Program Outcomes (POs)

and

Course Outcomes (COs)

Contents

RASHTRAPITA MAHATMA GANDHI ARTS AND SCIENCE COLLEGE, NAGBHID DIST.- CHANDRAPUR

DEPARTMENT OF BOTANY

Programme: B.Sc. Botany

Sr. No.	Programme Outcomes *Upon completion of the B.Sc. Botany Degree Programme, the students will be able to*
1.	Student will have extensive theoretical experience in the basic areas of Botany.
2.	Achieve pure and applied botanical knowledge.
3.	Understand the importance of plants, their diversity and its conservation.
4.	Achieve skill in the experimental techniques and develop methods of analysis in various field of Botany.
5.	Immediately recognize the morphology of most common flowering plants of the surrounding locality.
6.	Identify the angiosperms and their respective families by applying taxonomic keys.
7.	Student will identify the local common diseases and their control- management
8.	Promotes stewardship responsibility, entrepreneurship skill, research and career Opportunities.

Sr. No.	Programme Specific Outcomes
1.	Acquire academic excellence with an aptitude for higher studies, research and tomeet competitive exams
2.	Aware about the local plant diversity and conservation of rare and endangered plants through plant tissue Culture
3.	Obtain Knowledge in the internal structure and functions of various plantcomponents, inheritance of characters and techniques of plant breeding
4.	Apply statistical skills and analyze the biological data
5.	Acquire knowledge on traditional herbal plants for common ailments and awareof nutritive plant foods
6.	Obtain Knowledge through taxonomical studies will help them to emerge asfundamental taxonomists

IQAC Co-ordinator
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	SEMESTER- I Course: PLANT DIVERSITY – I (Micro-organisms, Algae, Fungi and Plant Pathology)
Sr. No.	Course Outcomes
1.	Understand the general characteristics of life- viz, Virus, Bacteria, Mycoplasma, Cyanobacteria.
2.	Understand the thallus organization in algae.
3.	Understand the structure, reproduction and life cycles of various algae.
4.	List the salient features of the main classes of fungi.
5.	Describe the morphology and reproduction of the various genera of fungi.
6.	Discuss the identification methods of fungi.
7.	Understand the classification and different types of lichens. Summarize the economic importance of lichens.
8.	Understand plant disease in terms of causal organism, symptoms and control measures.
9.	Develop the employability skills by cultivating the algae and fungi.

	SEMESTER- I Course : PLANT DIVERSITY – II (Bryophyta, Pteridophyta, Gymnosperm and Paleobotany)
Sr. No.	Course Outcomes
1.	Understand the classification, structure and reproduction and diversity of the Bryophytes.
2.	Economic importance of Bryophytes.
3.	Understand stellar evolution, types of fossils, geological time scale.
4.	List the economic importance of Pteridophytes.
5.	Illustrate the Vegetative and Reproductive characters of important genus of Gymnosperm.
6.	Understand the significance of some genus of fossil Gymnosperm.
7.	Develop the Employability skills by learning the life cyclepatterns of Bryophytes, Pteridophytes and Gymnosperms.
Practical (Based on paper I & II)	➢ Gain the Practical knowledge on handling the Dissecting and compound microscope. ➢ Study various representatives of Algae, fungi, Bryophytes, Pteridophytes. ➢ Understand different plant diseases and causal organisms and management of diseases. ➢ Study of different types of fossils. ➢ Study of fossil Gymnosperm.

	Semester – II Course: Paper-I: Morphology and Anatomy of angiosperm **After completion of these courses students should be able to;**
Sr. No.	**Course Outcomes**
1.	Understand morphological modification of root, stem, leaves and floral parts and its taxonomic relevance in plant identification.
2.	Understand the structure of flower its parts and modifications of different parts.
3.	Understand the anatomical features of angiosperms and function of various tissues in plants life.
4.	Differentiation of tissue system in Monocot and Dicot root, stem and leaf.
5.	Understand the normal and anomalous secondary growth in plants and their causes.

	Semester - II Course: Paper-II: Taxonomy and Diversity of Angiosperm **After completion of these courses students should be able to;**
Sr. No.	**Course Outcomes**
1.	Understand Diversity of Angiosperms and concept of Taxonomy.
2.	Understand the origin of Angiosperms with Bennettitalian theory.
3.	Understand various rules, principles and recommendations of plant nomenclature produces in plant identification.
4.	Classification of Angiosperms and detailed study of Bentham and Hookers system classification.
5.	Identify various angiospermic families and identification of plants through taxonomic key.
6.	Knows the importance of Herbarium in Taxonomy.
7.	Develop the employability skills by understanding the basic and fundamental concepts of Botany.
Practical (Based on paper I & II)	➢ Study of Morphological modification of Angiosperms plants in relation to adaptation; types of tissue system; their functions. ➢ Study of anatomical features of dicot and monocot root, stem and leaf. ➢ Study of Primary and anomalous Secondary growth in stem. ➢ To describe an angiospermic plant in technical language. ➢ Study of locally available plants belonging to families included in the syllabus .

	SEMESTER- III Course: Paper-I: Reproductive Biology of Angiosperms , Plant Growth and Development **After completion of these courses students should be able to;**
Sr. No.	**Course Outcomes**
1.	Understand the structure of male reproductive structure, development of male and female gametophyte.
2.	Importance of pollination and their types in reproduction of plants; developmental process of male and female gametophyte.
3.	Understand the Stages involved in double fertilization, triple fusion, seeds and dormancy and its importance.
4.	Understand plant growth regulators, growth curves and plants movements.
5.	Understand the concept of photoperiodism, vernalization, Phytochromes, Process of senescence and abscission.

	SEMESTER- III Course: Paper-II: Plant Biochemistry and Physiology **After completion of these courses students should be able to;**
Sr. No.	**Course Outcomes**
1.	Understand the concept of bio molecules includes the carbohydrates, proteins, lipids, amino acids and enzymes and their importance, mechanism and role in physiological and biochemical processes of plants.
2.	Importance of nitrogen in plant growth, sources of nitrogen. The process of biological nitrogen fixation and role of nitrate reductase in nitrogen metabolism.
3.	Role of mineral nutrition in plant growth and development and deficiency symptoms.
4.	Understand the concept of Ascent of sap, Transpiration, phloem transport and theories of absorption of solutes.
5.	Understand the process of photosynthesis, respiration their importance in the environment.
Practical (based on paper I & II)	➢ Examine the Types of ovules. ➢ Illustrate the structure of anther. ➢ Examine the seed germination and viability tests. ➢ Phenomenon of nastic and tropic movement. ➢ Learn the methods of breaking seed dormancy. ➢ Impart the knowledge of fermentation, imbibitions, transpiration and photosysnthesis.

	SEMESTER- IV Course: Paper-I: Cell Biology Genetics And Biotechnology After completion of these courses students should be able to;
Sr. No.	**Course outcomes**
1.	Understand the ultrastructure and functions of different plant organelles.
2.	Examine the various stages of mitosis and meiosis.
3.	Explain the laws of Mendel in classical genetics and deviationsfrom Mendelian ratios like complementary and supplementary factors.
4.	Understand linkage, crossing over and mutation in chromosomes.
5.	Know the Structure of DNA and its replication
6.	Concept of Totipotency and steps in Micropropagation.
7.	Learn structural and numerical variation of chromosomes
8.	Understand the principle and basic protocols for Recombinant DNA Technology, Genetic Engineering & Plant Tissue Culture.
9.	Learn protein synthesis mechanism
10.	Develop the employability skills by understanding Mendel's ratios and deviation, linkage and crossing over.

	SEMESTER- IV Course: Paper-II: Plant Ecology After completion of these courses students should be able to;
Sr. No.	**Course outcomes**
1.	Understand various ecological factor influencing the environment
2.	Understand the concept of ecosystem; biotic and abiotic factors.
3.	Learn the Phytogeographical regions of India
4.	Biogeochemical cycle, community ecology and assessment of environmental pollution.
5.	Understand causes and control of environmental pollution .
6.	Analyze population and community characters.
7.	Learn the continental Drift theory.
Practical (Based on Paper I & II)	➢ Understand the structures of different organelles and structure of plant cell. ➢ Learn different stages of mitosis and meiosis and staining technique. ➢ Understand practically the concept of Mendel. ➢ Get acquainted with laboratory organization, tools of genetic engineering. ➢ Know the Techniques of Plant Tissue Culture, Protoplast culture, Anther culture.

	SEMESTER- V Course: Paper-I: Genetics And Plant Breeding - I After completion of these courses students should be able to;
Sr. No.	**Course Outcomes**
1.	Summarized the laws of Mendel in classical genetics.
2.	Understand the Non Mendelian inheritance - Lethal gene (2:1); Co-dominance (1:2:1), Dominant epistasis (12:3:1), Inhibitory gene interaction (13:3); Duplicate (Dominant Epistasis) gene interaction (15:1); Polymeric gene interaction (9:6:1) and Multiple allelism, Pleotropism.
3.	Understand Cytoplasmic Inheritance, Genetic maps and sex determination in organism.
4.	Concepts of cytoplasmic inheritance and mutation.
5.	Concept of Sex linked inheritance and Sex linked diseases.
6.	Understand the concept of plant Breeding its advantages and disadvantages.
7.	Important achievements and undesirable consequences of plant breeding.
8.	Knows Centers of origin and domestication of crop plants.
9.	Knows about the Selection, Breeding and Hybridization methods.

	SEMESTER- V Course: Paper-II: Genetics And Plant Breeding - II After completion of these courses students should be able to;
Sr. No.	**Course Outcome**
1.	Types and function of RNA: mRNA, tRNA, rRNA, snRNA, snoRNA, miRNA, siRNA, antisense RNA.
2.	Understand Genetic code: Salient features, Exceptions.
3.	Evaluate the significance of Hardy Weinberg law, Pedigree analysis.
4.	Understand **Chromosome organization**: Morphology and Structure of Chromosome.
5.	Germplasm conservation- *In situ* seed banks, plant banks, shoot tip banks, cell and organ banks, and DNA banks.
6.	Understand the role of biotechnology in plant breeding.
7.	Understand Herbal Technology Methods.
8.	Develop the employability skills by understanding conventional methods of plant breeding and Herbal Technology.
Practical (Based on Paper I & II)	➢ Problems related to Lethal Genes, Co-dominance, and epistasis gene interaction (12:3:1; 13:3; 15:1; 9:6:1) ➢ Sex determination in plants, *Drosophila* and humans. ➢ Chloroplast variation in Four O'clock plant. ➢ Plant Propagation techniques – Vegetative (Layering/ Grafting/ Budding). ➢ Study of steps of genetic engineering techniques from photographs (Bt cotton, Golden rice, Flavr savr tomatoes) ➢ Analyse of human, Onion or any plant karyotype (normal and abnormal) and identification of genetic disorder.

	SEMESTER- VI Course: Paper-I: Mycology and Plant Pathology - I After completion of these courses students should be able to;
Sr. No.	**Course Outcome**
1.	Understand the objective of Mycology and Mycological Institute in India.
2.	Knows the general characteristic of different groups of fungi.
3.	Understand classification of fungi by G. C. Ainsworth, 1973.
4.	Discuss chemical composition and genetic variations in fungi.
5.	Understand general variations in fungi Heterokaryopsis, Parasexuality, Homothallism and Heterothallism.
6.	Knows the concepts of Plant pathology and methods of studying plant diseases.
7.	Enzymes & toxins in plant diseases.
8.	Understand defense mechanism in plants, principles of plant disease control.

	SEMESTER- VI Course: Paper-II: Mycology and Plant Pathology - II After completion of these courses students should be able to;
Sr. No.	**Course Outcome**
1.	Understand the role and industrial applications of fungi.
2.	Production of secondary metabolites by using fungi.
3.	Understand the methods of Mushroom Cultivation.
4.	Production of alcoholic beverages, antibiotics, organic acids, alkaloids & ergot by using fungi.
5.	Study the disease with respect to symptoms, casual organisms, disease cycle & management.
6.	Understand the different aspects of Medicinal Botany.
7.	Develop the employability skills by understanding the basics of fungal cultivation, study of plant diseases, antibiotic production and different aspects of medicinal Botany.
Practical (Based on Paper I & II)	➢ Understand Principles, working of tools, Equipments and other requirements in the Mycology & Plant Pathology laboratory. ➢ Identification of Diseased Material, their Symptoms and Characters. ➢ Pathogenicity Test – Steps to perform Koch's Postulates. ➢ Preparation of Potato Dextrose Agar (PDA). ➢ Pouring of Nutrient Media into Petri dishes and Slant preparation. ➢ Isolate of soil borne Fungi by dilution method. ➢ Isolate of air borne Fungi, fungal pathogen from leaves, stems fruits and other aerial part. ➢ Measurement of fungal growth by linear determination. ➢ Understand the construction, process and cultivation of Mushrooms.

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Department of Chemistry

Course Outcome of B.Sc. First Year

Semester I	
Course	**Outcomes**
	After completion of these courses' studentsshould be able to;
USCCHT 01 - INORGANIC CHEMISTRY	**CO-1** Knows the idea of de-Broglie equation and Heisenberg's uncertainty principal **CO-2** To understand the quantum numbers and principal of extra stability. **CO-3** To understand the periodic properties of elements in periodic table. **CO-4**To explain the VBT and MOT of differentmolecule. **CO-5** To discuss the alkali and alkaline earthmetal with their properties. **CO-6** Explain periodic properties of p-blockelement and diagonal relationship of Be Al. **CO-7** Know the hydrogen bonding, chemistry of Nobel gas and volumetric analysis of acid-base.

