be ruled out. Even intellectuals and top level management are involving HR managers in the strategic decision making of the organization. 2. As part of the subject introduction, importance and planning of the human resources is elaborately discussed. 3. This part helps in benchmarking the skills, qualifications and job specifications. 4. Measurement of performance and identification of training and development needs and maintenance of harmonious relations in the industry are discussed elaborately in the later units. The subject helps the students to acquire the skills to manage the human resources in an optimum manner and enhance the returns of the organization Credits 4. Theoretical periods of 4 hours per week over a semester

4030.11 4031.11 4032.11	Operations Management	1.Able to differentiate between production and operation management and understand types of manufacturing systems and role of production and operation manger. 2. Identify different stages in production planning and control 3. Clearly understand the concepts of Plant location and plant layout and identify material handling equipment 4.understand the concept of productivity and factor effecting productivity 5.Understand the concept of material management which includes material requirement planning ,economic orde5r quantity ,ABC analysis and just in time production Credits 4. Theoretical periods of 4 hours per week over a semester
4030.12 4031.12 4032.12	Computer Application in Management	1. The objective of the course is to provide an insight into basic features computer systems and applications in managerial decision making 2.First chapter deals with introduction to computer concepts and elements of computer and basic computer architectures 3.Aplications of MS-Word in business correspondence letter ,tables, mail merge and calculation various financial function 4.This chapter deals with MS power point ,creation of slides ,animation, slide show control and customizing presentations 5.Over view of networks communication processors ,media, network topologies and network protocols Credits 4. Theoretical periods of 4 hours per week over a semester
4030.13 4031.13 4032.13	Operations Research	1. To make student familiarize with principles and techniques of operations research in business decision making to optimize the profits 2. As a part of this course, first deals with linear programming, graphical method, simplex method and big M method. It gives student an opportunity to go insights of business operations and reduce the operational cost. 3. It deals with transportation and assignment methods which involves in allocation of right person at right place/ project. 4. It deals with dynamic programming, game theory which makes student learn how to reduce operational cost and get maximum profits. 5. Rest of fourth and fifth chapters deal with queuing theory, non linear programming project management techniques like PERT and CPM 6. Credits 4. Theoretical periods of 4 hours per week over a semester

4030.14 4031.14 4032.14	Research Methodology for Management	1. This subject provided basic understanding of research methodology and their application of modern analytical tools and techniques for the purpose of business decision making. 2. First chapter deals with research process & types of researches which helps students to know how to conduct a research in practical. 3. Second chapter creates an awareness about sampling techniques. 4. Third and fourth chapter deals with data collection, preparation of questionnaire and collect data regarding research object. 5. Fifth chapter deals with non parametric test by using mathematical techniques like multi regression analysis, sign test, median test. Credits 4. Theoretical periods of 4 hours per week over a semester
4030.15 4031.15 4032.15	Entrepreneurship	1. The objective of this course is to expose the students to the subject entrepreneurship and small business manager. So as to prepare them to establish and a new enterprise and effectively manage the same. 2. Importance, characteristics and qualities of entrepreneurship are discussed in the first chapter. 3. In the second chapter role of government, role of IDBI, NIESBUD, financial institutions, commercial banks, Entrepreneurial development institutions, commercial banks, entrepreneurial development institutes are discussed. 4. The third chapter deals with training programme to inculcate entrepreneurial spirit. 5. Women entrepreneurship role and importance, creativity and entrepreneurship sources and methods of ideas planning are discussed in the remaining chapters. Credits 4. Theoretical periods of 4 hours per week over a semester
4030.16 4031.16 4032.16	VUCA Management	1. Volatility, Uncertainty, complexity and ambiguity are the burning problems of the day in business circles. Bottlenecks and cutthroat competitions have become quite common in the globalization era. 2. Management experts and strategists are working day and night to resolves these issues. 3. Basic idea about the derivatives market to hedge the financial risk is discussed here. 4. The objective of introducing the subject is preparing the future managers with proper understanding of the business fluctuations and uncertainties and making them prepared with the counter strategies to meet the VUCA environment. 5. Various possible uncertainties in the areas of marketing, finance, production and technology are elaborately discussed and thorough knowledge is provided in solving the issues. Credits 4. Theoretical periods of 4 hours per week over a semester

4030.17 4031.17 4032.17	Corporate Legal Frame Work	1. The objective of the course is assisting the students in understanding the corporate laws affect6ing the operations of business environment 2. Knowledge in the areas of Contract Act. essentials of a valid Contract, Breach of Contract are elaborately explained. 3. Difference between Sales and Agreement to Sell, Transfer of Ownership are explained 4. Contract of Agency, Negotiable Instruments Acst Partnership Act, Dissolution of Partnership are discussed. 5. Detailed Knowledge of Companies Act ,Articles and Memorandum of Association ,Shareholding patterns, Winding of Company are discussed
		Credits 4. Theoretical periods of 4 hours per week over a semester
4030.18 4031.18 4032.18	Strategic Management	1. Able to identify the difference between Bossiness Policy and Strategic Management 2. Understand types of generic strategies available to achieve firm's long term objectives. 3. Able to do Environmental Analysis and Spot various opportunity available and threats posed to a company. Also identify internal Strengths and Weakness. 4. Understand the concept of Meknsey's 7'S Frame work and its importance in strategy implications 5. Understand the criteria and characteristics of effective evaluation system in strategy control. Credits 4. Theoretical periods of 4 hours per week over a semester
4030.19	Industrial Relation (ELECTIVE) 2012-18	1.The objective of this course is to enlighten the principles and practical application Industrial relations 2.In this course first chapter deals with basic concepts of Industrial relation and their functional practices in orgranisation 3. Second chapter makes the student understand the Trade unionists and their movements. The role of Trade union in Industries 4. As a part of the course third chapter deals with promotion of Harmonious Relations and Machinery for prevention and settlement of Industrial disputes. Students get aware of different practices like Conciliation, Adjudication and arbitration in settlement of Industrial disputes. 5.Fourth and Fifth chapters deals with Grievances handling and collective bargaining practices it make student to know how these practices like collective bargaining practices it make student to know how these practices like collective bargaining ,participative management helps in orgranisation to improve performance of employee and reduce Industrial disputes
		Credits 4. Theoretical periods of 4 hours per week over a semester

4030.20	Compensation and Welfare Management (ELECTIVE) 2012-18	1. The objective of this subject is familiarizing the students with the concepts of compensation and welfare in industrial sectors. 2. It helps in designing the competitive pay to attract and retain skill in the organization in a cost effective manner. 3. Concepts of performance linked pay, executive compensation and various new trends in compensation decision are introduced here. 4. Various enactments regarding compensation fixation and legal proceedings in violation of these enactment are introduced. 5. Provision and maintenance of basic amenities and intra and extra mural welfare activities are introduced here.
		Credits 4. Theoretical periods of 4 hours per week over a semester
4030.21	Performance Management and Counseling (ELECTIVE) 2012-18	1.The Objective of the course is to enlighten the students with the concepts and strategies of performance management and counseling 2. In the first chapter topics like Introduction and functions of performance management gives clarity about the role of performance Management in Orgranisation. 3 .It deals with performance analysis ,factors influencing performance of individuals in Orgranisation and methods for appraisal of performance creates basic idea about how to assess the performance of Individuals and the methods in practice. 4.It deals with performance review counseling which helps students to know the advantage of counseling to improve the performance 5. Rest of the chapters deal with Training and Development, rewarding performance and the performance management practices used in assessing performance of Individuals like 360-Degree Appraisal, assessment centre Credits 4. Theoretical periods of 4 hours per week over a semeste

4030.22	Strategic Human Resource Management (ELECTIVE) 2012-18	1. Alignment of human resources in corporate as well as business strategies is the latest trend in business circles of globalized era. 2. The objective of this subject is creating awareness in the minds of future managers about the strategic involvement of human resources to gain edge over competitors. 3. Competency building and competency mapping practices of the organization are explained 4. Strategic selection, training, compensation and skill development tools and techniques are studied with the help of case studies. 5. Concepts of human capital, knowledge based economies, talent management practices are explained to train the future managers to get the edge
		Credits 4. Theoretical periods of 4 hours per week over a semester
4030.23	International Human Resource Management (ELECTIVE) 2012-18	1.The Objective of the course is to get familiarize with the concepts and strategies of International human resource management. 2. the first chapter deals with introduction of International HRM and the Challenges at International level which gives basic concept knowledge about subject to the students 3. Second and Third chapter deals with International recruitment and Selection Process and Training and Development of Global Mangers. It helps the student to get aware of different practices of Selection ,Training of Global Employees by different Organizations 4. Fourth chapter is designed with concept like Compensation Management. It deals with practical approaches of Compensation in Global Assignments. 5. The Last chapter makes an awareness of concept of Industrial Relations at International Level. Student would get an idea how trade union work at international level to protect Global employees.
		Credits 4. Theoretical periods of 4 hours per week over a semester

4031.24	Financial Markets and Services (ELECTIVE)	1. This subject enlightens the students to learn concepts of Indian financial system and Impact of Finical growth and economical development. 2. To understand structure of Financial system and challenge stock market operations, capital market reforms primary market functioning-closing SEBI functioning. 3. Financial services are an integral part of Financial system it has wide scope of mobilization in mutual Funds, Finical Intermediaries, Merchant Banking activities. 4. This subject delighted to the student's new Financial services, Venture Capital, leasing-Hire purchasing assets. 5. Credit Rating Agencies like CRSIL, ICRA, CARE FUBH,MOODYS, ONIDA, provide information about in understanding Risk and Return Factors 6. Micro Fiancé concept specially for rural areas and SHG relevant to women Empowerments and Financially gain various segments
		Credits 4. Theoretical periods of 4 hours per week over a semester
4031.25	Security Analysis and Portfolio Management (ELECTIVE) 2012-18	1. The objective of this course is to enlighten the students with the concept and practical application of Security analysis and Portfolio Management. 2. Concept of Investment and speculation, Investment process, sources of investment, Security Markets like Primary and Secondary are dealt in the chapter 3. Return and Risk measurements typ3es, Intrinsic value approaches to valuation Bonds, Preference Share and Equity shares are included in the second chapter 4. Third Chapter deals with Fundamental and Technical analysis and concept and forms of Market efficiency 5. In the fourth and fifth chapter Elements of Portfolio Management, Portfolio models like Markowitz mode, sharp single Index model and capital Asset Pricing model and Evaluation of Mutual funds are involved.
		Credits 4. Theoretical periods of 4 hours per week over a semester