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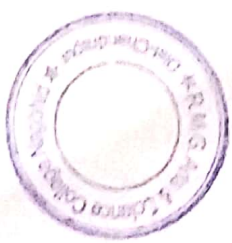
(USCChT02)Organic CHEMISTRY	**CO-1** To understand the electronic displacement and concept of organic reactions mechanism. **CO-2** knows the basic concept of isomerism and concept of chirality. **CO-3** To describe preparation and application hydrocarbon. **CO-4** To discuss the preparation of benzene with their chemical properties. **CO-5** Explain the aromaticity and Huckel`s rule of aromatic compounds.
USCCHP01 Practical's Inorganic Chemistry	**Course outcomes.** **Co-1** Volumetric Analysis of- 1) Preparation of standard solution by weighing and Preparation of 0.001 M solution from 0.1M solution by dilution. 2) Estimation of sodium carbonate and sodium hydrogen carbonate present in a mixture. 3) Estimation of Fe (II) by dichromate using internal indicator (n-phenyl Anthranilic acid) 4) Determination of commercial vinegar acetic acid in using NaOH 5) Estimation of oxalic acid by titrating it with $KMnO_4$ 6) Determination of zinc by complexometric titration with EDTA

Organic Chemistry	**CO-2** QUALITATIVE ANALYSIS OF- 1. Detection of extra elements (N, S, Cl, Br, I) in organic compounds (containing up to two Extra elements). 2. Systematic Qualitative Organic Analysis of Organic Compounds possessing mono functional groups (- COOH, phenolic, aldehydic, ketonic, amide, nitro, amines) and preparation of one derivative. 3. Separation of mixtures by Chromatography: Measure the Rf value in each case (Combination of two compounds to be given

SEMESTER –II	
Course	**Course Outcomes**
USCCHT03 - ORGANIC CHEMISTRY	**CO-1** Discuss electrophilic and nucleophilic in aromatic compounds. **CO-2** Learning about difference between activating and deactivating groups. **CO-3** Correlate the preparation of types of carbohydrate. **CO-4** Study about the chemistry of Aromatic aldehyde, aromatic ketones and acids. **CO-5** Study about the chemistry of aromatic sulphonic acid and Nitro compounds. **CO-6** Calculate the saponification, Iodine andacid value for acids and fats.
USCCHT04 - PHYSICAL CHEMISTRY	**CO-1** To apply gas laws in various real-lifesituations. **CO-2** To explain the behavior of real and ideal gas. **CO-3** To differentiate between gaseous state and vapour. **CO-4** To explain the kinetic theory of gases. **CO-5** Explain the properties of liquids. **CO-6** To describe condition required forliquefaction of gases. **CO-7** To write the expressions for equilibriumconstants.



	CO-8 To study the laws of equilibrium. **CO-9** To understand various types of colloidsand its applications
USCCHP02Practical's	**COURSE OUTCOMES: -**
	CO-1 Purification of an impure organiccompound by crystallization **CO-2** Synthesis, Recrystallisation and determination of melting point and calculation of quantitative yields of organic compounds. **CO-3** Physical chemistry experiments based on Thermochemistry, Equilibria and Liquid state.

Course Outcome of B.Sc. Second Year

Course Outcome B. Sc Chemistry Semester-III (CBCS)	
Course	**Outcomes After completion of these courses' students should be able to**
USCChT05 Inorganic Chemistry	**CO-1** To understand the structure and bonding in diborane. **CO-2** To study the preparation of interhalogen compounds, oxy acidand silicates. **CO-3** To understand the structure of Ionic Solids by studying radius ratio rule and coordination number.

	CO-4 To Know the concept of Metallic Bonding and Lewis as well as Lux-Flood concepts of acid and bases. **CO-5** To give an extended knowledge about first, second and thirdtransition series elements. **CO-6** To study the periodic properties of Lanthanides and Actinides.
USCCh106 Physical Chemistry	**CO-1** To understand the concept of phase rule and degree of freedom. **CO-2** To study the properties of immiscible liquids and partial miscible liquids. **CO-3** To study the concepts of enthalpy, entropy and second law of thermodynamic. **CO-4** To know the Free energy functions (Helmholtz and Gibb's) and its applications. **CO-5** To understand the various factors which affects the rate of reaction. **CO-6** To know the concept ofsolution and its various colligative properties. **CO-7** To study the magnetic properties of substances. **CO-8** To gain knowledge about

	measurement of magnetic susceptibility using Gouy Method.
USCChP03 Chemistry Practical's	**CO-1** To know the concept of semi micro analysis of inorganic salt containing acidic and basic radicals. **CO-2** To construct the phase diagram of ternary system. **CO-3** To study the kinetics of different chemical reactions. **CO-4** To gain practical knowledge about the variation of mutual solubility temperature with different concentration and determination of CST.

Course Outcome B. Sc Chemistry Semester-IV (CBCS)	
Course	**Outcomes** After completion of these courses' students should be able to;
USCChT07 Inorganic Chemistry	**CO-1** To understand the concepts of Werner's coordination theory and Sidgwick's theory. **CO-2** To study the different types of

	isomerism in coordination chemistry. **CO-3** To understand the Pearson's SHAB concept and its application. **CO-4** To Know the concept of metal ligand bonding in transition metal complexes. **CO-5** To give an extended knowledge about thermodynamics and kinetics aspects of metal complexes. **CO-6** To study the Principle and instrumentation of Colorimetry and Spectrophotometry.
USCChT08 Organic Chemistry	**CO-1** To understand the synthesis process and properties of Nitro and Amino compounds. **CO-2** To study the preparation and properties of Diazonium salt. **CO-3** To study the methods of preparation and structure of organometallic compounds. **CO-4** To study the Strecker synthesis method of preparation of Amino acids. **CO-5** To understand the difference between primary, secondary, tertiary and quaternary structure of proteins. **CO-6** To study the classification and properties of carbohydrates.

	CO-7 To study the classification of Dyes based on chemical constitution. **CO-8** To gain knowledge about basic terminology of drugs and theirprocess of synthesis.
USCChP04 Chemistry Practical's	**CO-1** To know the concept and method of synthesis of different complexes. **CO-2** To perform Job's and Mole ratio method for determination of composition of Fe-SSA complex. **CO-3** To develop a skill of separation and identifications of organic compounds from the given binary mixture. **CO-4** To gain practical knowledge about the preparation of Aspirin and Paracetamol.

Course Outcome of B.Sc. Third Year

Course Outcome B. Sc Chemistry Semester-V (CBCS)	
Course	**Outcomes** After completion of these courses' students should be able to
USC DSE ChT 09 Organic Chemistry	**CO-1**To study NMR Spectroscopy anddetermine structure of compound by spectroscopic methods. **CO-2**To know chemical shift. Explain

	the shielding and deshielding of proton. **CO-3** To understand the concept of active methylene compounds and Keto -Enol tautomerism. **CO-4**To know the polymer? Discuss their classification. **CO-5**Discuss the addition and substitution reaction of polymer. **CO-6**Explain the principal of green chemistry and its aims of green chemistry.
USC DSE ChP 05 **(Organic) Practical's**	**CO-1** To know the identification of organic compound on the basis of NMR data. **CO-2**To estimatethe hydroxyl number of a polymer using colorimetric method. **CO-3** To estimate the amount of HCHO in the given solution by sodium sulphite method **CO-4** To Prepare of nylon 66 and urea-formaldehyde resin. **CO-4** To identify the Green chemistry synthesis of organic compound by using micro wave technic.

USC DSE ChT10 Physical Chemistry	**CO-1** To understand Kohlrausch's lawand explain its application. **CO-2** Discuss the Arrhenius theory of electrolyte dissociation of its limitation. **CO-3** To differentiate the reversible and irreversible cells? **CO-4**Explain the construction and working of glass electrode? **CO-5**To know the salt bridge? Explain its function? **CO-6**To derive the Schrodinger wave equation from the postulates of quantum mechanics. **CO-7**To calculate the De-Broglie's wavelength of body of mass 0.1 kg moving with a velocity of 2000 ms^{-1}.
USC DSE ChP 06 Physical Practical	**CO-1**To determine the strength of strong acid and a week acid in a given mixture conductometrically by titrating it with standard alkali solution. **CO-2**To determine the solubility and solubility product of a sparingly soluble salt conductometrically. **CO-3**To determine strength of strong acid with strong base potentiometrically **CO-4**To study the saponification of

	ethyl acetate conductometrically.

Course Outcome B. Sc Chemistry Semester-VI (CBCS)	
Course	**Outcomes** After completion of these courses' students should be able to
USC DSE ChT 13 Inorganic chemistry	**CO-1**Discuss the instrumentation and working principal of flame photometer with well labelled diagram. **CO-2**To know error and explain the classification of error with example. **CO-3** To understand the application of column chromatography in details. **CO-4**Explain the classification of fertilizer with suitable example. **CO-5**To know the structure and bonding of tetra and di alkyl tin. **CO-6** To know the nanoparticles and to explain their classification indetails. **CO-7** To explain primary and secondary treatments of industrial effluents. **CO-8** To know the water quality parameters of industrial and domestic water.

USC DSE ChP 09(Inorganic)Practical's	**CO-1**To know the ion Exchange Method, separation and estimation of Mg(II) and Zn(II) **CO-2**To understand Chromatographic Separation of Binary Mixture by paper chromatography and determination of Rf Values. **CO-3**To know Measurement of chloride, sulphate and salinity of water samples by simple titration method (AgNO3 and potassium chromate). **CO-4**To estimatethe total alkalinity of water samples (CO32-, HCO3-) using double titration method.
USC DSE ChT 14 Physical chemistry	**CO-1**Todifferentiate the thermal and photochemical process and explain the Beer-Lamberts laws of photochemistry. **CO-2**To understand the Jablonski diagram depicting various processes (nonradiative and radiative) **CO-3** To know the Electrical dipole moment and polarization of molecules. **CO-4**To know concept of rotational and vibrational spectroscopy with its application.

	CO-5 To know the term adsorption and Chemisorption. explain its application. **CO-6** To study type of colloidal system, micelle concentration and effect of temperature on CMC. **CO-7**To know the radioactive elements, Discovery of radioactivity, types of radioactivity and its application.
USC DSE ChP10Physical Practical	**CO-1** To verify Beer – Lambert Lawfor KMnO4/K2Cr2O7 and determining the concentration of the given solution of the substance from absorption. **CO-2** To verify the Freundlich ads option isotherm by acetic acid on activated charcoal **CO-3** Determination of polarizability of given molecule by Abbe "refractometer. **CO-4** To determine CMC of soap solution. **CO-5** To know the study effect of temperature on CMC on soap

	solution.

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Course Outcome B.Sc. Physics Semester-I (CBCS)	
Course	**Outcomes** After completion of these courses Students should be able to;
USPHT01 : **Mechanics and Relativity**	CO-1: To understand the concept of Newton's laws of motion and its limitations. CO-2: Understanding the relation in to frame of reference in relativity. CO-3: : Imparting the knowledge of gravitation, oscillation and properties of matter CO-4: To know the concept of collision. CO-5: To know the concept of dynamics of rigid body. CO-6: To study the rotational motion. CO-7 To study the concept of special theory of relativity.
USPHT02 : **Gravitation, Oscillation and Properties of Matter**	CO-1: To study the Newton's law of gravitation. CO-2:To study the motion of particle in a central force. CO-3: To study the gravitational field and potential. CO-4: To know the concept of gravitation. CO-5: To study the concept of oscillations. CO-6: To study the resonance, quality factor and bandwidth. CO-7:To understand the concept of elasticity CO-8: To study theandgain knowledge about the viscosity. CO-9:To understand the concept of surface tension.
USPHP01: Physics Practical's	CO-1: To study the compound pendulum. CO-2: To study and determine 'g' by Kater's pendulum CO-3: To study the motion of a spring and calculate (a).Spring constant (b). Value of g. CO-4: To gain practical knowledge about modulus of rigidity. CO-5: To know the concept and method about the modulus of rigidity by torsional pendulum. CO-6: To gain practical knowledge about Young's modulus by bending of beam. CO-7: To gain practical knowledge about Young's modulus by vibration method. CO-8:To know the concept about the determination of modulus of rigidity of a wire by Maxwell's needle.
Course Outcome B.Sc. Physics	

Semester-II (CBCS)	
Course	**Outcomes** After completion of these courses Students should be able to;
USPHT03: **Vector Analysis and Electrostatics**	CO-1: To understand the concept and study of vector Analysis CO-2: To study the electric field, field intensity and potential due to point charge. CO-3: To understand the concept and study of dipole CO-4: To know the concept of Gauss theorem and its applications. CO-5: To study the electric potential due to dipole. CO-6: To study the electric field due to dipole. CO-7: To study the capacitance of different type of capacitor CO-8: To gain knowledge about thedielectrics.
USPHT04: **Magnetostatics and Electromagnetic waves**	CO-1: To understand the concept and study Biot-Savart's law and its application. CO-2: To study the divergence and curl of magnetic field. CO-3: To understand the concept of magnetic properties of materials. CO-4: To gain knowledgeand introduction of diamagnetic, paramagnetic and ferromagnetic materials. CO-5: To study the Faraday's law EMI and Lenz's law. CO-6: To study the self-inductance(L) and mutual inductance(M). CO-7: To gain knowledge about the transformer parameters and its applications. CO-8: Study of Maxwell's equations . CO-9: To understand the concept of electromagnetic wave propagation. CO-10: Study of Kirchoff's law and its application. CO-11: To study the current rise and decay in LR,CR and LCR-circuit. CO-12: To Study alternating electric current.
USPHP02: **Physics Practical's**	CO-1:Study to compare capacitance using De'Sauty's bridge CO-2:Study to measurement of capacitance using impedance of different frequencies. CO-3: To study the decay of current in LR-circuit. CO-4:To study the response curve of LCR-circuit, response frequency and quality factor CO-5:Study of transformer. CO-6: study to determine a low resistance by Carey-Foster bridge. CO-7:To verify the Thevenin's theorem. CO-8: To verify the Norton's theorem.

	CO-9: To verify the Milliman's theorem. CO-10: To determine low resistance by potentiometer.
Course Outcome B.Sc. Physics Semester-III (CBCS)	
Course	**Outcomes** After completion of these courses Students should be able to;
USPHT05: Thermal Physics	CO-1: To understand the assumption of kinetic theory of gases and pressure exerted by gas. CO-2: To study the Maxwell's distribution of velocities and experimental verification. CO-3: To understand the concept of degrees of freedom. CO-4: To know the concept of equipartitionof energy. CO-5: To understand the concept of mean free path and its expression. CO-6: To study the transport of momentum and viscosity,transport of energy, transport of mass. CO-7: To study and concept of thermodynamic system, variablesand equilibrium. CO-8: To gain knowledge about the thermodynamic process. CO-9: To understand the concept ofZeroth law of thermodynamics and its importance. CO-10: To know the concept of internal energy, First law of thermodynamics and its applications and limitations. CO-11: To study the work done during thermodynamic process. CO-12: To understand the concept of reversible and irreversible process. CO-13: To study and concept ofheat engine and its efficiency, Carnot's ideal heat engine, Carnot's theorem and Carnot's cycle. CO-14: To understand the concept of entropy, second law of thermodynamics and TS-diagram. CO-15: To understand the concept of third law of thermodynamics. CO-16: To gain the knowledge thermodynamics function. CO-17:To study the latent heat, first and second latent heat equation.
USPHT06: Radiation and Statistical Physics	CO-1: To study the theory of radiation. CO-2: To study the statistical basis of thermodynamics. CO-3: To study the M.B. statistics CO-4: To know the concept and study of B.E and F.D statistics.

USPHP03: **Physics Practical's**	CO-1: to determine the temperature coefficient of resistance by platinum resistance thermometer. Co-2: To study the variation of thermo- emf across two junctions of a thermocouple with temperature. CO-3:To determine the heating efficiency of electrical kettle using voltages. CO-4: To verify the law of probability distribution throwing one coin, two coin and ten coins. CO-5: To show the deviations of probability from theoretical value decrease with increase the number of event. CO-6: To Study of statistical distribution from the given data and to find most probable average and rms value. CO-7: To record and analyze cooling temperature of a hot object as function of time.
Course Outcome B.Sc. Physics **Semester-IV (CBCS)**	
Course	**Outcomes** After completion of these courses Students should be able to;
USPHT07: **Wave Acoustics & Laser**	CO-1: To study the superposition of two harmonic oscillations. CO-2: To know the concept and study offormation of Lissajous's figure by CRO and its application. CO-3: To study the wave motion and Fourier's theorem. CO-4:To gain the knowledge of ultrasonic and acoustics. CO-5: To know the concept and study ofLASER.
USPHT08: **Optical Physics**	CO-1: To know the concept and study of Interference of light. CO-2: To study the Newton's rings and Michelson's Interferometer. CO-3: To know the concept and study of diffraction. CO-4: To know the concept and study of polarization.
USPHP04: **Physics Practical's**	CO-1: To study the Lissajous figure by using CRO. CO-2: To determine the frequency of a tuning fork using sonometer. CO-3: To determine the velocity of transverse wave on stretched string using sonometer. CO-4:To study the characteristics of Loudspeaker. CO-5:To determine the refractive index of the material of a given prism using mercury light. CO-6: To determine the dispersive power of the material of a given prism using mercury light. CO-7: To determine the resolving power of the prism. CO-8: To determine the wavelength of sodium light using Newton's ring.

	CO-9: To determine the value of Cauchy constants of a material prism. CO-10: To determine the focal length of long focus convex lens using short focus convex lens.
Course Outcome B.Sc. Physics Semester-V (CBCS)	
Course	**Outcomes** After completion of these courses Students should be able to;
USDSEPHT09: Elements of Modern Physics	CO-1: To know the concept and study of Quantum theory and its importance. CO-2: To study the Schrodinger's wave equations for non-relativistic particles and physical significance. CO-3: To study the application's Schrodinger's equations CO-4: To know the concept and study of Nucleus Stability. CO-5: To study of radioactivity and emission of α, β and γ-ray CO-6:To know the concept and study ofβ and γ emission. CO-07: To study the concept of fission and fusion.
USDSEPHT10: Solid State Physics	CO-1: To Study of crystal structure. CO-2:To study the concept of diffraction of crystal CO-3: To know the concept and study of magnetic properties of matter. CO-4: To study the dielectric properties of materials. CO-5: To study of elementary band theory. CO-6: To study the superconductivity.
USDSEPHP05: Physics Practical's	CO-1: To study the V-I characteristics of P-N junction diode. CO-2: To determine the work function of material of filament of directly heated vacuum diode CO-3: To study on photo electric effect CO-4: to study the diffraction patterns of single and double slits using laser source. CO-5: To study the identification of unknown element from line emission spectra. CO-6: To know the concept ofthe construction and study of various crystal structure using ball and spokes. CO-7: to determine the band gap energy of semi-conductor using junction diode.
USSECPH01: Skill Enhancement Course(SEC): Physics Workshop Skill	CO-1: To know the concept of study of measurement. CO-2: To gain the knowledge of electrical and electronic skill. CO-3: To study of introduction of prime mover(machine). CO-4: To study of use bread board for designing the basic

	gates.

Course Outcome B.Sc. Physics
Semester VI (CBCS)

Course	Outcomes After completion of these courses Students should be able to;
U5D5EPHT-13: **Nuclear and Particle Physics**	CO-1: To study of general properties nuclei CO-2: To know the concept of nuclear model CO-3: To understand the concept of nuclear reaction CO-4: To study of interaction of nuclear radiation with matter CO-5: To study of detector for nuclear radiations. CO-6: To know the concept of particle accelerators.
U5D5EPHT-14: **Digital and Analog Circuits and Instrumentation**	CO-1: To study of digital circuits. CO-2: To study of semi conductor devices and its applications. CO-3: To understand the concept of power supply. CO-4: To study of Bi polar junction transistors. CO-5: To study ofvoltage amplifier Class A,B and C. CO-6: To know the concept of operational amplifier and its applications.
U5D5EPHP06: **Physics Practical's**	CO-1: To verify and design AND,OR,NOT and XOR gate using NAND gates. CO-2: To verify and design AND,OR, NOT and XOR gate using NOR gates. CO-3: To minimize a given logic circuit and verification of their truth table. CO-4: To gain practical knowledge of Half adder and Full adder. CO-5: To gain practical knowledge of Adder and Subtractor using full adder I.C. CO-6: To study of Astable- multivibrator using transistor circuit. CO-7: To study of V-I characteristics of P-N junction diode and Zener- diode. CO-8: To study of the characteristics of a transistor in CE-configuration. CO-9: To design and study the common emitter amplifier. CO-10: To design and study OPAMP as an adder.
U5SECPH03: Skill Enhancement Course(SEC): **Basic Instrumentation Skills**	CO-1: Imparting the knowledge of basic measurement and use multimeter. CO-2: To gain practical knowledge of use of electronic voltmeter. CO-3: Imparting the basic knowledge of CRO. CO-4: To gain practical knowledge of digital instruments

	and digital multimeter.

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Course Outcome B. Sc Microbiology Semester-I (CBCS)	
Course	**Outcomes** After successful completion of this course students are expected to be able to;
USMBT01 FUNDAMENTALS OF MICROBIOLOGY	CO-1: Introduction to development of Microbiology. CO-2: Contribution of various scientists in the development of Microbiology. CO-3: Illustration of theory of Biogenesis and Abiogenesis with the help of experiments. CO-4: Understand Germ theory of disease with the help of Koch's postulates and River's postulates. CO-5: Know about Branches of Microbiology. CO-6: Understand impact of Microbiology and future. CO-7: Differentiate Prokaryote and Eukaryote on the basis of structure and functions of cell components. CO-8: Comprehend the Bacterial sporulation process. CO-9: Understand Bacterial Taxonomy. CO-10: Know about the classification, characteristics and important aspects of Viruses, Archaebacteria and Fungi.
USMBT02 MICROBIAL TECHNIQUES	After successful completion of this course students are expected to be able to;
	CO-1: Know about construction, working and uses of different types of microscopes. CO-2: Understand about stains and dyes. CO-3: Illustration of different types of staining techniques. CO-4: Knowledge about basic nutritionalsupplements of bacteria. CO-5: Understand about different types of culture media. CO-6: Comprehend about Isolation and Preservation of culture media. CO-7: Knowledge about Sterilization and Disinfection. CO-8: To make understand about physical and chemical agents for Sterilization and Disinfection.
Practical's	CO-1: To know about microbiology good laboratory practices and biosafety. CO-2: To study principal and application of

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	important Instruments. **CO-3:** To study staining techniques. **CO-4:** To demonstrate the presence of microbes. **CO-5:** To study the methods of isolation of microbes. **CO-6:** To study antibiotic sensitivity testing.

Semester-V

Paper-I

Course Outcome B. Sc Microbiology Semester-V (CBCS)	
Course	**Outcomes** After successful completion of this course students are expected to understand the fundamental knowledge of Medical Microbiology.
USMBT09 MEDICAL MICROBIOLOGY	**CO-1:** To know about types of infection. **CO-2:** Comprehend about different types of diseases. **CO-3:** Make aware about different stages of infections. **CO-4:** Knowledge about Normal flora of Human body. **CO-5:** To understand about sources of infection and portals of entry & exit of pathogens. **CO-6:** Methods of control of communicable disease. **CO-7:** To know about the concepts of Pathogenicity and Virulence. **CO-8:** To make aware about Epidemology, Pathogenesis, Laboratory diagnosis, Treatment and Prevention of specific Bacterial, Fungal and Viral diseases.
USMBT10 Bioinstrumentation	After successful completion of this course students are expected to the fundamental knowledge of Bioinstrumentation and Analytical technique.
	CO-1: To understand about Electromagnetic radiations. **CO-2:** Derivation of Beer's law. **CO-3:** To know about Principle, Instrumentation and Application of UV-Visible spectrophotometer. **CO-4:** Comprehend about Adsorption Column Chromatography.

	CO-5: Make aware about Basic principles of HPLC and Gas chromatography. **CO-6:** Knowledge about different types of Electrophoresis techniques. **CO-7:** To know about Blotting techniques. **CO-8:** To make aware about types of centrifugation. **CO-9:** Concept of radioactivity, working of GM and Scintillation counter.
Practicals	**CO-1:** To diagnose different pathogens in laboratory. **CO-2:** To perform biochemistry testing of blood. **CO-3:** To separate amino acid / carbohydrates by chromatography. **CO-4:** To perform southern blotting technique. **CO-4:** To demonstrate paper and column chromatography.

Semester-VI

Course Outcome B. Sc Microbiology Semester-VI (CBCS)	
Course	**Outcomes** After successful completion of this course students are expected to understand the fundamental knowledge about Genetic Engineering and Recombinant DNA Technology.
USMBT13 RECOMBINANT DNA TECHNOLOGY	**CO-1:** Know about DNA cutting and modifying enzymes. **CO-2:** Understand about cloning vectors. **CO-3:** Illustration of DNA isolation techniques. **CO-4:** Knowledge about insertion of r-DNA into host and vector. **CO-5:** Understand about genetic library. **CO-6:** Comprehend about method of DNA sequencing. **CO-7:** Knowledge about Genomics and Proteomics. **CO-8:** To make understand about Application of Genetic Engineering.
USM00000BT14 IMMUNOLOGY	After successful completion of this course students are expected to understand the fundamental knowledge of Immunology.

	CO-1: To know about Structure and Functions of Immune system. CO-2: Comprehend about types of Immunity CO-3: Make aware about primary and secondary immune response. CO-4: Knowledge about cell mediated immunity. CO-5: To understand about Antigen-Antibody reactions. CO-5: To know about the concepts and types of Hypersensitivity. CO-5: To make aware about Autoimmunity
Practical's	CO-1: To isolate DNA. CO-2: To isolate Bacterial genetic DNA. CO-3: Digestion and ligation of DNA. CO-4: To Amplify DNA by PCR CO-5: To count Blood cells. CO-5: To perform TPI/RT antigen test. CO-5: To detect pregnancy. CO-5: To perform ELISA test.

Course Outcome B. Sc Microbiology Semester-II (CBCS)	
Course	**Outcomes** After successful completion of this course students are expected to be able to;
USMBT03 GENERAL BIOCHEMISTRY	**CO-1:** Introduction to basic concepts of Biochemistry. **CO-2:**Different terminologies involved in Biochemistry **CO-3:** To understand the importance of isotopes in biology **CO-4:** Understand different types of chemical bonds. **CO-5:** To understand different structures of amino acids and their classification **CO-6:** To understand significance and classification of proteins. **CO-7:** To understand Types and structural details of different carbohydrates **CO-8:** To understand types and structural details of Lipids **CO-9:** To understand basic structural details of Nucleic acids like DNA and RNA.
USMBT04 Applied Microbiology	After successful completion of this course students are expected to be able to;
	CO-1: To understand the sources of microorganisms in air and different techniques to analyze the quality of air. **CO-2:** Understand about control of microorganisms in air. **CO-3:** To understand different Air born diseases. **CO-4:** To understand Types and sources of micro organisms in water. **CO-5:** Understand about different techniques of water analysis. **CO-7:** Get information about different water borne diseases. **CO-8:** To know the details about Sewage management and Water reclamation. **CO-9 :** To Understand basic aspects of Milk Microbiology and various Milk products
Practical's	**CO-1:** To know about Qualitative and Quantitative estimation of different Biomolecules **CO-2:** To understand bacteriological examination for potability of water. **CO-3:** To examine the Air Micro flora.

Semester-III

Paper-I

Course Outcome B. Sc Microbiology Semester-III(CBCS)	
Course	**Outcomes** After successful completion of this course students are expected to understand the fundamental knowledge of Medical Microbiology.
USMBT05 Microbial Physiology and Metabolism	**CO-1:** To understand basic aspects of Bacterial growth **CO-2:** To understand different methods of bacterial growth measurement. **CO-3:** To understand basic aspects of Enzyme action and Enzyme kinetics. **CO-4:** Understand different factors that affect Enzyme activity. **CO-5:** To understand various metabolic pathways of microbial metabolism. **CO-6:**To Understand General concept of Respiration and fermentation
USMBT 06 Food , Soil Microbiology and Microbial Physiology.	After successful completion of this course students are expected to the fundamental knowledge of Bioinstrumentation and Analytical technique.
	CO-1: To understand Sources of contamination of food and food spoilage. **CO-2:** To learn the different methods of Food preservation. **CO-3:** To know about different food borne diseases. **CO-4:** Comprehend about compost and Humus formation and different Biogeochemical cycles. **CO-5:** Make aware about different positive and negative associations between micro flora and process of Nitrogen fixation **CO-6:** Knowledge about different types of Biofertilizers and Biopesticides.. **CO-7:** To know about Bioleaching of precious metals and recovery of Oil using Microbes. **CO-8:** To make aware about basic construction and working of Biogas Plant.
Practical's	**CO-1:** To demonstrate activities of different

	Enzymes and different microbial associations. **CO-2:** To perform bioassay of different enzymes.. **CO-3:** To study about Food adulteration.