4031.26	Financial Derivatives (ELECTIVE) 201218	1. The objective of this course is introducing the concepts of innovative financial engineering tools like forwards, futures, options and swaps. 2. Basic idea of hedging strategies is provided and hedging strategies are explained elaborately 3. Growing importance of futures trading is explained and ways of effective trading in futures market is explained. 4. Options trading and multiple option trading strategies to maximize the return are elaborately discussed. 5. Elaborate knowledge of hedging strategies and ways of increasing the return on investment are explained with the help of case studies and live models.
		Credits 4. Theoretical periods of 4 hours per week over a semester
4031.27	Behavioral Finance (ELECTIVE) 2016-18	1. To enlighten the students with the concepts and practical application of Behavioral Finance. 2. In this course first chapter deals with the introduction to Behavioral finance like Nature, Scope, objectives and application, Investment Decision cycle Judgment under uncertainty. 3. Second chapter deals with utility/preference function expected utility theory and Rational thought: Decision making under risk and Uncertainty 4. Third chapter deals with Behavioral factors and Financial markets kike efficient markets Hypothesis etc 5. The remaining chapters deals with Behavioral Corporate Finance and Emotions and Decision making
		Credits 4. Theoretical periods of 4 hours per week over a semester

4031.28	International Financial Management (ELECTIVE) 2012-18	1. This subject is very significant to the students for understanding Global Bussiness Environment view. 2. To understand International Monetary systems through formation of IMF(IBRD, WTO which replaced GATT 3. To enlighted Euro-Market, South East Asian crisis 4. IMF helps the MNC's and PSU relating to International Operations 5. To learn Foreign Exchange market SWAP Accounting exposure and operationg systems 6. The objective of International Financial management to observe Euro-Markets ADR's GDR's 7. To understand International accusation multinational Capital Budgeting and Foreign Investment 8. It helps International Accountings Reports, Financial reporting Foreign Currency transactions.
		Credits 4. Theoretical periods of 4 hours per week over a semester
4032.29	Consumer Behavior and Customer Relationship Management (ELECTIVE) 2012-48	1. It makes student understand the Consumer Behaviour why taking purchase decision and application of different practices to maintain relationship with customer. 2. Overview about consumer decision making process and reaction to external environment like legal political technological factors are discussed 3. Able to understand psychological charters of consumer like Perception, Learning etc., 4.The third chapter deals with Social cultural and cross cultural factors and family reference groups 5.The last chapter deals post purchase behavior how consumer reacts, after using the product it gives an idea to the marketer about consumer satisfaction level and retain customer by using relation methods.
		Credits 4. Theoretical periods of 4 hours per week over a semester
4032.3	Services Marketing (Elective) 2012-18	1. Understand the nature and characteristics of Services 2. Identify s services marketing Mix which includes product ,price, place, promotions ,people, process and physical equipment. 3. Understand Market segmentation , targeting and positioning strategies for services. 4. Exposer to Quality concepts like quality audit and total quality management for services. 5. Understand and differentiate between Internal Interactive , External Marketing and Identify service deficiency and Deficiency Recovery Strategies.
		Credits 4. Theoretical periods of 4 hours per week over a semester

4032.31	Sales and Distribution Management (ELECTIVE) 2012-18	1. To enlighten the students with the concept and practical application of Sales and Distribution Management 2. The First chapter deals with modern trends in Sales Management , Interdepartmental Relations and Orgranisation of Sales Department 3. The Second Chapter deals with analysis of Market potential, Sales Potential , forecasting Sales and Time and Territory management 4. The Third chapter deals concepts like Recruitments, Selection, Training, Evaluation of Salesmen performance. 5. The Final Chapter deals with structure and functions of Marketing channels, Channel design, Managing channel conflicts' and Supply Chain Management Credits 4. Theoretical periods of 4 hours per week over a semester
4032.32	Advertising and Brand Management (ELECTIVE) 2012-18	1. The course objective is to enlighten the students with the concepts of Advertising and Brand management. 2. The first chapter deals with Introduction to Advertising, challenges and opportunities in Advertising. 3. The Second chapter deals with media planning ,Media Mix decisions and developing media strategy. 4. The third chapters deals with method of formulating Adverting Budgets, evaluation advertising effectiveness and advertising Agencies. 5. The reaming chapters include direct response advertising .Telemarketing ,Internet Advertising, Brand Management Credits 4. Theoretical periods of 4 hours per week over a semester
4032.33	Retail Marketing Management (ELECTIVE) 2016-18	1.To enlighten the student concepts and strategies of Retail marketing 2. The First chapter goes in light of concept of Retailing and Special characteristics of Retaining which helps students to know the basic concepts 3. The Second designed to give and idea about retail strategies which involves marketing strategies growth strategies and retail life cycle. 4 The Third chapter deals with retail location it helps student to get knowledge about the locations and site analysis and selection of best location for establishing of Retail outlet. 5 It enables to understand store layout and design, inventory management, and retail pricing strategies. Credits 4. Theoretical periods of 4 hours per week over a semester

4030.34 4031.34 4032.34	PROJECT WORK IN HUMAN RESOURCE MANAGEMENT, FINANCE AND MARKETING	Credits 6. The Student has to undergo project in any related Industry for period of 45 days and submit a Report and attend for VIVA-VOCE Examination by the University.

*** For three programmes in MBA i.e., HRM, Marketing, Finance 7 papers in Ist Semester, 7 papers in IInd Semester , 3 papers in III Semester, 1 paper and Project in IV Semester 1 paper and Project are common to all three programmes. The student opts 4 papers out of 6 papers in III semester and 6 papers out of 9 papers in IV Semester and a total of 10 papers in III & IV semesters basing on their specialization in addition to the above 18 common papers and one project.**

IDEAL COLLEGE OF ARTS AND SCIENCES

(AP State Government Aided, Autonomous, NAAC Accredited B $^{++}$)

Dr.P.V.N.RAJU VIDYAPRANGANAM

Samalkot Road - Kakinada

M.Sc. App.Maths – Programme Code – 4020

Course Code	Paper Title	Course Outcome
4020.1	Real Analysis	1.Describe fundamental properties of the real numbers that lead to the formal development of real analysis.
		2.Demonstrate an understanding of limits and how they are used in sequences, series, differentiation and integration.
		3.To understand the concepts of improper integrals, functions of several variablies.
	Credits : 4 Theory periods of 50 minutes per week over a semester.	
4020.2	Ordinary differential equations	1. Will be able to exaplain the concept of DE.
		2. Will be able to solve system of linear differential equations.
		3. Converts separable and homogeneous equations to exact differential by integrating factors.
	Credits : 4 Theory periods of 50 minutes per week over a semester.	
4020.3	Probability & Statistics	1. To make inferences about a sample based on information we get from a population.
		2. Basic probability axioms and rules and moments of discreate and contineous random variables.
		3. Use appropriate statistical methods in the analysis of simple data sets interpret and clearly present output from Statistical Analysis in a clear concise and understandable manner.
	Credits : 4 Theory periods of 50 minutes per week over a semester.	
4020.4	Algebra	1. Students known about the normal sub groups.
		2. How to apply finite generated groups.
		3. To understand ideal and homomorphisms.
		4. Applications of rings.
	Credits : 4 Theory periods of 50 minutes per week over a semester.	

4020.5	C-Programming Credits : 4 Theory periods of 50 m	1. Read, understand and trace the execution of programs written in a C language
		2. Write programms that perform operations using derived data types.
		3. Implement programs with pointers and arrays perform pointer arithmetic and use the preprocessor. inutes per week over a semester.
4020.6	C-Programming Lab	1. Read, understand and trace the execution of programs written in a C language
		2. Write programs that perform operations using derived data types.
		3. Implement programs with pointers and arrays perform pointer arithmetic and use the preprocessor.
	Credits : 1 Theory periods of 50 minutes per week over a semester. 2. Practical period of 2 hours per week over a semester.	
4020.7	Complex Analysis	1. Explain the fundamental concepts of complex analysis and their role in modern mathematics and applied contexts.
		2. Demonstrate accurate and efficient use of complex analysis techniques.
		3. Demonstrate capacity for mathematical reasoning through analyzing, proving and explaining concepts from complex analysis.
		4. Apply problem - solving using complex analysis techniques applied to diverse situations in Physics, Engineering and other Mathematical contexts.
	Credits : 4 Theory periods of 50 minutes per week over a semester	
4020.8	Numerical methods	1. Finite difference operators are also introduced to understand a different approach in interpolation.
		2. Reader will appreciate the error analysis explained suitability of degree of polynomial.
		3. Locate and use good Mathematical software and use numerical methods for solving a problem.
		4. Assess the reliability of numerical results and determine the effect of round off error.
	Credits : 4 Theory periods of 50 minutes per week over a semester	

4020.9	**Mathematical methods**	1. Describe several areas of Mathematics beyond calculus.
		2. Understand the fourier transform is constructed to represent an arbitrary function over a given range then the transformation represents that function periodically extended beyond that range.
		3. It will able apply integral expression for the forwards and inverse fourier transform to a range of non periodicwave forms.
		4. To know about calculus of variations in Eluer's equation.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.10	**Fluid dynamics**	1. Apply the basic Applied Mathematics tools that support fluid dynamics,
		2. Create models of inviscid steady fluid flow over simple profiles and shapes.
		3. To understand the viscous flow and stress and strain. Some solvable problems in viscous flow.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.11	**Partial differential equations**	1. Able to use a numerical method of solution known as Euler's method.
		2. Use analytical methods of solutions by direct integrations separation of variables and the integrating factor method.
		3. How to classify the linear partial differential equation with constant and variable co-efficients.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.12	**Numerical methods Lab**	1. Finite difference operators are also introduced to understand a different approach in interpolation.
		2. Reader will appreciate the error analysis explained suitability of degree of polynomial.
		3.Locate and use good Mathematical software and use numerical methods for solving a problem.
		4. Assess the reliability of numerical results and determine the effect of round off error.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.13	**Advanced complex Analysis**	1. Explain the fundamental concepts of complex analysis and their role in modern mathematics and applied contexts.
		2. Apply problem solving using complex analysis techniques apply to diverse situations in Physics, Engineering and other Mathematics contexts.
	Credits :	4 Theory periods of 50 minutes per week over a semester

4020.14	**Linear Programming**	1. Understand how it exploits the linear nature of the problem to yield good average case performatic while failing to be efficient in the wrost case.
		2. Under stand the meaning of weak and strong duality and their role in the designs and verification of algorithm solutions to optimization problems.
		3. Know the strategy of game theory and assignment problems.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.15	**Topology**	1. Basic notions of metric and topological spaces.
		2. Methods and techniques of proving basic theorems on topological spaces and continuous mappings.
		3.Know how the topology on a space is determined by the collection of open sets, by the collection of closed sets or by a basis of neighborhoods at each point and you know what it means for a function to be contineous.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.16	**Discrete Mathematical structures**	1. Some fundamental mathematical concepts and terminology.
		2. How to use and analyse recursive definitions.
		3. How to count some different types of discrete structures.
		4. Explain Bloolean algebra and homomorphism and how to apply it in Engineering.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.17	**Theoretical Computer Science (Elective)**	1. Know the important models of computation and you can examine them with mathematical precision.
		2. Know the model computation using finite automata and characterize simple languages with regular expressions and context free grammars.
		3. Understand how the Turing machine models everything that can be computed using a real computer.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.18	**Fortran Lab**	1. Know ware and why fortran is still in use today.
		2. Know what a compiler is and why some languages must be complied.
		3. Explain difference between complie time and run time errors.
	Credits :	2 Theory periods of 50 minutes per week over a semester 2. Practical period of 2 hours per week over a semester