Semester-IV

Course Outcome B. Sc Microbiology Semester-IV (CBCS)	
Course	**Outcomes** After successful completion of this course students are expected to understand the fundamental knowledge about Genetic Engineering and Recombinant DNA Technology.
USMBT 07 Industrial Microbiology	**CO-1:** Know about scope and development in Industrial microbiology. **CO-2:** To Understand application of computers in fermentation process. **CO-3:** To know about different types of Fermentations and fermentation processes **CO-4:** To know about different types of Raw materials used in fermentation industry and Industrially important Microorganisms **CO-5:** Understand different Upstream and Downstream processes **CO-6:** Comprehend about production of different fermentation products and their recovery.
USMBT08 Microbial Genetics and Molecular Biology	After successful completion of this course students are expected to understand the fundamental knowledge of Immunology.
	CO-1: To know about Structure and Functions of Immune system. **CO-2:** Comprehend about types of Immunity. **CO-3:** Make aware about primary and secondary immune response. **CO-4:** Knowledge about cell mediated immunity. **CO-5:** To understand about Antigen-Antibody reactions. **CO-5:** To know about the concepts and types of Hypersensitivity. **CO-5:** To make aware about Autoimmunity.
Practical's	**CO-1:** To isolate DNA. **CO-2:** To isolate Bacterial genetic DNA.

	CO-3: Digestion and ligation of DNA. **CO-4:** To Amplify DNA by PCR **CO-5:** To count Blood cells. **CO-5:** To perform TRUST antigen test. **CO-5:** To detect pregnancy. **CO-5:** To perform ELISA test.

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Course: B.Sc. (Computer Science)

Program Outcomes (PO)

After completion of B.Sc. with computer science students will be able to-

PSO1: Develop an ability to apply knowledge of computing, mathematics and basic science that may be relevant to the domain.

PSO2: Develop an ability to analyze a problem, identify and define the computing requirements, which may be appropriate to its solution.

PSO3: Develop an understanding of professional, ethical, legal security, social issues and responsibilities.

PSO4: Develop an ability to communicate effectively among a range of audience.

PSO5: Recognize the need for and an ability to engage in continuous professional development.

PSO6: Develop an ability to use and apply current technical concepts and practices in the core development of solutions in the form of information technology.

Course Outcomes

Class : - B.Sc. (Computer Science)

SEMESTER: - I

Paper Name: - Paper-I (Information and Communication Technology):

Course Code: - USCST01

At the end of this course, the student will be able: **Course Outcomes**

CO1 : To understand the block diagram of the computer system and the working of each unit.
CO2 : To get the knowledge of all the available number systems used.
CO3 : To understand the various types of input and output devices with their working.
CO4 : To understand the windows operating system and its components.
CO5 : To get the knowledge of networking and its various topologies.
CO6 : To get the knowledge about the open source technology.

Paper Name:- Paper-II (Programming Techniques & Introduction To 'C'):

Course Code: - USCST02

At the end of this course, the student will be able: **Course Outcome**

CO1 : To Understand the Programming Concept and Design.
CO2 : To get the Knowledge of Different Programming Languages.
CO3 : To get the Knowledge of Design Flowchart and Write Algorithms.
CO4 : To Understand the Condition and Looping in Use C Program.
CO5 : To get the Knowledge of Expression and Operator in C Program
CO6 : To Understand the Program Writing and Execution of C Language.

Practical based on IT, Office Automation: Course Code: - USCST01

At the end of this Practical, the student will be able: **Course Outcome**

CO1: To understand the structure element of MS-Word and Create and design Word page.
CO2: To get the knowledge of MS-Excel And Create Spreadsheet and Chart Etc.
CO3: To understand the various types of design and function with their working.
CO4: To understand the design the Presentation of any Work in MS-PowerPoint and its Function and Buttons.

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Principal
Rashtrapita Mahatma Gandhi
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Nagbhid, Dist. Chandrapur

CO5 : To get the knowledge of MS-Access and Create a Database in MS-Access.
CO6 : To get the Practical Based knowledge about in Office Automation.

Practical Based on 'C'- PRACTICAL: Course Code: - USCST02
At the end of this Practical, the student will be able: **Course Outcome**
CO1 : To understand the structure of C Programming.
CO2 : To get the Knowledge of write program in C Programming.
CO3 : To Understand the command and Syntax of C Programming
CO4 : To understand the Computation of different Operation in C Programming.
CO5 : To Understand the use of C Programming.
CO6 : To understand the Algorithms and Flowchart.

SEMESTER : - II

Paper-I (Operating System & Linux): Course Code: - USCST03
At the end of this course, the student will be able:
Course Outcome
CO1 : To understand the basics of the Operating System.
CO2 : To differentiate between various types of the operating system.
CO3 : To describe the basics of Linux commands and the shell of Linux.
CO4 : To understand the basics of the shell scripts.
CO5 : To implement the shell script.
CO6 : To design various shell scripts.

Paper-II (Structured Programming With 'C') Course Code: - USCST04
At the end of this course, the student will be able:
Course Outcome
CO1 : To get the Knowledge of Design, implement, test, debug, and document programs in C.
CO2 : To Understand the Program with pointers and arrays, perform pointer arithmetic, and use the preprocessor.
CO3 : To Understand the Program low-level input and output routines in C.
CO4 : To Understand how to write and use functions, how the stack is used to implement function calls, and parameter passing options.
CO5 : To Understand and use the common data structures typically found in C programs — namely arrays, strings, lists, trees, and hash tables.
CO6 : Create a program that measures or simulates performance and use it to analyzebehavior

Practical Based on LINUX
Course Code: - USCST03
At the end of this Practical, the student will be able:
Course Outcome
CO1 : To get the basic knowledge of Linux Operating System and their Different Command.
CO2 : To Understand the Use Command base in Linux OS
CO3 : To understand the File Management Command and their use in Linux OS.
CO4 : To understand the Directory Command and their use in Linux OS.
CO5 : To get the Knowledge of Shell Script Programming.
CO6 : To understand and Write the Shell Script Program and Execute in OS.

Course Name: - 'C' – Practical Course Code:

At the end of this Practical, the student will be able:
Course Outcome
CO1 : To understand the C Programming Basic Command and their Function.
CO2 : To get knowledge use of C Programming.
CO3 : To get knowledge different command and Compile and Execute the Program
CO4 : To understand the Introduction of C Programming and their Applications.
CO5 : To write different types of computation based on C Programming.
CO6 : To use in software design in IT Sector.

SEMESTER : - III

Paper-I (Database Management & System Analysis)
Course Code: - USCST05
At the end of this course, the student will be able: **Course Outcome**
CO1 : Master the basic concepts and appreciate the applications of database systems
CO2 : Be familiar with the relational database theory, and be able to write relational algebra expressions for queries.
CO3 : Be familiar with basic database storage structures and access techniques: file and page organizations, indexing methods including B-tree, and hashing.
CO4 : Be familiar with the basic issues of transaction processing and concurrency control.
CO5 : To get the knowledge of System, its Design
CO6 : To get the knowledge about the analysis of the system

Paper-II (Object Oriented Programming with C++)
Course Code: - USCST06
At the end of this course, the student will be able:
Course Outcome
CO1 : To Understand the Map an object-oriented program design into the class and template model of C++.
CO2 : To get the Knowledge of Element of Programming and their function.
CO3 : To get the Knowledge of use Classes and Object in C++.
CO4 : To get the Knowledge of Use Constructors, Destructors, Inheritance, and Operator overloading and the Standard Template Library in C++.
CO5 : To Understand the streaming input and output operators in C++.

Practical Based on MS-ACCESS: Course Code: - USCST05
At the end of this Practical, the studentwill be able:
Course Outcome

CO1 : To understand the MS-Access Component and Different Commands.
CO2 : To get knowledge of Create Database and Table in MS-Access.
CO3 : To get knowledge of Using Query in Database in MS-Access.
CO4 : To understand Design Report and Form in MS-Access.
CO5 : To create the Report and database.
CO6 : To design and Create various table in MS-Access.
CO7 : To Understand the Pointers Virtual & Friend functions and file handling.

Practical on Object Oriented Programming with C++
Course Code: - USCST06
At the end of this Practical, the student will be able: **Course Outcome #**
Course Outcome
CO1 : To understand the Object Oriented and Object Based Program in C++ .
CO2 : To get knowledge Create the Different Application in C++.
CO3 : To get knowledge of Command and Syntax in C++ Programming.
CO4 : To understand C++ Programming and its importance by using various Ways.
CO5 : To create the different Program using C++.
CO6 : To Understand the file handling command in C++ Etc.

SEMESTER : - IV

Paper-I (Algorithm & Data Structures)
Course Code: - USCST07
At the end of this course, the student will be able: **Course Outcome**
CO1 : To Understand the Introduction of Data Structure and Their Algorithms.
CO2 : To get the Knowledge of Sorting and Searching Method.
CO3 : To Understand the Use of Stack and Queues.
CO4 : To get the Knowledge of Recursion Method and their Examples.
CO5 : To Understand the Linked List and their Uses.
CO6 : To get the Knowledge of Tree and Graph and Their Uses.

Paper-II (VISUALBASIC & INTRODUCTION To .NET)
Course Code: - USCST08
At the end of this course, the student will be able: **Course Outcome**
CO1 : To Understand how to perform operations and store results.
CO2 : To Understand the concept of data-driven program execution flow control in Visual Basic programming.
CO3 : The student will apply and synthesize knowledge of user interface design.
CO4 : The student will demonstrate understanding and application of a modern Integrated Development Environment (IDE).
CO5 : The student will demonstrate database connectivity useful for Projects
CO6 : The student get idea about the basic concept of .Net

Practical Based on Data Structure
Course Code: - USCST07
At the end of this Practical, the student will be able: **Course Outcome**
CO1 : To understand the Data Structure and their Different algorithms.
CO2 : To get knowledge of algorithms and their use in C++ Programming.
CO3 : To get knowledge different function and their implementation in C++ Programming.
CO4 : To understand the tree and graph Operation and Implement in C++ Programming.
CO5 : To Write Different algorithms and solve numerical Operation of Data Structure and use in C++ Programming.
CO6 : To Understand the fundamental Operation of data Structure and use in C++

Practical Based on Visual Basic & Introduction to .NET

Course Code: - USCST08
At the end of this Practical, the student will be able:

Course Outcome
CO1 : To understand the Visual Basic Structure and their Commands.
CO2 : To get knowledge of Design Form and coding of VB.
CO3 : To get knowledge of Command, Syntax in Visual Basic and .NET.
CO4 : To get the Knowledge for design Software in Using Visual Basic.
CO5 : To understand the Different types of Software Designing in .NET.
CO6 : To Understand the Multiple form designing and their Execution.

SEMESTER: - V

Paper-I : E-Commerce &Web Designing

Course Code: -USCST09.1

At the end of this course, the student will be able:

Course Outcome

CO1 : To understand the basic difference between Commerce and E- commerce
CO2 : To get knowledge of EDI and the trade cycle.
CO3 : To get knowledge of Internet and its various services.
CO4 : To understand HTML and its importance by using various tags.
CO5 : To create the WebPages using HTML
CO6 : To design various web forms using HTML.
CO7: To design advance HTML using CSS (Creating of Style Sheet)
CO8: To design the CSS Id , Class and Box Model

Paper-II : Database Programming with Oracle

Course Code: -USCST09.2

At the end of this course, the student will be able:

Course Outcome

CO1 : Enhance the knowledge and understanding of Database analysis and design.

CO2 : Get the Knowledge about the SQL.

CO3 : Enhance the knowledge of the processes of Database Development and Administration using SQL and PL/SQL.

CO4 : Enhance Programming and Software Engineering skills and techniques using SQL and PL/SQL.

CO5 : Use the Relational model and how it is supported by SQL and PL/SQL.

CO6 : Use the PL/SQL code constructs of IF-THEN-ELSE and LOOP types as well as syntax

and command functions.

CO7 : Use of Database Objects as well as how to implement sub queries

CO8 : Use of packages and Triggers in the programs

Practical Based on Web Designing and Oracle

At the end of this Practical, the student will be able:

Course Outcome

CO1 : To understand the Formatting Style tags

CO2: To get knowledge of HR tag and alignment

CO3: To understand Order and Unorder list

CO4: To get knowledge of Image Hyperlink

CO5: To understand the CSS Grid

CO7 : To understand the Database Management by using Oracle.

CO8 : To get knowledge of SQL And PL/SQL Command in Oracle.

CO9 : To get knowledge of Using different Query in Database by using Oracle.

CO10 : To understand Create the Table and manipulate the Record and View.

CO11 : To Understand the Structure of PL/SQL Programming and their use.

CO12 : To Create various Database and Connecting the front End Language

Skill Enhancement Course (SEC-I)

Paper I: Computers for Managers

Paper Code: USCST010.1

At the end of this Course, the student will be able:

Course Outcome

CO1 : To understand the Internet and Its applications in day to day life

CO2 : To get knowledge of structure of MIS

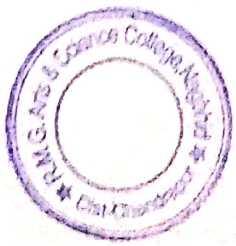
CO3 : To get knowledge Business Intelligence and Online Analytical Processing.

CO4 : To understand Data Mining Text Mining and Web Mining

CO5 : To Understand the Geographic Information Systems (GIS),.

CO6 : To get knowledge of Virtual Reality, Real-Time Business Intelligence (BI)

CO7: To understand theRole of Scorecards and Dashboards in Performance Management.



SEMESTER : VI

Paper-I : CORE JAVA

Course Code: USCST11.1

At the end of this course, the student will be able:

Course Outcome

CO1 : To understand History and Features of Java

CO2 : To get knowledge JDK Environment.

CO3 : To get knowledge of Java Programming Concepts.

CO4 : To understand how object and class are work

CO5 : To understand the language features and java package to implement

CO6 : To design various programs which implement exception handling concept.

CO7: To understand how thread life cycle is working

CO8: To get knowledge of Abstract Window Toolkit

CO9: To understand how applet life cycle is working

Paper-II : Data Communication with Cloud Computing

Course Code: - USCST11.2

At the end of this course, the student will be able:

Course Outcome

CO1 : Describe the components of a data communications system.

CO2 : Explain the role of line codes in a data communications network.

CO3 : Describe the various types of signals and their features.

CO4 : Describe the features and functions of multiplexing and modulation.

CO5: To get knowledge of Communication Network

CO6 : To understand the LAN and MAN types

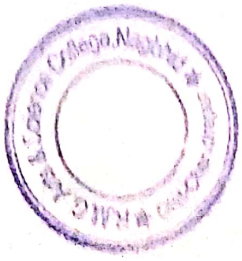
CO7 : To understand how the topologies is established in various ways.

CO8: To study various Protocol and Architecture like OSI, TCP/IP etc

CO9: To get knowledge how Internetworking

CO10: Basics of cloud computing

CO11 : Different Cloud Computing services



Practical Based On CORE JAVA.

At the end of this Practical, the student will be able to:

Course Outcome

CO1 : To built the program depending on else if ladder.

CO2 : To built the program on control structure.

CO3 : To get knowledge how to make array programs.

CO4 : To understand how constructor and destructor used in the programming

CO5: To built the program by using reference calling

CO6: To understand how string functions are implement in the program

CO7: To get knowledge how Applet, Thread and Exception handling in implemented in the Program

CO8: To understand how grid layout and check box are implemented in the program

Skill Enhancement Course (SEC-II)

Paper IV: PC-Maintenance

Paper Code: USCST12.4

At the end of this Course, the student will be able:

Course Outcome

CO1 : To understand Active Hardware and Software Maintenance

CO2 : To get knowledge Heat and Temperature Control

CO3 : To get knowledge BIOS and CMOS

CO4 : To understand different types of CPUs

CO5 : To Understand RAM and ROM working

CO6 : To get knowledge of Video Cards and Monitors

CO7: To understand CRT and LCD working

CO8: To get knowledge of different type of Drives

CO9: To understand the working of Hard Drive Interfaces- IDE, SCSI, SATA

CO10: To understand the installing of sound card, Modem, Motherboard and power supply

CO11: To understand printer features and types of printers

CO12: To understand formatting PC and how backup data is taking before formatting the disk

CO13: To get knowledge of trouble shooting

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Program Specific Outcome of B.Sc., Mathematics

I. Think in a logical and critical manner.
II. Know when there is a need for information, to be able to identify, locate, evaluate, and effectively use that information for the issue or problem at hand.
III. Formulate and develop real life Mathematical problems in a logical manner.
IV. Acquire good knowledge and understanding in advanced areas of Mathematics, chosen by the student from the given courses.
V. To understand, formulate and use quantitative models arising in social science, Engineering, Transportation, Artificial Intelligence, Queuing Models, Relativity theory, Assignment Problems, Inventory Management System and other contexts.
VI. Apply their broad knowledge of science across a range of fields, with in-depth knowledge in at least one area of study, while demonstrating an understanding of the local and global contexts in which science is practiced.

Course Outcome of B. Sc. Mathematics

(1) Course Outcome of Differential Calculus and Integral Calculus :-

Students will able to

I. Solve Limits and Continuity by using ε *and* δ Definition.
II. To understand types of discontinuities.
III. Apply Theorems on limit and Continuity.
IV. Solve problems on differentiability.
V. Understand Successive differentiation and solve problems by using Leibniz theorem.
VI. Apply Mean Value theorem(MVT), Rolle's Theorem and Cauchy's Mean Value theorem(CMVT).
VII. Solve Problems on Taylors Series and Maclaurin's Series of Sinx, Cosx, e^x, $\log(1+x)$, $(1+x)^m$.
VIII. Illustrate Improper integral, Gamma function and its properties.
IX. Beta function and its properties of Beta functions.
X. Derive relation between Beta and Gamma functions.
XI. Evaluate integrals by using Beta and Gamma functions.
XII. Understand Indeterminate forms .
XIII. Apply L'Hospital rule to solve the problems of indeterminate forms.
XIV. Evaluate double integrals.
XV. Apply change variable method to find the value of double integral.

(2) Course Outcome of Differential Calculus and Trigonometry:-

Students will able to

I. Understand the Limit and Continuity for function of two variables.
II. Understand Maxima and Minima of function of two variables.
III. Lagrange's Multiplier method .

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IV. Explain subtangent and subnormal.
V. Find angle of intersition of two curves.
VI. Find circle, radius and centre of curvature.
VII. De Moivre's theorem and its applications.
VIII. Expand $\cos^n\theta$, $\sin^n\theta$ and $\tan^n\theta$ in terms of θ.
IX. Define hyperbolic functions and inverse hyperbolic functions.

(3) Course Outcome of Differential Equations and Difference Equations:-

Students will able to

I. Understand First order Exact Differential Equation.
II. Illustrate order and degree of Differential Equations.
III. Extract the solution of differential equations of the first order and of the first degree by variables separable, Homogeneous and Non-Homogeneous methods.
IV. Understand Linear differential equations and solve problems on Bernoulli's equations.
V. Find a solution of differential equations of the first order and of a degree higher than the first by using methods of solvable for p, x and y.
VI. Compute complementary function and particular integral of differential equations..
VII. Compute all the solutions of second and higher order linear differential equations with constant coefficients, linear equations with variable coefficients.
VIII. Solve simultaneous linear equations with constant coefficients and total differential equations.
IX. Formulate Difference equation and solve problems.

(4) Course Outcome of Partial Differential Equations:-

Students will able to

I. Formation of partial differential equations.
II. Solve linear partial differential equation of first order.
III. Illustrate Lagrange's linear differential equations.
IV. Find the solution of First order partial differential equations for some standard types.
V. Homogeneous partial differential equations and its applications.
VI. Solve problems by using Jacobbi's method.
VII. Non-Homogeneous differential equations.

(5) Course Outcome of Real Analysis:-

Students will able to

I. Define different types of real sequence, bounded sequence, Cauchy Sequence.
II. Discuss the behavior of the geometric sequence.
III. Verify the given sequence in convergent and divergent by using behavior of Monotonic sequence.
IV. Prove Cauchy's theorems on limits.
V. Give examples for convergence, divergence and oscillating series.
VI. Discuss the behavior of the geometric series.

VII. Verify the given series is convergent or divergent by using different test.
VIII. Define and recognize the concept of metric spaces, open sets, closed sets,
IX. limit points, interior point.
X. Define and Illustrate the concept Riemann Integrals.
XI. Determine fundamental theorem on calculus and MVT of integral Calculus.

(6)Course Outcome of Set Theory and Laplace Transform:-

Students will able to

a. Understand set theory.
b. Determine Countable and uncountable sets
c. Define fuzzy sets, α-cuts, fuzzy complements.
d. Discuss types of operations on fuzzy sets, t-norms, fuzzy arithmetic.
e. Explain extension principle of fuzzy sets, fuzzy numbers.
f. Illustrate fuzzy relations, binary fuzzy relations, fuzzy equivalence relations.
g. State some applications of fuzzy sets.
h. Understand Laplace transform and Inverse Laplace transform.
i. Apply Laplace transform to solve differential equations
j. Use inverse Laplace transform to return familiar functions
k. Apply Laplace transform to solve ODE and PDE.

(7)Course Outcome of Algebra:-

Students will able to

a. Define Group ,subgroup, center, Normalizer of a subgroup.
b. Find cycles and transpositions of a given permutations.
c. Prove Lagrange's theorem .
d. Define cyclic groups .
e. Define normal subgroups , quotient groups and index of a subgroup.
f. Define homomorphism ,kernel of a homomorphism, isomorphism.
g. Prove Cayley's theorem , the fundamental theorem of homomorphism for groups.
h. Define rings , zero divisors of a ring , integral domain , field and prove theorem.

(8)Course Outcome of Elementry Number Theory:-

Students will able to

I. Illustrate Divisibility, Division and Euclidean Algorithm.
II. Solve the problems of GCD and LCM.
III. Describe the properties of prime numbers.
IV. Define congruence's and describe the properties of congruence's.
V. Solve the system of linear congruence's.
VI. Solve Diophantine equations.
VII. State Chinese Remainder Theorem, Fermat's and Wilson's theorem and GoldbachConjuncture.
VIII. Describe Arithmetic function, Euler's theorem, Mobius μ function, r *and* σ *function.*
IX. Illustrate Pythagorean triplets.

(9)Course Outcome of Linear Algebra :-

Students will able to

I. Define Vector Space, Quotient space Direct sum, linear span and linear independence, basis and inner product.
II. Discuss the linear transformations, rank, nullity.
III. Illustrate Dual Space,Bi dual space and natural Isomorphism.
IV. Find the characteristic equation, eigen values and eigen vectors of a matrix.
V. Prove Schwartz inequality, Gram-Schmidt orthogonalisation process.

(10)Course Outcome of Mechnics :-

Students will able to

I. Define Kinematics in two dimensions.
II. Define Simple Hormonic Motion and find its Geometrical representation.
III. Illustrate coordinate systems, radial and transverse velocity and acceleration.
IV. Find the Composition of SHM and the differential equation of a central orbit.
V. Find the law of force if the orbit is given and vice versa.

(11)Course Outcome of Matrices and Theory of Equations :-

Students will able to

I. Illustrate Symmetric and Skew symmetric, Hermition and Skew Hermition Matrices.
II. Understand elementary operations on matrices.
III. Learn Linear equations and various methods to solve linear equations.
IV. Define characteristic equation of matrices and illustrate.
V. State Cayley Hamilton Theorem and its applications.
VI. Compute inverse of a matrix using Cayley – Hamilton Theorem.
VII. Find Eigen values and Eigen vectors of a given matrix.
VIII. Describe the relation between roots and coefficients
IX. Find the sum of the power of the roots of an equation using Newton's Method.
X. Transform the equation through roots multiplied by a given number, increase the roots, decrease the roots, removal of terms.

XI. Solve the reciprocal equations.
XII. Analyse the location and describe the nature of the roots of an equation.

(12)Course Outcome of Numerical Methods:-

Students will able toDefine Basic concepts of operators Δ,E, ∇

I. Find the difference of polynomial
II. Solve problems using Newton forward formula and Newton backward formula.
III. Derive Gauss's formula and Stirling formula using Newton forward formula and Newton backward formula.
IV. Find maxima and minima for differencial difference equation
V. Derive Simpson's 1/3 ,3/8 rules using trapezoidal rule
VI. Find the solution of the first order and second order equation with constant coefficient
VII. Find the summation of series finite difference techniques
VIII. Find the solution of ordinary differential equation of first by Euler,Taylor and Runge-Kutta methods.

(13)Course Outcome of Complex Analysis and Vector Calculus :-

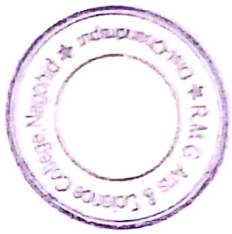
Students will able to

a. Compute sums, products, quotients, conjugate, modulus, and argument of complex numbers.
b. Calculate exponentials and integral powers of complex numbers.
c. Understand the significance of differentiability for complex functions and be familiar with the Cauchy-Riemann equations.
d. Determine whether a given function is analytic.
e. Define Bilinear transformation, cross ratio, fixed point.
f. Write the bilinear transformation which maps real line to real line, unit circle to unit circle, real line to unit circle.
g. Use Cauchy's integral theorem and formula to compute line integrals.
h. Represent functions as Taylor, power and Laurent series.
i. Classify singularities and poles.
j. Find residues and evaluate complex integrals, real integrals using the residue theorem.
k. Understand Vector Differentiation .
l. Find and interpret the gradient curl, divergence for a function at a given point.
m. Interpret line, surface and volume integrals
n. Evaluate integrals by using Green's Theorem, Stokes theorem, Gauss's Theorem

(14) Course Outcome of Linear Programmic and Transportation Problem :-

Students will able to

a. Define nature and feature of Operations Research.
b. Formulate LPP by graphical method and its applications.
c. Define basic feasible solutions, Slack and Surplus variable.
d. Explain simplex method.
e. Demonstrate Big-M method
f. Illustrate two phase method
g. Prove dual of the dual is primal.
h. Interpret dual simplex method.
i. Define transportation problem.
j. Find a basic feasible solution to the transportation problem by using North west corner rule, Vogel's approximation method.
k. Apply NWCR,LCM and Vogel's method to solve transportation problem.
l. Illustrate Assignment problem ,Travelling salesman problem and applications.



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DEPARTMENT OF ZOOLOGY

PROGRAM SPECIFIC OUTCOME (PSO) OF ZOOLOGY:

PSO 1. To know the scope and importance of Zoology and scientific temper among students.

PSO 2. To develop ability for the application of the acquired knowledge to improveapplied field to make the country self-reliant and sufficient.

PSO 3. Students can aware details and information about the evolution, anatomy,morphology, systematics, genetics, physiology, developmental biology,microtechnique, ecology, and conservation of animals.

PSO 4. Students can recall details of the unique ecological and evolutionary features of thefauna.

PSO 5. The students are expected to acquire knowledge of zoology and related subjects so asto understand natural phenomenon of nature and environment in the benefit of humanbeings.

PSO 7. To devlop interest in nature and living forms and their conservation.

PSO 8. To make the students eco-friendly by creating a sense of environmental awareness inthem.

PSO 9. To give better exposure to the diversity of life forms.

PSO 10. To give awareness about natural resources and their importance in sustainabledevelopment.

PSO 11. To study different ecological sites for animals in their natural habitats by field study.

PSO 12. To provide opportunities for the application and training of the acquired knowledgein day- to -day life.

PSO 13. To develop skills in doing experiments, familiarizing equipment and biologicalSlide and specimens by PPT and Video demonstration.

PSO 15. To expose students to various fields in biological sciences and to develop interest inrelated disciplines.

PSO 16. To attain an interdisciplinary approach to understand the application of the lifescience subject in daily life.

PSO 17. To familiarize the emerging new areas of Zoology and their applications in various spheres of biological sciences and to the students of its relevance in future studies.