4020.19	**Functional Analysis**	1. The student has knowledge of central concepts from functional analysis, including the HahnBanach theorem, the open mapping and closed grph theorems, the Banach-Steinhaus theorem, dual spaces, weak convergence and the spectral theorem for bounded self-adjoint operators.
		2. Skills : The student is able to apply his or her knowledge of functional analysis to solve mathematical problems.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.20	**Operation Research**	1. Understand the Mathematical tools that are needed to solve optimization problems.
		2. Develop a report that describes the model and the solving techniques analysis the results to the decision making processes in management engineering.
		3. How to construct the buildings and highways by using netweork analysis.
		4. Having the knowledge about the product management and stock market.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.21	**Meghods of Applied Mathematics**	1. Find dominate balance in DE with small parameter.
		2. In simple cases find complete asymptotic expansions of integrals
		3. The final part of the course focuses on P.D.E.
		4. Understand the matrices and linear equations how to they use in transformations.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.22	**Integral transforms**	1. Student will gain a range of techniques employing the Laplace and Fourier transforms in the soulution of ODE & PDE.
		2. Appreciation of generalized functions their calculus and applications.
		3. Solved problems on finite fourier transformations and parseval's theorem.
		4. Having the knowledge of hankel transform of the derivation of a function.
	Credits :	4 Theory periods of 50 minutes per week over a semester
4020.23	**Graph Theory**	1. To introduce graph as a powerful modeling tool that can be used to solve practical problems in various fields.
		2. Algorithms to find components of a graph and the strongly connected components of a diagraph.
		3. Understand the coloring, matchings and applications of graph theory in operation research.
	Credits :	4 Theory periods of 50 minutes per week over a semester

4020.24	**Mat - Lab**	1. Define the general structure of mat lab.
		2. Describe the work space and command line.
		3. Write progrms in mat lab M-files.
		4. Create conditional control and loop control.
		5. Use the special functions of mat lab.
	Credits : 2 Theory periods of 50 minutes per week over a semester 2. Practical period of 2 hours per week over a semester	
4020.25	**Project**	1. Student should be able to apply the relevant knowledge and skills which are acquired within the technical area to a given problem.
		2. With in given constraints even with limited information independently analyze.
		3. Reflect on evaluae and critically assess one's own and others scientific results.
	Credits : 2. Practical period of 2 hours per week over a semester	

Course Outcomes

M.Sc. CHEMISTRY – Programme Code – 4021

Organic Chemistry & Analytical Chemistry Semester I

1	General Chemistry	To study the basics of basic quantum chemistry
		To learn the fundamentals of molecular spectroscopy
2	In Organic Chemistry	To learn sturcture and bonding of VSEPR, MOT and VBT
		To learn the chemistry of Inorganic case and ring compounds
		To understand and study of electronic spectra of transition metal complexes
3	Organic Chemistry	To study the chemistry of Hetro cyclic compounds, typical naturel products, Alkaloids and terpenoids
		To understand the stereochemistry and molecular representation of organic molecules
4	Physical Chemistry	To study the Thermodynamics and chemical kinetics
		To learn the chemistry of micelles and micro molecules
		To understand verious principles of photochemistry

Organic Chemistry & Analytical Chemistry Semester II

1	General Chemistry	To learn the molecular symmetry and group theory
		To understand computer programming FORTRAN 77
2	In Organic Chemistry	To learn organometalic compounds, metal ligand equilibria in solution
		To understand Inorganaic reaction mechanism, Bio inorganic chemistry
3	Organic Chemistry	To study the chemistry of Aliphatic Nucleophilic substitution and Nucleophilic Aromatic substitution
		To learn addition to carbon – carbon multiple bonds and addition to carbon – Hetero multiple bonds
4	Physical Chemistry	To study the Electro chemistry and statistical thermodynamics
		To learn physical methods of molecular structural elucidation.

Organic Chemistry Semester-III

1	Organic Reaction Mechanisms and Pericyclic Reactions	To study the basics of Aliphatic Nucleophilic Substitution and Aliphatic Electrophilic Substitution.
		To learn the asymmetric synthesis and Pericyclic Reaction.
2	Organic Spectroscopy - I	To learn the UV-Visible spectroscopy and Infrared spectroscopy.
		To learn the Nuclear Magnetic Resonance Spectroscopy and Mass spectrometry.
3	Modern Organic Synthesis – I	To study the chemistry of Formation of C-Csingle bonds and C-Cdouble bonds.
		To understand the Reactions of unactivated C-H bonds and organoboranes.
4	Chemistry of Natural Products - I	To learn Alkloids, Steroids, Flanoids and Terpenoids
		To understand Synthesis

Organic Chemistry Semester-IV

1	Organic Reaction Mechanisms- II and Organic Photo Chemistry	To learn the FreeRadical Reactions and PhotoChemistry.
		To understand the Quantitative relationships between Molecular structure and chemical ractivity.
2	Organic Spectroscopy - II	To learn Organic Spectroscopy and separation Techniques.
		To understand Simplification of complex spectra.
3	Modern Organic Synthesis – II	To learn Organo silanes oxilation
		To understand reduction reagents, retrosynthesis
4	Bio – Organic Chemistry	To learn Alpha amino acids, antibiotics and malaria drugs
		To understand Vitimens, Nucelic acids, R-DNA Tech apllications

Analytical Chemistry Semester-III

1	Separation Methods	To learn Chromatography and basics study of separation methods
		To understand the HPLC and its applications
2	Quality Control and Traditional Methods of Analysis	To learn good laboratory practices
		To understand characteristics of an analysis
3	Applied Analysis	To learn Ore analysis
		To understand Assessment of water quality
4	Instrumental Methods of Analysis	To learn the instrumentation methods
		To understand the Spectroscopic methods and its applications

Analytical Chemistry Semester-IV

1	Separation Methods	To learn Separation methods
		To understand Ion exchange chromatography
2	Quality Control and Traditional Methods of Analysis	To learn Traditional methods of analysis
		To understand Electro gravimetric methods
3	Applied Analysis	To learn analysis of raw materials
		To understand soil and fertilizers analysis
4	Instrumental Methods of Analysis	To learn spectro analytical methods
		To understand electro analytical methods

SOFT SKILLS

ENVIRONMENTAL STUDIES PROGRAMME CODE : 602

Course code	Course Name	Course Outcome
602.1	**Environmental Studies**	* On completion of the course the students are able to understand.
		* Need for public awareness on Environment.
		* Concept of Ecosystem, Biodiversity and its conservation.
		* Social Issues and the Environment.
		* Role of Individual in prevention of polution.
		* Climate change, global warming, acid rain, ozone layer depletion.
		legislation, public awareness.
		* Concept of population, Explosion, Family Welfare programme.
		* Role of information Technology in Environment and human health

ETHICS AND VALUES PROGRAMME CODE : 607		
Course code	**Course Name**	**Course Outcome**
607.1	**Ethics and Values**	***** On completion of the course the students are able to understand.
		*Concept and Need for value Education.
		* The concept of happiness and prosperity as parts of value education.
		* The activities in self and activities in the body.
		* Family as a basic unit of Human Interaction and values in Relationship.
		* Concept of Hormony in Nature. The four order in Nature.
		* Value based life and profession.

INFORMATION & COMMUNICATION TECHNOLOGY-I PROGRAMME CODE - 608		
Course code	**Course Name**	**Course Outcome**
608.1	**INFORMATION & COMMUNICATION TECHNOLOGY-I (for First Year B.A./B.Com.(General)/ B.Sc.(non computer**	1. Describe the usage of computers and why computers are essential components in business and society.
		2. Build, edit and maintain spreadsheet solutions in Microsoft Excel to automate manual or outdated processes.
		3. Build and maintain databases in Microsoft Access in order to track and manage data

	students) **Paper Title: Computer Fundamentals and Office Tools**	4. Design, create, maintain, and enhance presentations in Microsoft PowerPoint in order to deliver ideas and information.
		5. Create, edit, enhance and review documents in Microsoft Word.
		Credits :2 1 Theory period of one hour per week over a semester. 1 Tutorial period of one hour per week over a semester

INFORMATION & COMMUNICATION TECHNOLOGY-I PROGRAMME CODE - 608

Course code	Course Name	Course Outcome
608.2	**INFORMATION & COMMUNICATION TECHNOLOGY-I (for First Year B.Sc. Computer Science)** **Paper Title: Operating System & Diagnostics Tools**	**1.** Learn essential operating systems skills including how to use, setup, configure, troubleshoot and maintain a current microcomputer operating system.
		2. Describe various types of Operating Systems and Application Software installation.
		3. Describe various type of Devices Installation.
		4. Describe PC care and Maintenance.
		5. Describe basics of Computer Network & Internet.
		Credits : 2 1 Theory period of one hour per week over a semester. 1 Tutorial period of one hour per week over a semester.

COMMUNICATION SOFT SKILLS PROGRAMME CODE - 609

Course code	Course Name	Course Outcome
609.1	*** Skill PRO - I**	* Vocabulary Building.
		* Grammar, listening, speaking, reading, writing.
		* Importance of Communication Skills.
		* Helf the learners gain confidence.
		* Motivate learners to improve their communication skills for competative examination
609.2	*** Skill Pro - III (IV Semester)**	* Communication skills and soft skills are very essential for the students to achieve success in their career.
		* Positive thinking, leade to success.
		* SWOT / SWOC
		* Emotional intelligence.
		*Body language.
		* Interview and presentation skills.
		* Resume and covering letter.
		* E - Correspondence.
		* Helpful for dreaming career.
609.3	*** Skill Pro - II (IIIrd semester)**	* Communication skills and soft skills are the most important in the life of every human being.
		* Communication skills help the students to learn every day use and speaking skills with reference to debates, role plays, presentation skills, group discussions and interview skills

ANALYTICAL SKILLS PROGRAMME CODE - 610

Course code	Course Name	Course Outcome
610.1	**Data Analysis**	The data given in a Table, Graph, Bar Diagram, Pie Chart, Venn diagram or a passage is to be analyzed and the questions pertaining to the data are to be answered
610.2	**Sequences and Series**	Analogies of numbers and alphabets completion of blank spaces following the pattern in A:b::C: d relationship odd thing out; Missing number in a sequence or a series.
610.3	**Arithmetic ability**	Algebraic operations BODMAS, Fractions, Divisibility rules, LCM & GCD (HCF). Date, Time and Arrangement Problems: Calendar Problems, Clock Problems, Blood Relationship.
610.4	**Quantitative aptitude**	Averages, Ration and proportion, Problems on ages, Time-distance -speed.
610.5	**Business computations**	Percentages, Profit&loss, Partnership,simple compound interest.
		These are make student strong to face any competitive examinations for employment after graduation.