PSO 18. Understand the nature and basic concepts of cell biology, genetics, molecular biology, taxonomy, physiology, ecology, diseases, disease spreading agents and applied Zoology

PSO 19. Understand the relationships among animals, plants and microbes

PSO 20. Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Molecular Biology, Immunology, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Entomology, Nematology Sericulture, Biochemistry, Fish biology, Animal biotechnology andresearch methodology

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BSC ZOOLOGY

COURSE SPECIFIC OUTCOME:

BSC I			
SEMESTER I			
Paper Code	**Core Paper**	**Title of the Paper**	**Course Outcome**
USCZOT01	I	Animal Diversity of Nonchordates (Protozoa to Annelida)	**CO 1.** Describe general taxonomic rules on animal classification. **CO 2.** Classify Protozoa up to phylum usingExamples from parasitic adaptation. **CO 3.** Describe different mode of adaptation in Protozoa through locomotion, nutrition and reproduction. **CO 4.** Classify Phylum Porifera with taxonomic keys. **CO 5.** Describe morphology, anatomy and histology of Porifera. **CO 6.**Classify Phylum Cnidaria with taxonomic keys. **CO 7.** Describe Phylum Cnidaria with Structure, life cycle, Polymorphism, Alternation of generation, Locomotion, Nutrition, Nematocyst, Coral reef. **CO 8.** Classify Phylum Platyhelminthesto Annelida with taxonomic keys. **CO 9.** Describe Phylum Platyhelminthes to Annelida with Structure and Life history and various modes of adaptations.
USCZOT02	II	Cell Biology	**CO1:** Explain ultra-structure of Prokaryotic and Eukaryotic cell. **CO2:** Explain Structure of Fluid mosaic model of plasma membrane and its functions. **CO3:** Explain structure and functions of nucleolus and nuclear membrane **CO4 :**Describe the Structure, types of chromosome and structure of nucleosome,Lamp-brush and polytene chromosome **CO5:** Explain ultra-structure of mitochondria and

			oxidative phosphorylation,Electron transport chain and terminal oxidation **CO6:** Describe ultra-structure and function of Endoplasmic reticulum and Golgiapparatus. **CO7:** Describe Ultra-structure of Golgi Complex. **CO8** :Describe Structure, polymorphism and functions of Lysosomes. **CO9:** Explain structure, types of Ribosome and Lake's model. **CO10:** Describe the Cell cycle, Mitosis, Meiosis and synaptonemal complex.
USCZOP01	PRACTICAL	CORE COURSE I & IIPRACTICALS BASEDON PAPER I ANDPAPER II	**CO 1.** Study of Animal Specimen upto classes from Phylum Protozoa to Annelida. CO 2. Study of Slides to understand the structure, histology of Phylum Protozoa to Annelida. CO 3. Anatomical observations, demonstration and detailed explanation of the following with the help of ICT tools/ models/ charts/ photographs etc. CO 4. Study of Structure, Functions of Compound and Dissecting microscope and uses. CO 5. Study of Effect of Osmosis on eukaryotic cell through RBC. CO 6. Demonstration of mitotic cell division, polytene chromosome in dipteran larvae, mitochondria in buccal epithelium. CO 7. Use of ocular micrometer and measurement of micro objects.
SEMESTER II			
Paper Code	**Core Paper**	**Title of the Paper**	**Course Outcome**
USCZOT03	III	Animal Diversity of Nonchordates (Arthropoda to Hemichordata)	CO 1. Describe general taxonomic rules onanimal classification CO 2. Classify Arthropoda up to phylum Hemichordata using examples and adaptation. CO 3. Classify Phylum Arthropoda toHemichordata with taxonomic keys. **CO 4:** Describe External Morphology, Digestive

			system, Circulatory system, Nervous system, Reproductive system and Sense organs of Arthropoda, Mollusca, Echinonodermata and Hemichordata **CO 5:** Pearl formation, Bipinnaria and Brachiolaria larva, Regeneration and Autotomy inEchinoderm and Affinities of Balanoglossus
USCZOT04	IV	Genetics & Evolution	**CO1:** Introduction to Genetics, Mendel's work on transmission of traits, Laws of Genetics **CO2:** Interaction of genes, Sex linked inheritance,extra-chromosomal inheritance **CO3:** Linkage, Crossing Over, Syndrome and Mutation **CO4:** Major Events in History of Life - Urey-Miller Experiment, Oparin theory **CO5:** Introduction to Evolutionary Theories:Lamarckism, Darwinism, Neo-Darwinism **CO6:** Describe Types of fossils and Evolution of horse **CO7:** Processes of Evolutionary Change, Micro,Macro and Mega-evolution **CO8:** Mass extinction:Causes, and Role ofextinction in evolution.
USCZOP02	PRACTICAL	CORE COURSE III & IV PRACTICALS BASED ON PAPER III AND PAPER IV	CO 1. Observation, classification (uptoclasses) and sketching of the following animals through specimen/model of phylum Arthropoda to Hemichordata. CO 2. Study of Slides to understand the structure, histology of Phylum Arthropoda to Hemichordata. CO 3. Anatomical observations, demonstration and detailed explanation of the following with the help of ICT tools/ models/ charts/ photographs. CO 4. Identification of wild and mutant type Drosophila. CO 5. Demonstration of monohybrid, Dihybrid crosses by colour beads. CO 6. Study of sickle cell anemia, Thalassemia,

			ABO and Rh blood groups, Drum stick in the human blood, Barr body in vaginal smear or buccal epithelium. CO 7. Study of human genetic trait by using Hardy-Weinberg equations- Rolling of tongue, baldness, widow peak, length of index and ring finger, attached and free ear lobe. CO 8. Study of pictures of human chromosome abnormalities, Adaptive radiations in Reptilia and Mammals, Parallel, Convergent and Divergent evolution, Stabilizing, Directional and Disruptional evolution. CO 8. Preparation of models on genetics.

BSC II			
SEMESTER III			
Paper Code	**Core Paper**	**Title of the Paper**	**Course Outcome**
USCZOT05	V	Animal Diversity (Chordates) And Comparative Anatomy	**CO1:** General characters and Classification up to order; Urochordata, Cephoalochordata,Cyclostomata, Pisces, Amphibia, Reptilia, Aves, Mammals **CO2:** Explain external morphology and digestive system Urochordata, Cephoalochordata,Cyclostomata. **CO3:** Describe osmoregulation in Fishes, Accessory respiratory organs. **CO4:** Write Parental care and Neoteny of Amphibia **CO5:** Study of Snake venom, Poison apparatus & biting mechanism, Poisonous and nonpoisonous snake **CO6:** Write Flight adaptations, Birds migration and its significance **CO7:** Describe Comparative account of derivatives of integuments and aortic arches, Heartand urinogenital system.
USCZOT06	VI	Physiology &	CO1. Seeks to understand the mechanisms

		Biochemistry - I	that work to keep the human body alive andfunctioning CO2. Physiological and biochemical understanding through scientific enquiry into the nature ofmechanical, physical, and biochemicalfunctions of humans, their organs, and thecells of which they are composed. CO3. Interactions and interdependence ofphysiological and biochemical processes. **CO4:** Describe Metabolism of Carbohydrates, Protein and Lipid. **CO5:** Explain General properties, Classification, Distribution and chemical nature ofEnzyme. **CO6:** Describe the Structure and functions of digestive glands **CO7:** Study of Gastro-intestinal hormonesand Vitamins. **CO8:** Explain Digestion and absorption of proteins, carbohydrates and lipids. **CO9:** Describe the Mechanism of Respiration, Transport of O2 and CO2. **CO10:** Describe the Respiratory pigments and effects of smoking.
USCZOP03	PRACTICAL	CORE COURSE V & VI	CO1. Identification and Classification of museum specimens from Urochordata to Mammals. CO2. Anatomical observations, demonstration and detailed explanation of the following with the help of ICT tools/ models/ charts/ photographs etc. (Any locally available fish). CO3. Study of skeleton of Rabbit or Fowl and permanent slides.

			CO4. Study of histological slides of Mammal– Duodenum, Liver, Lung, Bone and Cartilage. CO5. Demonstration of carbohydrates, proteins and lipids by histochemical methods CO6. Estimation of total protein in given solution by Lowry's method CO7. Study of activity of salivary amylase under optimal condition. CO8. Qualitative test to identify functional group carbohydrate in given solution (glucose, fructose, sucrose, lactose).
SEMESTER IV			
Paper Code	**Core Paper**	**Title of the Paper**	**Course Outcome**
USCZOT07	VII	Developmental Biology	**CO1:** Describe Classification on the basis of amount and distribution of yolk. Chemical composition of yolk. **CO2:** Explain mechanism and significance of Fertilization. **CO3:** Describe the Types of cleavages and blastulation process. **CO4:** Study of Morphogenetic movements in the early development of Frog. **CO5:** Explain Development of Chick up to the formation of primitive streak and extra embryonic membranes. **CO6:** Describe the Gametogenesis, Structure of a Sperm and Ovum. **CO7:** Describe Implantation and Placentation. **CO8:** Describe Mechanism and significance of Apoptosis **CO9:** Explain In Vitro fertilization, Semen bank, Artificial inseminations and Contraceptives. **CO10:** Gains knowledge about

			gametogenesis,cleavage mechanisms, gastrulation and roleof hormones in metamorphosis andregeneration.
USCZOT08	VIII	Physiology & Biochemistry - II	**CO1:** Describe Structure of Uriniferous tubule and Mechanism of urine formation. **CO2:** Explain Normal and abnormal constituents of urine. Elementary idea of dialysis. **CO3:** Describe the Structure and functions of pituitary gland, thyroid and adrenal gland. **CO4:** Study of Oestrous and menstrual cycle, Male and female sex hormones. **CO5:** Explain Types of neurons, E.M. structure of neuron 3 **CO6:** Describe the Ultra-structure and Properties muscle **CO7:** Describe Composition and functions of blood, Blood clotting, Cardiac cycle, E.C.G.and Blood pressure. **CO8:** Seeks to understand the mechanisms thatwork to keep the human body alive andfunctioning. **CO9:** Physiological and biochemical understanding through scientific enquiry into the nature ofmechanical, physical, and biochemicalfunctions of humans, their organs, and thecells of which they are composed. **CO10:** Interactions and interdependence ofphysiological and biochemical processes.
USCZOP04	PRACTICAL	Core Course VII& VIII	**CO1:** Study of T.S. of Tadpole through internal and external gills, V.S. of Blastula, Gastrula and Neurula, Chick embryology : Whole mount of 18 hrs, 24 hrs, 30 hrs, 36 hrs and 72 hrs. **CO2:** Detection of urea, albumin, sugar and

			creatin in urine **CO3:** Sperm count of any domestic animal. **CO4:** Study of histological slides of Mammal– T.S. of Kidney, Pituitary, Thyroid and Adrenal glands, Testis, Ovary, Uterus, Placenta, Medulated and Non medulated nerve fibres, Smooth and Striated muscle, Spinal cord. **CO5:** Preparation of haemin and haemochromogen crystal **CO6:** Quantitative estimation of amino acids using ninhydrin reaction **CO7:** Estimation of glycin by Sorenson formal titration **CO8:** Examination of gametes of Frog – Sperm and Ova through permanent slide or microphotograph.
BSC III			
SEMESTER V			
DISCIPLINE SPECIFIC ELECTIVES (DSE) (ANY TWO)			
Paper Code	**Core Paper**	**Title of the Paper**	**Course Outcome**
USCZOT09	IX	Parasitology	**CO1:** Study of introduction and history of Parasitology and Host Parasite Relationship. **CO2:** Explain Modes of Infection Structure, Life Cycle, Pathogenicity and treatment ofParasitic Protozoan **CO3:** Describe the Structure, Life Cycle, Pathogenicity and Treatment of helminthesParasites and Nematode parasites **CO4:** Study ultrastructure of body wall of parasite, Respiration and excretion of helminthes **CO5:** Explain Parasitic adaptations, Morphology of Arthropod parasite and Causes andtreatment of Arthropod parasite. **CO6:** Describe Structure, Pathogenicity and treatment of bacterial and fungal diseases

			inFishes. **CO7:** Describe Pathogenicity and treatment of (Typhoid, T.B). **CO8:** Describe Zoonotic diseases and pathogenicity (Swine flu, Bird Flu). **CO9:** Explain Study of Vectors as disease transmitters (Flea, TseTse fly).
USCZOT10	X	Applied Zoology	CO1: Students will applications of Zoology inAgriculture and other industries. CO2: Identify various methodology andperspectives of applied branches of zoologyfor the possibilities of self-employment. CO3: Learn the basic principles involved in theculture and breeding of commonedible and ornamental fishes of Kerala andthe art of aquarium keeping. CO4: Get a basic understanding of humangenomics and reproductive biology. CO5: Aware about stem cell research and prenataldiagnostic techniques.
USCZOT11	XI	Insect Vector AndDiseases	**CO1:** Describe general Features of Insects **CO2:** Explain types of Mouth parts and antennae. **CO3:** Describe the mechanical and biological vector. **CO4:** Study Host-vector relationship, Adaptations as vectors. **CO5:** Explain Classification of insects up to orders, detailed features of orders with insects asa Vectors – Diptera, Siphonaptera, Siphunculata, Hemiptera **CO6:** Describe dipterans as important insect vectors – Mosquitoes, Houseflies; **CO7:** Study of mosquito-borne diseases – Chickungunya, Filariasis **CO8:** Describe Breeding and control of

			mosquitoes **CO9:** Study of sand fly-borne diseases and house fly as important mechanical vector. **CO10:** Describe Bugs as insect vectors; Blood-sucking bugs; Chagas disease. **CO11:** Explain Fleas as important insect vectors and Host-specificity, **CO12:** Study of Flea-borne diseases – Plague, Typhus fever; Control of fleas. **CO13:** Study Human louse (Head, Body and Pubic louse) as important insect vectors. **CO14:** Explain Relapsing fever, Trench fever, Control of human louse.
USCZOT12	XII	Aquatic Biology	CO1: Course provides them comprehensiveunderstanding about aquatic ecosystem andvarious economical important fishes. CO2: Students gain knowledge in the areas ofresponses characterization and classificationof Ostracoderms, placoderms, acanthodians,holocephali, elasmobranchs. CO3: Students will get information aboutzooplanktons, rotifers and other microscopicorganisms.
USCZOP05 USCZOP06 USCZOP07 USCZOP08	Practicals	Core Course Any Two Form Core Paper IX, X, XI, XII	Practicals on Any Two Form Core Paper IX, X, XI, XII
SKILL ENHANCEMENT COURSES (SEC) (ANY ONE)			
		Apiculture	**CO1:** Describe history of bee keeping: Definition, Bee keeping in worldwide and India **CO2:** Describe traditional and Modern beekeeping, Urban or backyard beekeeping. **CO3:** Describe types of honey bees, Life cycle – Queen, Drone, Worker **CO4:** Explain basic requirements of Tools

			for starting bee keeping. **CO5:** Describe bee keeping equipment - introduction to types of bee boxes. **CO6:** Explain economic importance of honey and processing of honey.
		Sericulture	CO1: Gives knowledge of silk worm rearing. CO2: Mulberry cultivation CO3: Pests and diseases associated with silk wormand mulberry. CO4: Various process involved in silk production.
BSC III			
SEMESTER VI			
DISCIPLINE SPECIFIC ELECTIVES (DSE) (ANY TWO)			
Paper Code	**Core Paper**	**Title of the Paper**	**Course Outcome**
USCZOT13	XIII	Immunology	**CO1:** Describe the historical Perspective and basic concepts in immunology of Immunology **CO2:** Explain Innate Immunity and Adaptive immunity. **CO3:** Describe the Haematopoeisis, Primary and Secondary lymphoid organs. **CO4:** Study basic properties of antigens, Haptens and adjuvants. **CO5:** Explain structure, classes and functions of antibodies. **CO6:** Describe B and T cell epitopes and monoclonal antibodies. **CO7:** Describe Structure and functions of MHC I and II. **CO8:** Describe autoimmunity - Type I Diabetes mellitus, Psoriasis, Systemic Lupus Erythematosus. **CO9:** Explain Vaccines: Live, killed, recombinant and toxoid.
USCZOT14	XIV	AnimalBiotechnology	CO1: It gives insight into various cell/tissues

			culture techniques. CO2: Understanding of in vitro culturing of organisms and production of transgenicanimals. CO3: Understanding of cloning of mammals, largescale culture and production fromrecombinant microorganisms CO4: Gains skills in medical, environmental biotechnology, biopesticides, Biotechnology of aquaculture and use of animals asbioreactors CO5: This insight allows students to take into consideration about ethical issues involved in production transgenic animals and BTproducts.
USCZOT15	XV	Microtechnique, Bioinformatics And Biostastistics	CO1: Students gain knowledge about various toolsand techniques used in biological systemsand gives them insight about their use inresearch. CO2: Biostatistics teaches them to use thebest dataanalysis methods in their research projects. CO3: Students gains knowledge about statisticalmethods like measures of central tendencies,Probability. CO4: Learns about hypothesis testing andinferential statistics CO5: Learns the problem-solving methods.
USCZOT16	XVI	Reproductive Biology	**CO1:** Describe reproductive System and abnormalities of Human Sex Development. **CO2:** Hypothalamo – Hypophyseal – Gonadal axis and Gonadal hormones. **CO3:** Describe Reproductive Endocrine Disorders in Male and Female **CO4:** Study histology of male and female reproductive system in rat and human **CO6:** Describe androgen metabolism and

			Biochemistry of Semen. **CO7:** Describe cryptorchidism and Castration **CO8:** Describe reproductive cycles in rat and human and their regulation. **CO9:** Describe mechanism of parturition and its hormonal regulation, Lactation and itsregulation. **CO9:** Explain Infertility in male and female and assisted Reproductive Technology **CO10:** Describe modern contraceptive measures. **CO11:** Demographic terminology used in family planning.
USCZOP09 USCZOP10 USCZOP11 USCZOP12	PRACTICAL	Core Course - Any Two Form Core Paper XIII, XIV, XV and XVI	Practical on Any Two Form Core Paper XIII, XIV, XV and XVI.
SKILL ENHANCEMENT COURSES (SEC) (ANY ONE)			
		Medical Diagnostic	CO1: Gives knowledge related to the techniquesinvolved in detection of various diseases. CO2: Pathology associated with variousdiseases. CO3: Practical skills of conducting basic clinicallab experiments CO4: Application of knowledge of clinical scienceand pathology to one's own life.
		Public Health And Hygiene	CO1: Realize the factors affecting Health. CO2: Apply the knowledge to lead a healthy Lifestyle.

COURSE OUTCOME (CO): HISTORY

CO1: Analysis of Mourya, Wardhan, Gupta and Chol Dynasties and Mughal and Maratha Empire

CO2: Evaluate The Rise of British power and its effect on Indian Economy

CO3: Identify the nature, cause and effect of revolt of 1857

CO4: write a note on Religious and Social Reform Movements in 19th Century.

CO5: Describe on the Rise of Indian Nationalism

CO6 : Write causes and effects of First World World and Second World War

CO7: Describe American, French and Russian Revolution

CO8 : Analysis the Socialism

CO9: Write a note on League of Nation and U. N. O.

CO10: Write a note on Cold War, NATO and SEATO

CO11: Describe Globalization

PROGRAM SPECIFIC OUTCOME (PSO) : HISTORY

PSO1: Understand the culture and tradition of ancient society

PSO2: Analysis the socio –economical and political structure,values, ethics and reforms

PSO3: Study of Indian Constitution

PSO4 Study of World Wars

PSO5 : Career in Tourism and Preparation of Competitive Exams

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COURSE OUTCOME (CO): GEOGRAPHY

CO1: Describe importance of geography through scientific view.

CO2: Describe Latitudes and Longitudes.

CO3: Geography as a study of mankind.

CO4: Elements of Weather and Climate

CO5: Understand the importance of different seasons

CO6: Analysis of climate classification.

CO7: Demerits of increasing population.

CO8: Agriculture in Maharashtra.

PROGRAMME SPECIFIC OUTCOME (PSO)

PSO1: Evoke love towards Nature

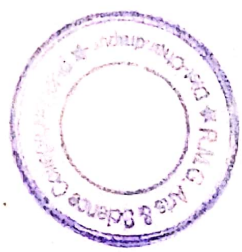
PSO2: Interest in study of universe.

PSO3: Understand relation of mankind with Ecosystem.

PSO4: Scientific Approach.

PSO5: Concept of Climatology

PSo6: Global Warming.



COURSE OUTCOME (CO): ENGLISH

CO1: Describe the responsibilities of a good citizen and roadmap of future.

CO2: Describe management of water recourses and soil conservation

CO3: Describe the kinship of human nature with environment

CO4: Eumerate on the rich heritage of Indian culture.

CO5: Service of Mankind.

CO6: Understand the demerits of Indian education system.

CO7: Analysis of importance of small saving group on the empowerment

CO8: Human life cycle

CO9: Beauty of Nature

CO10: Concept of Liberty, Equality and Fraternity

CO11: Describe Black Economy

CO12: Transformation of evil person into good.

CO13: Describe the theme of courage

PROGRAMME SPECIFIC OUTCOME (PSO): ENGLISH

PSO1: Evoke Spirit of Patriotism

PSO2: Understand Spiritual Value and Humanity

PSO3: Environment and Sustainability

PSO4: Understand Scientific Approach

PSO5: Language Acquisition Method

ENGLISH LITERATURE:

COURSE OUTCOME (CO): ENGLISH LITERATURE

CO1: Examine short stories and novels and analytically to identify and analyze literary elements like plot, three unities, catharsis, comic relief.

CO2: Compare and contrast author's treatment of theme, character and subject matter.

CO3: Analyze representative Shakespearean comedies in terms of language, character and themes.

CO4: Demonstrate knowledge of Elizabethan history and culture.

CO5: Analyze poetic types.

CO6: Recognize, define and identity poetic terms and genres.

CO7: Identify common poetic meters and rhyme schemes and apply them to their writing.

CO8: Recognize the kinship of human being and Nature.

Programme Specific Outcome (PSO)

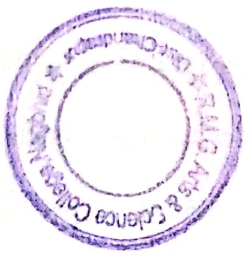
PSO1: Express themselves effectively in a variety of form.

PSO2: Support interpretive claims about a variety of texts.

PSO3: Employ knowledge of literary traditions to produce imaginative writing.

PSO4: Use knowledge of literature to assist problem solving.

PSO5: Develop and demonstrate an awareness of the significance of literature and of literary form.



ECONOMICS

COURCE OUTCOME (CO) : ECONOMICS

CO1: Classify the Concept of microeconomics and macroeconomics

CO2: Describe Law of Demand –supply and applications in the different sectors

CO3: Identify Marginal Utility Approach

CO4: Describe Laws of Return of Scale, Cost Concept, Revenue Concept and Concept of Economic Welfare

CO5: Analysis the Statistics

CO6: Classify the Markets

CO7: Describe Theory of Pricing ,Employment Theory and Quantity Theory of Money

CO8: Analysis the law of Consumption

CO9: Write down a note on saving and investment

CO10: Describe Business Cycle

CO11: Describe Banking Systeem

CO12: Write down a note on Finance and Taxation

CO13: Describe International Trade

CO14: Analysis the Structure of Indian Economy

CO15: Summarise Agriculture and Industrial Sector

CO16: Write the note on Poverty and Unemployment Problems

CO17: Give s brief note on Economic Development

CO18: Economical variants of Environment and sustainability

PROGRAM SPECIFIC OUTCOME (PSO) : ECONOMICS

PSO1: Understand the behavior of Indian and World economy.

PSO2: Analysis macroeconomic policies including fiscal and monetary policies of India.

PSO3: Determine economic veriables including inflation, unemployment ,Poverty, GDP, Balance of Payments using statistical methods

PSO4: Understand the Behaviour of finance and money markets and perform cost-benefit analysis for making investment decisions.

COURSE OUTCOME(CO) SOCIOLOGY

CO1: Students learn formation of society.

CO2: Students get the knowledge of different social issues .

CO3: Students learn the growth and development of the society .

CO4: Analyze the process of socialization.

CO5: Student identify elements that make changes in society .

CO6: Students learn social thinkers and civilization process .

CO7: Its describe different social concepts.

CO8: Students learn child up bring process .

CO9: Describe marriage institution .

CO10: It describe concept of gender equity .

PROGRAM SPECIFIC OUTCOME (SOCIOLOGY)

PSO1: This program is helpful to understand the structure of society.

PSO2: It helps to empower the women and rights of women.

PSO3: Provide the knowledge of different social concept.

PSO4: Students understand the different customs and tradition.

PSO5: Students understand the different marriage institute and its rule .

PSO6: This programme helps students make their career as social worker and empo
women for the welfare of humanity.

COURSE OUTCOME (C0) : POLITITIAL SCIENECE

CO 1: Discribe important reforms in Indian Democracy

CO 2:Write a note on increasing judicial activities in recent time

CO3: Analysis the structure and role of Local Municipal Corporation with reference to development of Urban and Rural areas

CO4: Write a note on right to information 2005

CO5: Analysis the theme of violation of Human Right and securirty

CO6: Write about the element that makes change in the society

CO7: Discribe Political values and Ideal

CO8: Write a note on thinkers and fundamental philosophers of India

CO9: Write a note on the foreign political thinkers and civilization

CO10: Describe different Political Concept

CO11: Write a note on the Panchsheel Principal

CO12: Describe Utilization theory of Bantham and Mills

PROGRAM SPEFIC OUTCOME (PSO): POLITITIAL SCIENECE

PSO1: Understand Fundamental Rights

PSO2: Awareness Right given to Women

PSO3: Awareness of political Conncepts

PSO4: Understand the Behaviour of people under different political system

PSO5: Understand the the Parliamentary Democracy

RSE OUTCOME (CO) : MARATHI

CO 1 : समाजसुधारकांचे विचार समाजात रूढ करणे.

CO 2 : भारतीय समाजाचा स्त्रियांकडे पाहण्याचा दृष्टिकोन समजून घेणे.

CO 3 : दलित, आदिवासी व भटक्या विमुक्त जमातींच्या जीवनाची कैफियत समजून घेणे.

CO 4 : भारतीय संस्कृतीचे काव्याद्वारे दर्शन घडविणे.

CO 5 : साहित्यविचार समजून घेणे.

CO 6 : चालू परिस्थितीतील शैक्षणिक वातावरणाची ओळख करणे.

CO 7 : भारतीय संस्कृतीमध्ये विज्ञानाची सांगड घालणे.

CO 8 : स्वातंत्र्याचे जतनास विद्यार्थ्यांना प्रेरित करणे.

CO 9 : प्रसारमाध्यमामधील भाषा शिकणे.

CO 10 : सामाजिक अन्याय, अत्याचार व भ्रष्टाचाराबाबत जागृती करणे.

CO 11 : जागतिकीकरणामध्ये मराठी भाषेचे स्थान अधोरेखित करणे.

CO 12 : बाजारू संस्कृतीचा विटखा स्पष्ट करणे.

CO 13 : आध्यात्मिक संदेश देणे.

CO 14 : प्रेमाची रूपे विषद करणे.

CO 15 : पर्यावरणाचे संवर्धन करणे.

PROGRAM SPECIFIC OUTCOME (PSO) : MARATHI

PSO 1 : त्याग आणि संघर्षातून आदर्श तथा आशावादी जीवनाची निर्मिती करणे.

PSO 2 : महिला सबलीकरणास पुरक वातावरण निर्माण करणे.

PSO 3 : मुद्देसूद, संक्षिप्त, निःसंदिग्ध, औचित्यपूर्ण, तटस्थ भाषा कौशल्याचा विकास साधणे.

PSO 4 : व्यावहारिक भाषेची उपयोगिता वाढविणे.

PSO 5 : बालपणाच्या संस्काराचे महत्व पटवून देणे.

PSO 6 : वैज्ञानिक दृष्टिकोन वृद्धिंगत करणे.

PSO 7 : व्यक्तिमत्व विकासाला चालना देणे.

PSO 8 : देशप्रेमाची भावना विकसित करणे.

COURSE OUTCOME (CO) : MARATHI LITERATURE.

CO 1 : करूण कथेच्या माध्यमातून ग्रामीण भागातील वास्तववादी जीवनाचे रेखाटन करणे.

CO 2 : वेगवेगळ्या नात्यांनी बांधलेल्या व्यक्तीच्या भावसंबंधाचे चित्रण रेखाटणे.

CO 3 : मानवी जीवनावर बाह्य वातावरणाचा प्रभाव कसा पडतो हे विशद करणे.

CO 4 : शेतकऱ्याच्या व्यथा : कारणे व उपाय स्पष्ट करणे.

CO 5 : गुरू - शिष्य संबंधाचे विवेचन करणे.

CO 6 : सामाजिक जडणघडणीत संतांचे महत्व स्पष्ट करणे.

CO 7 : दलित साहित्याची जाणीव जागृती करणारे लेखन.