ENTREPRENEURSHIP PROGRAMME CODE : 611

Course code	Course Name	Course Outcome
611.1	ENTREPRENEURSHIP	1. The objectives of the course in to focus on Entrepreneurship and the characteristics, classification and also the Role of Entrepreneurship in Economic development of India.
		2. The course aims at the Idea generation and opportunity Assessment of Entrepreneurship
		3. It also covers project work project Appraisal Techniques, Financial Analysis and Market Analysis.
		4. It also covers NABARD, SI DBI, NIC, SFC, SSIDC and other Financial Assistance.
		5. Finally the course concentrated at Government Policy and Taxation benefits, Government Politics for SSI, etc.,

LEADERSHIP EDUCATION PROGRAMME CODE - 612

Course code	Course Name	Course Outcome
612.1	**Leadership Education**	Importance and Significance of Leadership
		Behavioral concepts and attitude formation
		Inter personal Behaviour and including relations
		To maintain moral values
		Team Building and developing Team resource

FINANCIAL ACCOUNTING IN TALLY PROGRAMME CODE : 613

Course code	Course Name	Course Outcome
613.1	FINANCIAL ACCOUNTING IN TALLY	1. The objective of the course is to acquaist students with the accounting concept, tools and techniques influencing business organization.
		2. Financial Accounting is here to stay and will only glow in expanse with time with a Diploma in ERP using Tally, you will evolue with the ever growing knowledge of financial.
		3. At the end of course student should be able to use accounting and business terminology.
		4. Industry relevant course available in I.C.A with following modules - Business Computer Application Business Accounting. Tally ERP9 Additional Accounting package - Business
		5. Best ERP and Accounting software for all Business Tally ERP.9

BUSINESS LEADERSHIP PROGRAMME CODE : 614

Course code	Course Name	Course Outcome
614.1	BUSINESS LEADERSHIP	1. It aims at how to prepare a good Leader and Skills, styies etc.,
		2. It also focuses on Decision making, Leadership practices and organisation culture.
		3. It also aims at true Inspiring Leader biogrophy in the Business like JRD Tata Birla, LN Mittal, NR Narayana Murthy, Azim Premji et.,

M.Sc., Applied Mathematics – Programme Code - 4020

Course code	Course Name	Course Outcome
4020.1	Real Analysis	Describe fundamental properties of the real numbers that lead to the formal development of real analysis;
		Demonstrate an understanding of limits and how they are used in sequences, series, differentiation and integration;
		To understand the concepts of Improper integrals, functions of several variables
4020.2	Ordinary Differential Equations	Will be able to explain the concept of DE.
		Will be able to solve system of linear differential equations.
		Converts separable and homogeneous equations to exact differential equation by integrating factors.
4020.3	Probability & Statistics	To make inferences about a sample based on information we get from a population.
		Basic probability axioms and rules and moments of discrete and continuous random variables.
		Use appropriate statistical methods in the analysis of simple data sets interpret and clearly present output from statistical analysis in a clear concise and understandable manner.
4020.4	Algebra	Students known about the normal sub groups
		How to apply finite generated groups
		To understand ideal and homomorphisms
		Applications of rings.
4020.5	C-Programming	Read ,understand and trace the execution of programs written in a c language
		Write programs that perform operations using derived data
		Implement programs with pointers and arrays perform pointer arithmetic and use the preprocessor

4020.6	C-Programming Lab	Read, understand and trace the execution of programs written in a c language
		write programs that perform operations using derived data
		Implement programs with pointers and arrays perform pointer arithmetic and use the preprocessor
4020.7	Complex Analysis	Explain the fundamental concepts of complex analysis and their role in modern mathematics and applied contexts
		Demonstrate accurate and efficient use of complex analysis
		Demonstrate capacity for mathematical reasoning through analyzing, proving and explaining concepts from complex analysis
		Apply problem-solving using complex analysis techniques applied to diverse situations in physics, engineering and other mathematical contexts
4020.8	Numerical methods	Finite difference operators are also introduced to understand a different approach in interpolation.
		Reader will appreciate the error analysis explained suitability of degree of polynomial.
		Locate and use good mathematical software and use numerical methods for solving a problem.
		Assess the reliability of numerical results and determine the effect of round off error.
4020.9	Mathematical Methods	Describe several areas of mathematics beyond calculus .
		Understand the fourier transform is constructed to represent an arbitrary function over a given range then the transformation represents that function periodically extended beyond that range.
		It will able to apply integral expression for the forwards and inverse fourier transform to a range of non periodic wave forms.
		To know about calculus of variations in Euler’s equation.

4020.10	Fluid dynamics	Apply the basic applied mathematic tools that support fluid
		Create models of inviscid steady fluid flow over simple profiles and shapes.
		To understand the viscous flow and stress and strain. Some solvable problems in viscous flow.
4020.11	Partial Differential Equations	Able to use a numerical method of solution known as Euler's
		Use analytical methods of solutions by direct integrations, separation of variables and the integrating factor method.
		How to classify the linear partial differential equation with constant and variable co-efficients
4020.12	Numerical methods Lab	Finite difference operators are also introduced to understand a different approach in interpolation.
		Reader will appreciate the error analysis explained suitability of degree of polynomial.
		Locate and use good mathematical software and use numerical methods for solving a problem.
		Assess the reliability of numerical results and determine the effect of round off error.
4020.13	Advanced Complex analysis	Explain the fundamental concepts of complex analysis and their role in modern mathematics and applied contexts.
		Apply problem solving using complex analysis techniques apply to diverse situations in physics engineering and other mathematical contexts.
4020.14	Linear Programming	Understand how it exploits the linear nature of the problem to yield good average case performatic while failing to be efficient in the wrost case.
		Under stand the meaning of weak and strong duality and their role in the designs and verification of algorithm solutions to optimization problems
		Know the strategy of game theory and assignment problems

4020.15	Topology	Basic notions of metric and topological spaces,
		Methods and techniques of proving basic theorems on topological spaces and continuous mappings
		Know how the topology on a space is determined by the collection of open sets, by the collection of closed sets, or by a basis of neighborhoods at each point, and you know what it means for a function to be continuous.
4020.16	Discrete Mathematical Structures	Some fundamental mathematical concepts and terminology.
		How to use and analyse recursive definition.
		How to count some different types of discrete structures.
		Explain Boolean algebra and homomorphism and how to apply it in engineering
4020.17	Theoretical Computer Science(Elective1)	Know the important models of computation and you can examine them with mathematical precision.
		Know the model computation using finite automata and characterize simple languages with regular expressions and context free grammars.
		Understand how the Turing machine models everything that can be computed using a real computer.
4020.18	Fortran Lab	Know ware and why fortran is still in use today.
		Know what a compiler is and why some languages must be compiled.
		Explain difference between compile time and run time errors.
4020.19	Functional Analysis	The student has knowledge of central concepts from functional analysis, including the Hahn-Banach theorem, the open mapping and closed graph theorems, the Banach-Steinhaus theorem, dual spaces, weak convergence, and the spectral theorem for bounded self-adjoint operators.
		Skills: The student is able to apply his or her knowledge of functional analysis to solve mathematical problems
4020.20	Operation Research	Under stand the mathematical tools that are needed to solve optimization problems.
		Develop a report that describes the model and the solving techniques analysis the results to the decision making processes in management engineering.
		How to construct the buildings and highways by using network analysis.
		Having the knowledge about the product management and stock market.

4020.21	Methods of Applied Mathematics	Find dominant balances in DE with small parameter.
		In simple cases find complete asymptotic expansions of integrals.
		The final part of the course focuses on P.D.E.
		Understand the matrices and linear equations how to they use in transformations.
4020.22	Integral transforms	Student will gain a range of techniques employing the Laplace and Fourier transforms in the solution of ODE & PDE.
		Appreciation of generalized functions their calculus and applications.
		Solved problems on finite fourier transformations and parseval's theorem.
		Having the knowledge of hankel transform of the derivation of a function.
4020.23	Graph Theory(Elective 2)	To introduce graph as a powerful modeling tool that can be used to solve practical problems in various fields
		Algorithms to find components of a graph and the strongly connected components of a diagraph.
		Understand the coloring , matchings and applications of graph theory in operation research.
4020.24	Mat-Lab	Define the general structure of mat lab
		Describe the work space and command line.
		Write programs in mat lab M-files.
		Create conditional control and loop control
		Use the special functions of mat lab
4020.25	Project	Student should be able to apply the relevant knowledge and skills which are acquired with in the technical area to a given problem.
		With in given constraints even with limited information independently analyze
		Reflect on evaluate and critically assess one's own and others scientific results.

BVOC., INDUSTRIAL AQUACULTURE AND FISHERIES

2020-21

THIRD SEMESTER

CODE	NAME OF THE PAPER	OUT COME
IAF - T10	Inland and marine fisheries	➢ By the end of the course the student will be equipped with the knowledge of marine, brackish, fresh water, pelagic, demersal and deep sea fisheries. ➢ Knowledge on the classification, types and identification of costal fisheries. ➢ Knowledge on the different organizations and institutes involved in fisheries and aquaculture and research and development.

Credits: 4 four theory hours for week over a semester

Credits: 2 one practical class of two hours for week over a semester

IAF – T11	Aquaculture nutrition	➢ By the end of the course the student will be equipped with the aquaculture nutritional aspect on finfish and shellfish fisheries. ➢ Knowledge on the field ingredients, nutritional formulations, feed management and quality assessment. ➢ Knowledge on the practical aspects on evolution types of feed and nutritional deficiency diseases.

Credits: 4 four theory hours for week over a semester

Credits: 2 one practical class of two hours for week over a semester

IAF – T12	Fish genetics and aquaculture biotechnology	➢ At the end of the course student can able to gain the knowledge of biotechnology principles, fish genetics and biotechnology studies. ➢ Knowledge on the genetical studies and breeding programmes on aquatic species. ➢ Knowledge on molecular applications on aquaculture.

Credits: 4 four theory hours for week over a semester

BVOC., INDUSTRIAL AQUACULTURE AND FISHERIES

2020-21

4 th SEMESTER

CODE	NAME OF THE PAPER	OUT COME
IAF – T14	Pathology in aquaculture	➢ Knowledge on the microbial diseases in aquaculture species. ➢ Knowledge on the bacterial diseases and nutritional diseases and effect of aquaculture species. ➢ Knowledge on the immunology and fish health management.

Credits: 4 four theory hours for week over a semester

Credits: 2 one practical class of two hours for week over a semester

IAF – T15	Ornamental fisheries	➢ Knowledge on the aquarium design and setup, water quality management. ➢ Student will learn the knowledge of biology of ornamental fisheries. ➢ Knowledge on nutritional and pathology in aquarium fisheries.

Credits: 4 four theory hours for week over a semester

Credits: 2 one practical class of two hours for week over a semester

IAF – T16	Fishery microbiology and byproducts	➢ Student will learn the knowledge on the micro biological aspects. ➢ Knowledge on microbial culture effect on aquatic species and various environments. ➢ Knowledge on value fishery additional byproducts.

Credits: 4 four theory hours for week over a semester

BVOC., INDUSTRIAL AQUACULTURE AND FISHERIES

2021-22

5 th SEMESTER

CODE	NAME OF THE PAPER	OUTCOME
IAF – T18	Fish processing technology and quality control	➢ Student will learn the knowledge fish processing, freezing and preservation technics. ➢ Knowledge on fish packing and quality assurance of finfish and shellfish. ➢ Student will learn quality of sea food, basic concepts and quality control of fish processing and standards of sea food.

Credits: 4 four theory hours for week over a semester

Credits: 2 one practical class of two hours for week over a semester

IAF – T19	Aquatic pollution	➢ Student will learn the knowledge of water quality and characteristics of water. ➢ Knowledge of variant pesticides, different waste materials. ➢ Knowledge on microbial pollution and ground water pollution. ➢ Knowledge on monitoring and control of pollution and functions of pollution control board.

Credits: 4 four theory hours for week over a semester

Credits: 2 one practical class of two hours for week over a semester

IAF - T20	Fisheries policy, law and disaster management	➢ Student will learn the knowledge role of central and state government regulatory activities of aquaculture and fisheries. ➢ Learn the knowledge about various fisheries legislations and disaster management in fisheries. ➢ Knowledge on pre-disaster, during disaster, post disaster management strategies.

Credits: 4 four theory hours for week over a semester

BVOC., INDUSTRIAL AQUACULTURE AND FISHERIES

2021-22

6 th SEMESTER

CODE	NAME OF THE PAPER	OUT COME
IAF – T22	Fisheries economics and marketing	➢ Student will learn the knowledge basic economic terminologies in fisheries. ➢ Knowledge on the micro economics and macro economics. ➢ Knowledge on the international trade import and export policy. ➢ Knowledge on role of fisheries in economic development.

Credits: 4 four theory hours for week over a semester

Credits: 2 one practical class of two hours for week over a semester

IAF – T23	Aquaculture engineering	➢ Student will learn the knowledge of design and construction of farm and hatcheries structures. ➢ Knowledge on different regulations in aquaculture systems. ➢ Knowledge on classification of surveying and effluent treatment plant.

Credits: 4 four theory hours for week over a semester

Credits: 2 one practical class of two hours for week over a semester

IAF – T24	Fisheries co-operative and marketing	➢ Student will learn about structure, functions, status and problems of co-operatives management in fisheries. ➢ Knowledge on role of credit for fisheries development. ➢ Role of NABARD in fisheries development. ➢ Knowledge and export and import policies in fisheries sector.

Credits: 4 four theory hours for week over a semester

BBA (Digital Marketing)

SEMESTER - I

Course code	Course Name	Course Outcome
	PRINCIPLES OF MANAGEMENT	1. To enable the students to study the functions, principles and challenges of Management in Global Scenario.
		2. It aims at understanding the planning process and in the organization.
		3. Student will get knowledge about organization, and concepts about authority.
		4. It focuses on ability to directing, leadership and effective communication.
		5. Aims at understanding and formulating best methods of control.
	Managerial Economics	1. To understand the basic concept of microeconomics that are useful in business decision making
		2. It aims at understanding the demand and supply analysis in business applications.
		3. To understand consumer behavior and the concept of utility and satisfaction and its application in economics.
		4. It focuses on understanding the production and cost structure under different stages of production.
		5. Enables the student in analyzing the Demand Forecast and decision making.
	Fundamentals of Digital Marketing and Digital Markets	1. It enables the student to understand the Marketing Concepts and Marketing environment in current scenario.
		2. It aims at understanding the product concept, its branding and life cycle.
		3. Focuses on pricing decisions, understanding the pricing strategies in marketing and various channels and intermediaries available in the market.
		4. Aims at application of digital marketing in the globalized market and usage of E-mail advertisement and mobile marketing.
		5. Focuses on understanding the concept of Blogs and makes student capable of creating and maintaining their own blogs.

SEMESTER - II

Course code	Course Name	Course Outcome
	ACCOUNTING FOR MANAGERS	1. The objective of the course is to equip students with the accounting concept, tools and techniques influencing business organization.
		2. Aims at learning the techniques of posting from Subsidiary Books to Ledger.
		3. The objective of the course is to equip students to explain the purpose of preparing the bank reconciliation statement.
		4. Understand what is trial balance and what purposes it can serve. Also Learn the technique of taking balances from ledger accounts to prepare trial balance.
		5. Aims at learning the basic corporate accounts rules and issue of shares and debentures.
	DIGITAL AND SOCIAL MEDIA MARKETING	1. Gives the ability to Understand the Social Media space and tools. Analyze the effectiveness of your company's and competitors' social media programs
		2. It gives knowledge on Managing social media platforms and Do's and Don'ts of Social media.
		3. student will gain knowledge on optimizing the social media and achieving social media goals.
		4. Focuses on understanding various social media platforms and creating business pages.
		5. Focuses on understanding the usage of social analytics tools like google, Buzzsumo etc.,
	E-Commerce	1. Understand the basic concepts and technologies used in the field of e-commerce.
		2. Focuses on understanding the impact of E-commerce on business models and strategy.
		3. It gives knowledge on Electronic payment systems and gateways
		4.Focuses on understanding the Customer relationship management and components and E-CRM
		5.Understand the processes of developing and implementing HTML.

SEMESTER - III

Course code	Course Name	Course Outcome
	Organizational Behaviour	1. Understands the basic concepts of Organizational Behaviour and its applications in contemporary organizations.
		2.Enable Learners to understand various forces driving human behavior.
		3. Will understand what makes an organization, how organizations evolve and what makes them effective.
		4. Aims students with the appropriate concepts, theories, models and other tools to make better understanding of behavioral dynamics.
		5. Focuses on understanding the Concepts related to Organization Structure and cultivate an understanding of organizational culture and structure.
	Search Engine Optimization	1.At the end of the course student will understand Search Engines & Ranking Concepts and How to perform Keyword Research.
		2.Equips knowledge with Search engine Friendliness and Specific Rankings.
		3. Understands SEO Best Practices to incorporate on a Website.
		4.Aims at understanding Off-page SEO and its functions.
		5.Focuses on performing Web 2.0 and other important considerations Website ecosystem, SEO for blogs.
	Financial Management	1. Aims at understanding financial management in terms of the major decision areas that confront the financial manager.
		2. Develop knowledge on Applying capital budgeting projects using traditional methods.
		3. Analyze different methods of raising capital and their respective advantages and disadvantages in different circumstances.
		4. Explain alternative sources of finance and investment opportunities and their suitability in particular circumstances.
		5. Analyse a company’s performance and make appropriate recommendations.

SEMESTER - IV

Course code	Course Name	Course Outcome
	Training and Development	1.Student will gain knowledge related to job Training .
		2.Focuses on understanding various steps in training and its principles
		3.Equips knowledge with different methods of training in real time scenario.
		4.understands the concepts of management development and executive development.
		5.Aims in understanding the concepts of coaching and counseling during training.
	Business Law	1. Understands the basic concepts of forming an enforceable contract and agreement.
		2. Enumerate the types of companies its management and its rules of corporate governance.
		3. Equips knowledge with Factories act 1948.
		4. Acquire knowledge and develop understanding of The Sales of Goods Act, 1930.
		5.Equips knowledge with The essential Commodity Act. The Consumer Protection Act, 1986.
	Micro, Small, Medium Enterprises Management	1.Focuses in understanding Small and Medium Enterprises and their Significance in Indian economy.
		2.Aims at understanding Project identification, formulation and generating reports.
		3.Understands Functions of Management in Small and Medium Enterprises.
		4.Focuses on understanding the causes for the Sickness in Small and Medium enterprises and Remedial measures for sickness.
		5.Equips knowledge with Ancillary Industries.
	International Business	1. Have knowledge of business administration and insight into international business.
		2. Focuses in understanding Foreign Exchange rate fluctuations and Foreign market operations
		3. Have in-depth knowledge of BOP and measures of correction of BOP.
		4. Equips knowledge with WTO and Trade blocks.
		5. Equips knowledge with Export and Import procedure, principal and auxiliary documents.

	Search Engine Marketing & Affiliate Marketing	1. Understand concepts of search engine marketing including various elements of search engine marketing plan.
		2. Focuses in understanding Create effective landing pages by understanding web users' behavior.
		3. Affiliate marketing helps in building performance-base. It helps broaden your audience.
		4. Affiliates can boost your reputation. It's cost effective. Affiliates can rapidly scale your traffic and sales.
	Cyber Law	1. Define and describe the nature and scope of cybercrime.
		2. Develop knowledge of major incidents of cybercrime and their resulting impact.
		3. Analyze and discuss national and global digital law enforcement efforts
		4. Critically consider specific laws and policies governing cybercrime detection and prosecution.

B.Sc Artificial Intelligence and Robotics

First Semester

Course Code	Course Name	Out Come
	Web Technologies	1. This subject enables the student to create flexible, attractive, user-friendly web sites comprised of both static and dynamic web pages.
		2.Learn HTML programming for website designing
		3. Designing attractive websites using CSS
		4. Along with that students will also learn about interactions with web pages through Java script and host own web site on internet.
		5. After Studying this subject students would have capability to make their own web site and host on internet. Also students would have enough knowledge about the technologies used in internet.

Second Semester

Course Code	Course Name	Out Come
	Artificial Intelligence	1. The objective of the course is to present an overview of artificial intelligence (AI) principles and approaches.
		2. Develop a basic understanding of the building blocks of AI as presented in terms of intelligent agents
		3. Search, Knowledge representation, inference, logic, and learning.
		4. Students will acquire a fundamental understanding of the principles of artificial intelligence and its foundations and apply those basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation and learning.
		5. Acquire PROLOG programming knowledge which is used for Artificial Intelligence

Third Semester

Course Code	Course Name	Out Come
	Expert Systems	1.Students will be able to explain and describe the concepts central to the creation of knowledge bases and expert systems.
		2.Students will be knowledgeable about the tools and the processes used for the creation of an expert system.
		3.Student will know methods used to evaluate the performance of an expert system.
		4. At the end students will be able to get an understanding of how to transform human knowledge into an expert system and design a knowledge base. Learn LISP Program
		5. A basic understanding of natural language processing and pattern recognition is acquired.

Fourth Semester

Paper - 1

Course Code	Course Name	Out Come
	Fundamentals of IoT & Robotics	1. The goal of the course is to familiarize the students with the fundamental concepts and techniques in robotic engineering and computer systems for their control and information processing.
		2. Students will be exposed to fundamentals of IoT and a broad range of topics in robotics with emphasis on basics of manipulators, coordinate transformation and kinematics, trajectory planning and control techniques
		3. Familiarization with Arduino / Raspberry PI
		4. Students are encouraged to explore the surrounding problems and design Solutions based on IoT. Some examples shown below i. Health Monitoring System ii. Smart Irrigation System using Cloud iii. Smart Waste Management System
		5. They can built different Robots and they can Set robot for any one industrial application after industrial visit

Paper - 2

Course Code	Course Name	Out Come
	Machine Learning	1. To introduce students to the basic concepts and techniques of Machine Learning. To develop skills of using recent machine learning software for solving practical problems. To gain experience of doing independent study and research.
		2.On completion of the course students will be expected to have a good understanding of the fundamental issues and challenges of machine learning: data, model selection, model complexity, etc
		3.And also gain an understanding of the strengths and weaknesses of many popular machine learning approaches.
		4. Students gain knowledge on Neural Networks

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.Voc., Food Processing and Quality Management 2019-2020 1st year: I & II semesters		
Paper Code	**Paper Name**	**Outcome**
FPQMT1	**Food Science and Nutrition -1**	To understand the nutrition and health
		To Understand the dietary allowances for Indians
		To study the dietary guidelines
		To study the new concepts of Food
		To study the bioavailability, enrichment, deficiency and toxicity of vitamins and minerals
		To understand the basal metabolic rate and factors effecting BMR
		To develop skills in meal planning for different groups of people
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQMT2	**Basic Food Microbiology**	To understand the cultivation of Bacteria
		To study the algae protozoa and its destruction
		To study the history of food microbiology
		To understand the microorganism associated with food
		To understand the usage of microbes in food biotechnology
		To understand the extrinsic and intrinsic parameters affecting growth and survival of microbes
		To study the organic acids lipids, pectic substances
		To study the contaminants of various food stuffs
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQMT3	**Food Chemistry**	To understand the structure of water, effect of hydrogen bonding
		To study the determination methods of moisture in food
		To understand the composition , structure, reactions of Carbohydrates
		To study the various properties of Starch
		To understand the composition , structure, reactions, functions of Proteins
		To study the classification of proteins
		To understand the enzyme specificity and its mechanism
		To understand the composition , structure, reactions, functions of fats and oils
		To study the structure, chemical and physical properties of pigments and flavors in food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQMT4	**Principles of Food Preservation**	To study the mechanism of food spoilage and its end products

		To understand the various food preservation methods
		To understand the usage of food additives
		To study the pasteurization and sterilization and canning
		To study the freezing methods and IQF technology
		To study the drying techniques and water activity of food
	Credits: 4. Four theory hours per week over a semester	
FPQM T5	**Food Science and Nutrition – 2**	To study the levels of body composition and body compartments
		To develop skills estimation of body composition
		To develop skills skin fold measurements
		To study the glycemic index and glycemic load
		To understand the metabolic utilization and regulation of blood glucose
		To study the digestion, absorption, transportation of protein
		To understand the urea cycle
		To study the digestion, absorption, transportation of lipids in body
		To understand the plasma lipoprotein and cholesterol biosynthesis
		To understand the inborn errors of protein metabolism
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T6	**Processing of Milk and Milk Products**	To study the nutritional importance of Milk
		To understand the physiochemical properties of Milk
		To understand the microbial spoilage of milk roll of milk products in cookery.
		To study the Clarification and filtration process, standardization by using Pearson's square method,
		To understand the Cream separation- centrifugal cream separator, bactofugation.
		To understand the various categories of milk in industry
		To gain develop skills of manufacturing various dairy products
		To understand SIP system of dairy plant,
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM T7	**Basics of Food Engineering**	To study the base and derived engineering units
		To understand the Modes of heat transfer
		To study the construction of various heat exchangers
		To understand the Mixing index, Mixing Equipment
		To study the Clarification and concentration process
		To study the physical properties of various fruits and grains
		To understand the Irradiation in foods
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FPQM	**Food Quality**	To study the Quality Management System- ISO 9000 and its

T8	**Management**	Management Principles
		To study the Food Safety Management System- Key role, Principles of FSMS, ISO-22000
		To study Sanitation principles and Sanitizing methods
		To understand Risk assessment and management during food preparation.
		To gain a knowledge on industrial practices
		To study the HACCP principles and limitations
		To study the various food laws
	Credits: 4. Four theory hours per week over a semester	

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.Voc., Food Processing and Quality Management 2020-2021 2nd year: III & IV semesters		
Paper Code	**Paper Name**	**Outcome**
	Food Additives	To study the role of additives in processing line
		To study the benefits of additives
		To study the risk of harmful additives
		To gain knowledge on limitation of additives usage
		To understand various types of Additives like colors, emulsifiers, stabilizers, flavor enhancers.
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Processing of cereals, pulses and oilseeds	To learn about the processing of major cereals and pulses.
		To study structure of cereals and its importance
		To gain knowledge on cereal based processed products
		To gain knowledge about grain storage structure and handling devices.
		To study the various oil extraction methods
		To learn about byproducts of cereal. Pulses and oil seeds
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	New Product Development and Sensory Science	To gain knowledge on innovation strategies on product development.
		To study various methodologies of new product development
		To study the conversion of product concept to new product
		To study the various consumer studies and surveys
		To acquaint the students with the Sensory evaluation techniques
		To learn the steps for the development of new food products.
	Credits: 4. Four theory hours per week over a semester	

	Credits : 2. One practical class of two hours week over a semester	
	Functional foods and Nutraceuticals	To understand the basics of nutraceuticals and functional foods.
		To study the significance of nutraceuticals and their role in disease prevention.
		To understand the carotenoids metabolism in human body
		To identify new strategies for marketing of traditionally known nutraceuticals.
		To study the probiotics mechanism, health benefits and products.
	Credits: 4. Four theory hours per week over a semester	
	Food Safety and Microbial Standards	To study food poisoning in various food products
		To study the various toxic phenolic substances
		To gain knowledge about toxic symptoms
		To study the various Anti microbial agents
		To understand the food borne infections
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Processing Technology of fruits and vegetables	To acquire knowledge about the selection of fruits for processing and value addition
		To introduce the latest technologies and manufacturing processes
		To gain knowledge about effective control of safety and quality during processing
		To study process flow of various fruits and vegetable processed products
		To study the FSSAI specifications for processed products
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Food Quality and Analysis	To develop an understanding and methodologies of instrumental techniques in food analysis
		To understand objective methods of food quality parameters.
		To learn about physical and chemical contaminants in foods.
		To understand different sampling techniques employed in chemical analysis of foods.
		To study the various contaminants in food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Food Business Management	To understand basic managing fundamentals
		To gain knowledge for managing the food processing operations
		To study the process of raw material procurement
		To study the national and international trade
		To study the world consumption patterns
	Credits: 4. Four theory hours per week over a semester	

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.Voc., Food Processing and Quality Management 2021-2022 3rd year: V & VI semesters		
Paper Code	**Paper Name**	**Outcome**
	Bakery and Confectionery Technology	To study different form of bakery confectionary
		To study the role of ingredients in bakery and confectionary
		To understand analysis equipment involved
		To acquire the knowledge of manufacturing process of bakery and confectionary products in range.
		To gain knowledge of Rheological testing of dough
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Processing Technology of Meat, Fish And Poultry	To study an extensive description of meat, fish and poultry processing
		To understand the latest technologies , manufacturing processes and tools
		To study effective control of safety and quality during processing.
		To study GMP for fish and meat industry
		To study the various byproducts of meat and fish industries
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Food Packaging	To study different methods and materials used for packaging.
		To understand the technology behind packaging
		To study the interaction of food with packaging materials
		To study various packaging testing methods
		To understand packaging laws and regulations
	Credits: 4. Four theory hours per week over a semester	
	Dietetics and Counselling	To study different methods of nutritional assessment techniques
		To understand the importance of Dietetic
		To study various counselling programs in public health Management
		To prepare teaching material for patients suffering from Digestive disorders
		To study usage of computers of dietician
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

	Processing Technology of Spices and Plantation crops	To study the importance of various types of spices
		To study the usage of spices in the food industry and their applications
		To study the processing steps involved in spice processing
		To know about value added products from spices
		To know various processing steps involved in plantation crop processing
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Technology of Beverages	To study the water treatment process in beverage industries
		To study the alcohol beverage processing steps
		To study the carbonated beverage processing products
		To study the various distilled and fermented beverages
		To understand the processing steps involved in plantation crops
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Emerging technologies in food safety and quality	To understand Emerging / alternative technologies applied to food processing.
		To study Relative advantages / disadvantages over existing technologies.
		To understand Economics and commercialization of newer technologies.
		To study nanotechnology in food
		To understand antimicrobial technology in food industry
	Credits: 4. Four theory hours per week over a semester	

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.Voc., Food Processing and Quality Management 2020-2021		
Paper Code	**Paper Name**	**Outcome**
	Food Science and Nutrition -1	To understand the nutrition and health
		To Understand the dietary allowances for Indians
		To study the dietary guidelines
		To study the new concepts of Food
		To study the bioavailability, enrichment, deficiency and toxicity of vitamins and minerals
		To understand the basal metabolic rate and factors effecting BMR
		To develop skills in meal planning for different groups of people
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Basic Food Microbiology	To understand the cultivation of Bacteria
		To study the algae protozoa and its destruction
		To study the history of food microbiology
		To understand the microorganism associated with food
		To understand the usage of microbes in food biotechnology
		To understand the extrinsic and intrinsic parameters affecting growth and survival of microbes
		To study the organic acids lipids, pectic substances
		To study the contaminants of various food stuffs
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Principles of Food Preservation	To study the mechanism of food spoilage and its end products
		To understand the various food preservation methods
		To understand the usage of food additives
		To study the pasteurization and sterilization and canning
		To study the freezing methods and IQF technology
		To study the drying techniques and water activity of food
	Credits: 2. Two theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Food Science and Nutrition – 2	To study the levels of body composition and body compartments
		To develop skills estimation of body composition
		To develop skills skin fold measurements
		To study the glycemic index and glycemic load
		To understand the metabolic utilization and regulation of blood glucose
		To study the digestion, absorption, transportation of protein
		To understand the urea cycle
		To study the digestion, absorption, transportation of lipids in body

		To understand the plasma lipoprotein and cholesterol biosynthesis
		To understand the inborn errors of protein metabolism
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Processing of Milk and Milk Products	To study the nutritional importance of Milk
		To understand the physiochemical properties of Milk
		To understand the microbial spoilage of milk roll of milk products in cookery.
		To study the Clarification and filtration process, standardization by using Pearson's square method,
		To understand the Cream separation- centrifugal cream separator, bactofugation.
		To understand the various categories of milk in industry
		To gain develop skills of manufacturing various dairy products
		To understand SIP system of dairy plant,
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Basics of Food Engineering	To study the base and derived engineering units
		To understand the Modes of heat transfer
		To study the construction of various heat exchangers
		To understand the Mixing index, Mixing Equipment
		To study the Clarification and concentration process
		To study the physical properties of various fruits and grains
		To understand the Irradiation in foods
	Credits: 2. Two theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.Voc., Food Processing and Quality Management 2021-2022 2nd year: III & IV semesters		
Paper Code	**Paper Name**	**Outcome**
	Food Additives	To study the role of additives in processing line
		To study the benefits of additives
		To study the risk of harmful additives
		To gain knowledge on limitation of additives usage
		To understand various types of Additives like colors, emulsifiers, stabilizers, flavor enhancers.
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

	Processing of cereals, pulses and oilseeds	To learn about the processing of major cereals and pulses.
		To study structure of cereals and its importance
		To gain knowledge on cereal based processed products
		To gain knowledge about grain storage structure and handling devices.
		To study the various oil extraction methods
		To learn about byproducts of cereal. Pulses and oil seeds
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	New Product Development and Sensory Science	To gain knowledge on innovation strategies on product development.
		To study various methodologies of new product development
		To study the conversion of product concept to new product
		To study the various consumer studies and surveys
		To acquaint the students with the Sensory evaluation techniques
		To learn the steps for the development of new food products.
	Credits: 2. Two theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Functional foods and Nutraceuticals	To understand the basics of nutraceuticals and functional foods.
		To study the significance of nutraceuticals and their role in disease prevention.
		To understand the carotenoids metabolism in human body
		To identify new strategies for marketing of traditionally known nutraceuticals.
		To study the probiotics mechanism, health benefits and products.
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Food Safety and Microbial Standards	To study food poisoning in various food products
		To study the various toxic phenolic substances
		To gain knowledge about toxic symptoms
		To study the various Anti microbial agents
		To understand the food borne infections
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Processing Technology of fruits and vegetables	To acquire knowledge about the selection of fruits for processing and value addition
		To introduce the latest technologies and manufacturing processes
		To gain knowledge about effective control of safety and quality during processing
		To study process flow of various fruits and vegetable processed products
		To study the FSSAI specifications for processed products
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

	Food Quality and Analysis	To develop an understanding and methodologies of instrumental techniques in food analysis
		To understand objective methods of food quality parameters.
		To learn about physical and chemical contaminants in foods.
		To understand different sampling techniques employed in chemical analysis of foods.
		To study the various contaminants in food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
	Food Chemistry	To understand the structure of water, effect of hydrogen bonding
		To study the determination methods of moisture in food
		To understand the composition , structure, reactions of Carbohydrates
		To study the various properties of Starch
		To understand the composition , structure, reactions, functions of Proteins
		To study the classification of proteins
		To understand the enzyme specificity and its mechanism
		To understand the composition , structure, reactions, functions of fats and oils
		To study the structure, chemical and physical properties of pigments and flavors in food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.SC, Food Technology 2020-2021 1st year 1st and 2nd semester		
Paper Code	**Paper Name**	**Outcome**
FT T1	**Food Science and Nutrition -1**	To understand the nutrition and health
		To Understand the dietary allowances for Indians
		To study the dietary guidelines
		To study the new concepts of Food
		To study the bioavailability, enrichment, deficiency and toxicity of vitamins and minerals
		To understand the basal metabolic rate and factors effecting BMR
		To develop skills in meal planning for different groups of people
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T2	**Fundamentals of Food Microbiology**	To understand the cultivation of Bacteria
		To study the algae protozoa and its destruction
		To study the history of food microbiology
		To understand the microorganism associated with food
		To understand the usage of microbes in food biotechnology
		To understand the extrinsic and intrinsic parameters affecting growth and survival of microbes
		To study the organic acids lipids, pectic substances
		To study the contaminants of various food stuffs
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T3	**Fundamental of Food Chemistry**	To understand the structure of water, effect of hydrogen bonding
		To study the determination methods of moisture in food
		To understand the composition , structure, reactions of Carbohydrates
		To study the various properties of Starch
		To understand the composition , structure, reactions, functions of Proteins
		To study the classification of proteins
		To understand the enzyme specificity and its mechanism
		To understand the composition , structure, reactions, functions of fats and oils
		To study the structure, chemical and physical properties of pigments and flavors in food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T4	**Basic Principles of Food Preservation**	To study the mechanism of food spoilage and its end products

		To understand the various food preservation methods
		To understand the usage of food additives
		To study the pasteurization and sterilization and canning
		To study the freezing methods and IQF technology
		To study the drying techniques and water activity of food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T5	**Food Production Trends**	To study the status of food processing industries in india
		To study about food industries exports laws
		To develop skills about MOFPI
		To study the objectives and functions of APEDA
		To understand the national and international food projects
		To study the food laws
		To understand the classification of food crops
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T6	**Food Quality Management**	To study the Quality Management System- ISO 9000 and its Management Principles
		To study the Food Safety Management System- Key role, Principles of FSMS, ISO-22000
		To study Sanitation principles and Sanitizing methods
		To understand Risk assessment and management during food preparation.
		To gain a knowledge on industrial practices
		To study the HACCP principles and limitations
		To study the various food laws
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY

B.SC, Food Technology 2021-2022

I year 1st and 2nd semester

Paper Code	Paper Name	Outcome
FT T1	**Food Science and Nutrition -1**	To understand the nutrition and health
		To Understand the dietary allowances for Indians
		To study the dietary guidelines
		To study the new concepts of Food
		To study the bioavailability, enrichment, deficiency and toxicity of vitamins and minerals
		To understand the basal metabolic rate and factors effecting BMR
		To develop skills in meal planning for different groups of people
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T2	**Basic Principles of Food Preservation**	To study the mechanism of food spoilage and its end products
		To understand the various food preservation methods
		To understand the usage of food additives
		To study the pasteurization and sterilization and canning
		To study the freezing methods and IQF technology
		To study the drying techniques and water activity of food
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T3	**Food Production Trends**	To study the status of food processing industries in india

		To study about food industries exports laws
		To develop skills about MOFPI
		To study the objectives and functions of APEDA
		To understand the national and international food projects
		To study the food laws
		To understand the classification of food crops
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T4	**Food Science and Nutrition-2**	To study the levels of body composition and body compartments
		To develop skills estimation of body composition
		To develop skills skin fold measurements
		To study the glycemic index and glycemic load
		To understand the metabolic utilization and regulation of blood glucose
		To study the digestion, absorption, transportation of protein
		To study the structure and composition of oilseeds
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

DEPARTMENT OF FOOD SCIENCE AND TECHNOLOGY B.Sc., Food Technology 2021-2022 II year 3rd and 4th semester		
Paper Code	**Paper Name**	**Outcome**
FT T1	**Food Science and Nutrition -2**	To study the levels of body composition and body compartments
		To develop skills estimation of body composition
		To develop skills skin fold measurements
		To study the glycemic index and glycemic load
		To understand the metabolic utilization and regulation of blood glucose
		To study the digestion, absorption, transportation of protein
		To study the structure and composition of oilseeds
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T2	**Processing of Cereals Pulses and oil Seeds**	To understand the Processing technology of food grains
		To study the structure and chemical composition of Cereals
		To study the parboiling technology of paddy
		To understand the byproducts of food grains
		To understand the structure and composition of pulses
		To understand the processing technology of pulses
		To study the structure and composition of oilseeds
		To study the extraction and purification technology of crude oil
	Credits: 4. Four theory hours per week over a semester	

	Credits : 2. One practical class of two hours week over a semester	
FT T3	**Food Business Management**	To understand the basic fundamentals for managing the food processing operations.
		To study the raw material procurement
		To understand consumers behaviour
		To study the international trade.
		To understand the marketing strategy
		To study the world consumption of food
		To understand the business management
		To study the WTO, GATT
		To study the import export organization's
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T4	**Processing of Milk and Milk Products**	To study the nutritional importance of Milk
		To understand the physiochemical properties of Milk
		To understand the microbial spoilage of milk roll of milk products in cookery.
		To study the Clarification and filtration process, standardization by using Pearson's square method,
		To understand the Cream separation- centrifugal cream separator, bactofugation.
		To understand the various categories of milk in industry
		To gain develop skills of manufacturing various dairy products
		To understand SIP system of dairy plant,
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	

FT T5	**Basics of Food Engineering**	To study the base and derived engineering units
		To understand the Modes of heat transfer
		To study the construction of various heat exchangers
		To understand the Mixing index, Mixing Equipment
		To study the Clarification and concentration process
		To study the physical properties of various fruits and grains
		To understand the Irradiation in foods
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T6	**Food safety and microbial standards**	To study the microbial standards in foods
		To study the history of food poisoning
		To study the microbial toxins
		To understand Risk of metal toxins
		To gain a knowledge on mushroom toxins
		To study the protozoan toxins
		To study the antimicrobial agents
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T7	**New product development**	**To Sensory evaluation techniques and steps for the development of new food products.**
		To study concepts of product formulation and development
		To study general characteristics and knowledge management of npd
		To understand the methodology of new product development
		To study the role of consumer in product development

		To understand the sensory analysis
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semester	
FT T8	**Food additives**	**To study the concepts of food additives**
		To study the additives functions and need in food industries
		To understand the different types of food additives
		To study the major food additives
		To study the Minor food additives
		To understand the concepts of stabilizers and thickeners
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical class of two hours week over a semeste	
FT T9	**Processing technology of fruits and vegetables**	To acquire knowledge about the selection of fruits for processing and valueaddition
		To study the post harvesting technology of fruits and vegetables
		To study the processing of jams and jellies
		To study the processing of apple and orange
		To study the processing concepts of mango and tomato
		To study the processing of vegetables
	Credits: 4. Four theory hours per week over a semester Credits : 2. One practical	

	class of two hours week over a semeste	

B.Voc (Software Development)

SEMESTER - I

Course code	Course Name	Course Outcome
	Applied Maths - 1	1.Use propositional and predicate logic in knowledge representation and truth verification.
		2.Demonstrate the application of discrete structures in different fields of computer science.
		3.Solve problems using recurrence relations and generating functions.
		4.Application of different mathematical proofs techniques in proving theorems in the courses.
		5.Compare graphs, trees and their applications.
	Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.	
	Introduction to IT Tools	1.Understanding the concept of input and output devices of Computers and how it works and recognize the basic terminology used in computer programming
		2.Bridge the fundamental concepts of computers with the present level of knowledge of the students.
		3.Understand binary, hexadecimal and octal number systems and their arithmetic.
		4.Understanding MS office History , Ms Word Concepts.
		5.Understanding Powerpoint Concepts and Usage.

	Credits : 4 , Four theory hours per week over a Semester. Credits : 2 One practical class of two hours for a week Over a Semester.	
	IT Foundations & Programming Concepts	1.Understanding the Problem Definition and Steps.
		2.Understanding the Software Concepts
		3.Understanding the Algorithms and Raptor Tool.
	Credits : 2 , Two theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.	

B.Voc (Software Development)

SEMESTER - I

	Photoshop and Flash	1. Use basic selection tools and edge refinement to isolate and edit parts of an image.
		2.Manipulate layers through ordering, positioning, scaling, rotation, and adjustments.
		3.Create composite images that demonstrate advanced selection and layering techniques.
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		

Semester - II

Sub Code	Subject Name	Course Outcomes
	Applied Mathematics - 2	1.Apply key concepts of probability, including discrete and continuous random variables, probability distributions, conditioning, independence, expectations, and variances.
		2.Define and explain the different statistical distributions (e.g., Normal, Binomial, Poisson) and the typical phenomena that each distribution often describes
		3.Apply the basic rules and theorems in probability including Bayes's theorem and the Central Limit Theorem (CLT).
		4.Apply the concepts of hypothesis testing and p-value.
Credits : 4 , Four theory hours per week over a Semester		
	C Programming	1. Read, understand and trace the execution of programs written in C language
		2. Write the C code for a given algorithm.
		3. Implement Programs with pointers and arrays, perform pointer arithmetic, and use the pre-processor.
		4. Write programs that perform operations using derived data types.
		5. Understand the problem solving techniques.
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
	Networking & Internet Applications	1. Describe the basis and structure of an abstract layered protocol model
		2. Independently understand basic computer network technology.
		3. Identify the different types of network topologies and protocols.
		4. Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.

		5. Identify the different types of network devices and their functions within a network
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
	Microsoft Advanced Excel	1. Examine spreadsheet concepts and explore the Microsoft Office Excel environment.
		2. Understanding the --Create, open and view a workbook. ,Save and print workbooks. , Enter and edit data , Modify a worksheet and workbook.
		3. Learn to use functions and formulas. ,Create and edit charts and graphics, Filter and sort table data.
		4. Understanding the Work with pivot tables and charts. Import and export data.
Credits : 2 , Two theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		

B.Voc (Software Development)

SEMESTER - III

Course code	Course Name	Course Outcome
SEMESTER - III		
	Numerical Analysis	1.Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.
		2.Apply numerical methods to obtain approximate solutions to mathematical problems.
		3.Derive numerical methods for various mathematical operations and tasks, such as

		interpolation, differentiation, integration, the solution of linear and nonlinear equations, and the solution of differential equations.
		4.Analyse and evaluate the accuracy of common numerical methods.
		5.Write efficient, well-documented Matlab code and present numerical results in an informative way.
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
	Data Structures Using C	1. Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are represented in memory and used by algorithms.
		2. Describe common applications for arrays, records, linked structures, stacks, queues, trees, and graphs. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs
		3. Demonstrate different methods for traversing trees, Compare alternative implementations of data structures with respect to performance.
		4. Compare and contrast the benefits of dynamic and static data structures implementations.
		5. Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.
Credits: 4 Four theory hours per week over a semester **Credits: 1 One practical class of two hours per week over a semester**		
	Introduction to Python Programming	1. Understand the concepts of python programming
		2. Students should be able to develop logic for Problem Solving
		3. Create new GUI based programming to solve industry standard problems

		4. Demonstrate how to use lists, tuples, and dictionaries in Python programs.
		5. Demonstrate how to identify Python object types.
Credits: 4 Four theory hours per week over a semester **Credits: 1 One practical class of two hours per week over a semester**		
	Object Oriented Programming Through JAVA	1. Demonstrate good object-oriented programming skills in Java
		2. Able to describe, recognize, apply and implement selected design patterns in Java
		3. Understand the capabilities and limitations of Java
		4. Be familiar with common errors in Java and its associated libraries
		5. Develop excellent debugging skills
Credits: 2 Two theory hours per week over a semester **Credits: 1 One practical class of two hours per week over a semester**		

B.Voc(Software Development) SEMESTER - IV

Course code	Course Name	Course Outcome
	Advanced Numerical Analysis	1.Identify and interpret the fundamental concepts of Polynomials and roots of equations, Finite differences, Eigen values and Eigen vectors and corresponding algorithms and computer programs.
		2.Solution of ODE using spline interpolation, Eigen value problems numerically using computerprograms
		3.Apply the knowledge and skills of numerical methods to solve algebraic and transcendental equations.

		4. Analyze the physical problem to establish mathematical model and use appropriate method to solve and optimize the solution of roots of equations in engineering practice, interpolating the polynomial, Boundary value problems of ODE and PDE, Eigen value problems numerically using computer programs
		5.Distinguish the overall mathematical knowledge gained to demonstrate and analyze the problems of finding the roots of equations, Interpolation, Differential equations, Eigen value problems arising in real-life situation
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
	Discrete Mathematical Structures	1. Demonstrate skills in solving mathematical problems
		2.Comprehend mathematical principles and logic
		3.Demonstrate knowledge of mathematical modeling and proficiency in using mathematical software
		4.Manipulate and analyze data numerically and/or graphically using appropriate Software
		5.Demonstrate skills in solving mathematical problems
Credits : 4 , Four theory hours per week over a Semester. Credits : 1 One practical class of two hours for a week Over a Semester.		
	Object Oriented Software Engineering	1. Show the importance of systems analysis and design in solving complex problems.
		2. Show how the object-oriented approach differs from the traditional approach to

		systems analysis and design.
		3. Construct various UML models (including use case diagrams, class diagrams, interaction diagrams, state chart diagrams, activity diagrams, and implementation diagrams) using the appropriate notation.
		4. Recognize the difference between various object relationships: inheritance, association, whole part, and dependency relationships.
		5. · Show the role and function of each UML model in developing object-oriented software
Credits: 4 Four theory hours per week over a semester **Credits: 1 One practical class of two hours per week over a semester**		
	Operating Systems	1. Understand the main components and Structure of Operating System& their functions.
		2. Analyze various ways of Process Management& CPU Scheduling Algorithms.
		3. Analyze various ways of Process Management& CPU Scheduling Algorithms.
		4. Apply different methods for Preventing Deadlocks in a Computer System.
		5. Create and build an Application/Service over the UNIX operating system.
Credits: 4 Four theory hours per week over a semester **Credits: 1 One practical class of two hours per week over a semester**		
	Web Programming	1. Able to use Building Blocks of PHP, Access array elements.
		2. Able to use various functions and handle data using files.
		3. Able to use working with Forms.
		4. Able to use working with Sessions, Cookies.
		5. Able to implement JavaScript.
Credits: 4 Four theory hours per week over a semester **Credits: 1 One practical class of two hours per week over a semester**		

	Basics of Cloud Computing	1. Get acquainted with the term Cloud computing.
		2. Understand various types of free and commercial clouds.
		3. Understands various types of cloud services like SaaS. PaaS and IaaS.
		4. Know how the Cloud Computing is changing software industry.
		5. understanding of Cloud Computing benefits and key concepts
Credits: 4 Four theory hours per week over a semester **Credits: 1 One practical class of two hours per week over a semester**		

Course Outcomes

Organic Chemistry & Analytical Chemistry Semester I

1	General Chemistry	To study the basics of basic quantum chemistry
		To learn the fundamentals of molecular spectroscopy
2	In Organic Chemistry	To learn sturcture and bonding of VSEPR, MOT and VBT
		To learn the chemistry of Inorganic case and ring compounds
		To understand and study of electronic spectra of transition metal complexes
3	Organic Chemistry	To study the chemistry of Hetro cyclic compounds, typical naturel products, Alkaloids and terpenoids
		To understand the stereochemistry and molecular representation of organic molecules
4	Physical Chemistry	To study the Thermodynamics and chemical kinetics
		To learn the chemistry of micelles and micro molecules
		To understand verious principles of photochemistry

Organic Chemistry & Analytical Chemistry Semester II

1	General Chemistry	To learn the molecular symmetry and group theory
		To understand computer programming FORTRAN 77
2	In Organic Chemistry	To learn organometalic compounds, metal ligand equilibria in solution
		To understand Inorganaic reaction mechanism, Bio inorganic chemistry
3	Organic Chemistry	To study the chemistry of Aliphatic Nucleophilic substitution and Nucleophilic Aromatic substitution
		To learn addition to carbon – carbon multiple bonds and addition to carbon – Hetero multiple bonds
4	Physical Chemistry	To study the Electro chemistry and statistical thermodynamics
		To learn physical methods of molecular structural elucidation.

Course Outcomes

Organic Chemistry Semester-III

1	Organic Reaction Mechanisms and Pericyclic Reactions	To study the basics of Aliphatic Nucleophilic Substitution and Aliphatic Electrophilic Substitution.
		To learn the asymmetric synthesis and Pericyclic Reaction.
2	Organic Spectroscopy - I	To learn the UV-Visible spectroscopy and Infrared spectroscopy.
		To learn the Nuclear Magnetic Resonance Spectroscopy and Mass spectrometry.
3	Modern Organic Synthesis – I	To study the chemistry of Formation of C-Csingle bonds and C-Cdouble bonds.
		To understand the Reactions of unactivated C-H bonds and organoboranes.
4	Chemistry of Natural Products - I	To learn Alkloids, Steroids, Flanoids and Terpenoids
		To understand Synthesis

Organic Chemistry Semester-IV

1	Organic Reaction Mechanisms- II and Organic Photo Chemistry	To learn the FreeRadical Reactions and PhotoChemistry.
		To understand the Quantitative relationships between Molecular structure and chemical ractivity.
2	Organic Spectroscopy - II	To learn Organic Spectroscopy and separation Techniques.
		To understand Simplification of complex spectra.
3	Modern Organic Synthesis – II	To learn Organo silanes oxilation
		To understand reduction reagents, retrosynthesis
4	Bio – Organic Chemistry	To learn Alpha amino acids, antibiotics and malaria drugs
		To understand Vitimens, Nucelic acids, R-DNA Tech apllications

Analytical Chemistry Semester-III

1	Separation Methods	To learn Chromatography and basics study of separation methods
		To understand the HPLC and its applications
2	Quality Control and Traditional Methods of Analysis	To learn good laboratory practices
		To understand characteristics of an analysis
3	Applied Analysis	To learn Ore analysis
		To understand Assessment of water quality
4	Instrumental Methods of Analysis	To learn the instrumentation methods
		To understand the Spectroscopic methods and its applications

Analytical Chemistry Semester-IV

1	Separation Methods	To learn Separation methods
		To understand Ion exchange chromatography
2	Quality Control and Traditional Methods of Analysis	To learn Traditional methods of analysis
		To understand Electro gravimetric methods
3	Applied Analysis	To learn analysis of raw materials
		To understand soil and fertilizers analysis
4	Instrumental Methods of Analysis	To learn spectro analytical methods
		To understand electro analytical methods