CO 8 : वाङ्मयाचे काव्यप्रकार स्पष्ट करणे.

CO 9 : पेशवेकालीन संस्कृतीविषयी माहिती द्या.

PROGRAM SPECIFIC OUTCOME (PSO) : MARATHI LITERATURE.

PSO 1 : विद्यार्थ्यांच्या विचारामध्ये प्रगल्भता निर्माण होऊन वैचारिक पातळी वाढते.

PSO 2 : सामाजिक आणि आर्थिक सुधारणेचा आढावा घेऊन सामाजिक स्थितीगतीचे वास्तव कळते.

PSO 3 : साहित्याद्वारे विद्यार्थ्यांवर संस्कार केले जातात.

PSO 4 : समाजातील विविध जनमाणसाचे व्यक्तीत्व समजून घेऊन विद्यार्थी अधिक समाजशील बनतात.

COURSE OUTCOME: HOME ECONOMICS

CO1: Describes the branches of Economics

CO2: Analyse the use of home economics in home making.

CO3: Develop the skill of decision making

CO4 Home Management

CO5: Concept of time and energy management

CO6: What are different ways for earnings through the study of subject?

CO7: Concept of House furnishing.

PROGRAMME SPECIFIC OUTCOME: HOME ECONOMICS

PSO1: Recognize resources and their importance to gain personal, family and social goals.

PSO2: Develop rational decision ability

PSO3: Realize the importance of management in daily life routine.

PSO4: Apply principal of work- simplification, management and decision making in house for day to day life.

PSO5: Develop the skill in use of colours with different colour schemes.

PSO6: Motivate and train the students for self employment.

Science Faculty

Programme Outcome

All of these programs are designed to introduce the students to modern laboratory methods and principles using state-of-the-art scientific equipment. These undergraduate students are exposed to applied laboratory techniques, critical thinking, independent and team learning, and are provided with research opportunities. The faculty is committed to providing an environment that addresses the individual needs of each student and encourages them to develop their potential.

Chemistry

1. Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Inorganic, Organic and Physical Chemistries.
2. Students will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments.
3. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
4. Students will be able to clearly communicate the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
5. Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
6. Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.
7. Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.
8. Students will be able to function as a member of an interdisciplinary problem solving team.
9. (I) Inorganic Chemistry:
10. To enables students to learn the atomic structure, concept of covalent bond, periodic table and its properties, S-block and P-block elements and chemistry of hydrides, oxides and oxyacides.
11. To enables students to know about VSEPR and MO theories, Chemistry of elements of first, second, third transition series, Errors in Chemical Analysis, non-aqueous solutions, Chemistry of lanthanides and actinides.

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Art's & Science College, Nagbhid.

Principal
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Art's & Science College,
Nagbhid, Dist. Chandrapur

12 The students will understand some fundamental aspects of coordination compounds and isomerism, concept of oxidation and reduction, Colorimetry and Spectrophotometry, separation techniques, introductions of some inorganic polymers.

13 To have the idea about Metal ligand bonding in Transition Metal Complexes, Electronic spectra of Transition Metal Complexes, Magnetic Properties of Transition Metal Complexes, Thermodynamic and Kinetic aspect of metal complexes, Organometallic Chemistry, Metal carbonyls, Bioinorganic Chemistry, concept of Hard and Soft Acids and Bases.

14 (II) Organic Chemistry

15 To predict the outcome, chemical reactions, preparations & mechanism of organic reactions, stereochemistry of organic compounds, geometrical and conformational isomerism, and basics concept of alkanes, alkenes, dienes, alkynes and aromaticity.

16 To impart the students concepts of the fundamentals of orientations in organic molecules, properties and mechanism involved in alkyl halides, polyhalogen compounds, aryl halides, alcohols, phenols, aldehydes, ketones, carboxylic acids and its derivatives.

17 To understand the basic concepts and mechanisms organic compounds of nitrogen, heterocyclic compounds, elemental analysis, organometallic compounds, UV-visible and infrared spectroscopy and its application.

18 To learn the concept of NMR Spectroscopy and its applications, Organic synthesis via enolates, carbohydrates, amino acids, peptides, proteins, nucleic acides, synthetic drugs, dyes and detergents.

19 (III) Physical Chemistry:

20 To acquaint knowledge on basics of thermodynamics, gaseous states, liquid state, properties of liquids, surface chemistry and catalysis.

21 Students to learn and understand about second law of thermodynamics, free energy functions, chemical equilibrium, phase rule, chemistry of liquid-liquid mixtures, nuclear chemistry, molecular structure, chemical kinetics and theories of chemical kinetics.

22 To provide an insight into the properties of solid state, electrochemistry, rotational and vibrational spectroscopy, basics of quantum chemistry.

23 To get an overview about the concept of electrochemistry, quantum mechanics and MOT, photochemistry, Raman spectroscopy, Colligative properties and Macromolecules.

Botany

1. Know the characteristics, systematics, morphology, structure of Viruses, Mycoplasma, Bacteria, Cyanobacteria, and life cycle pattern of Algae, Fungi, Lichens, Bryophytes and Pteridophytes.

2. Understand the diversity, morphology, anatomy, systematics and biology of seed plants.

3. Understand the nature and basic concepts of cell biology, genetics, anatomy, morphology, Biochemistry, Physiology, Taxonomy and ecology.

4. Analyze the interrelationships among prokaryotic and eukaryotic organisms

5. Study of organization and function of the gene, genome, cell, tissue, organ and organ-system including development, reproduction, ecological and physiological adaptations and behavior of different forms of life.

6. Understand the importance of plants, their diversity and its conservation.

7. Achieve pure and applied botanical knowledge.

8. Perform procedures as per laboratory standards in the areas of Biochemistry, Physiology, Biotechnology, Taxonomy, Economic Botany, Ecology, Genetics and Plant Breeding, Mycology and Plant Pathology.

9. Demonstrate hands on skill in the experimental techniques and methods of analysis in various field of Botany.

10. Generate test hypotheses, observations, data, analyze and interpret results, derive conclusions, and evaluate their significance within a broad scientific context.

11. Promotes stewardship responsibility, entrepreneurship skill, research and career opportunities.

Physics

1. The student will demonstrate a scientific knowledge of the core physics principles in Mechanics, Electromagnetism, Modern Physics, and Optics.

2. The student will determine the appropriate level of technology for use in:

a) experimental design and implementation,

b) analysis of experimental data, and

c) Numerical and Mathematical methods in problem solutions.

3. The student will effectively communicate their knowledge of physics from basic concepts to specific detailed presentations through a variety of oral, written, and computational modalities.

4. The student will demonstrate a purposeful knowledge of scientific literature and ethical issues related to physics.

Zoology

1. Students gain knowledge and skill in the fundamentals of animal sciences, understands the complex interactions among various living organisms

2. Analyse complex interactions among the various animals of different phyla, their distribution and their relationship with the environment

3. Apply the knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms.

4. Understands the complex evolutionary processes and behaviour of animals

5. Correlates the physiological processes of animals and relationship of organ systems

6. Understanding of environmental conservation processes and its importance, pollution control and biodiversity and protection of endangered species

7. Gain knowledge of Agro based Small Scale industries like sericulture, fish farming, butterfly farming and vermicompost preparation.

8. Understands about various concepts of genetics and its importance in human health

9. Apply ethical principles and commit to professional ethics and responsibilities in delivering his duties

10. Apply the knowledge and understanding of Zoology to one's own life and work

11. Develops empathy and love towards the animals

Program Specific Outcomes:

1. Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology

2. Analyse the relationships among animals, plants and microbes

3. Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Entomology,Nematology Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology

4. Understand the applications of biological sciences in Apiculture, Aquaculture, Agriculture and Medicine

5. Gains knowledge about research methodologies, effective communication and skills of problem solving methods

6. Contributes the knowledge for Nation building.

Microbiology

1. Students gain knowledge and skill in the fundamentals of animal sciences, understands the complex interactions among various living organisms

2. Analyse complex interactions among the various animals of different phyla, their distribution and their relationship with the environment

3. Apply the knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms.

4. Understands the complex evolutionary processes and behavior of animals

5. Correlates the physiological processes of animals and relationship of organ systems

6. Understanding of environmental conservation processes and its importance, pollution control and biodiversity and protection of endangered species

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4. Understand the applications of biological sciences in Apiculture, Aquaculture, Agriculture and Medicine

5. Gains knowledge about research methodologies, effective communication and skills of problem solving methods

6. Contributes the knowledge for Nation building.

Mathematics

1. Students will demonstrate the ability to think critically, research, and reason. (Ethical Leadership)
2. Students will recognize and differentiate among diverse cultures through the history of mathematics. (Cultural Competence)
3. Students will engage in activities directly benefitting the broader community. (Community Engagement)
4. Students will demonstrate an understanding of the common body of knowledge in mathematics.
5. Students will demonstrate the ability to apply analytical and theoretical skills to model and solve mathematical problems.
6. Students will demonstrate the ability to analyze data and draw appropriate statistical conclusions.
7. Students will demonstrate the ability to effectively utilize a variety of teaching techniques and classroom strategies to positively influence student learning.

Computer Science

1 Students will attain an ability to apply knowledge of computing and mathematics appropriate to the discipline.
2 Students will attain an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
3 Students will attain an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs.
4 Students will attain an ability to function effectively on teams to accomplish a common goal.
5 Students will attain an understanding of professional, ethical, legal, security and social issues and responsibilities.
6 Students will attain an ability to communicate effectively with a range of audiences.
7 Students will attain an ability to analyze the local and global impact of computing on individuals, organizations, and society.

8 Students will attain recognition of the need for an ability to engage in continuing professional development.
9 Students will attain an ability to use current techniques, skills, and tools necessary for computing practice.
10 Students will attain an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices.
11 Students will attain an ability to apply design and development principles in the construction of software systems of varying complexity.

Arts Faculty

Programme Outcome

Become better critical thinkers by learning to identify, clarify and evaluate mportant ideas and arguments. Learn to challenge standard assumptions by asking constructive questions and presenting coherent perspectives as the result of their questioning process.Improve their ability to communicate effectively using written, oral, and/or visual media. Lifelong Learning and Independent Learning Skills. Develop better information literacy by recognizing the different cultural, social, political, etc. contexts in which meaning is made and through which it is disseminated. Learn to coordinate and cooperate with others to achieve shared goals.

English

1 read a variety of texts critically and proficiently to demonstrate in writing or speech the comprehension, analysis, and interpretation of those texts;
2 write a literary or expository text using the conventions of standard English as stylistically appropriate, while showing a nuanced use of language (producing such a text may include invention, workshopping, research, compiling bibliographies, drafting, peer responses, revising, and/or editing);
3 demonstrate knowledge and comprehension of major texts and traditions of language and literature written in English as well as their social, cultural, theoretical, and historical contexts;
4 analyze and interpret texts written in English, evaluating and assessing the results in written or oral arguments using appropriate support;
5 and design and create texts for a variety of purposes and audiences, evaluating and assessing the effectiveness and meaning of such texts.

Marathi

1 Get introduced to Marathi literature, language and culture.
2 Create interest in Marathi literature.
3 Develop the literary taste

4 Get ability to appreciate literature.
5 Connect literature to real life experience.
6 Understand various branches and movements of Marathi literature.
7 Develop linguistic skills to meet the requirements in the age of globalization.

PALI

1 Students can understand great philosophical truths given by Lord Buddha though this programme.
2 They can develop their interest in the philosophy given in Pali literature.
3 They can apply for post graduate course in Pali and can work in the field of education.
4 They can work to rejuvenate Pali language.

History

1 Historiographical Literacy. Students will be able to identify and describe the contours and stakes of conversations among historians within defined historiographical fields

2 Critical Thinking. Students will learn to apply historical methods to evaluate critically the record of the past and how historians and others have interpreted it.

3 Research Skills. Students will acquire basic historical research skills, including (as appropriate) the effective use of libraries, archives, and databases.

4 Communication Skills. Students will learn to organize and express their thoughts clearly and coherently both in writing and orally.

5 Writing and Intellectual Integration. Students should demonstrate their mastery of the knowledge and skills involved in historical practice by conceptualizing and executing a significant piece of original research.

Economics

1. Students will learn how markets organize core economic activities, such as production, distribution, and consumption, and the growth of productive resources.
2. Students will learn about the determinants of macroeconomic conditions (national output, employment, and inflation), causes of business cycles, and interactions of monetary and fiscal policy.
3. Students will learn to apply economic theories and methodologies in analyzing economic issues in various sub-fields of applied microeconomics and international economics.

Political Science

1 Define important field-specific theories and concepts, and understand their role in developing political science knowledge.

2 Summarize conceptual argument or theoretical approaches, apply them to field-relevant situations, and support their application with appropriate evidence.

1 Compare and evaluate the merits of multiple policies, theories, or concepts from different disciplinary perspectives.

Home Economics

1 to help students prepare themselves for home and family living.

2 to provide certain experiences which are preparation for professional home economics employment.

3 to provide the home economics education curricula which will qualify the person to meet requirements of the Arizona State Plan for Vocational Education.

4 to provide minor programs for students with other majors.

5 to offer non-baccalaureate terminal functional education of college level.

6 to provide course requirements for a dietitian.

7 to provide a major in Home Economics Education at the graduate level

Geography

1 Demonstrating proficiency in using geographical research tools including spatial statistics, cartography, remote sensing, GIS and GPS.

2 Identifying, interpreting and analyzing geographic problems and processes.

3 Formulating a research methodology and executing a formal student-led research project.

4 Applying knowledge of global issues to a unique scientific problem.

5 Identifying human and environmental issues on global, regional, and local scales and critically assess various perspectives on the issue.

6 Evaluating the impacts of human activities on natural environments.

7 Applying knowledge of global issues to local circumstances to evaluate the local effects of the issues.

Sociology

1 Analyze and interpret the diversity of social experience using a sociological perspective.
2 Assess competing theoretical approaches to societal problems of publics with differing and multiple interests; specify structural or institutional sources of these social problems; and, propose and assess policies, interventions and/or modes of advocacy that will enact positive change.
3 Locate, analyze, assess, and communicate sociological scholarship.
4 Articulate the applicability of and demonstrate ability to employ a range of research strategies — quantitative and qualitative — to particular research questions, theoretical orientations, and social contexts.
5 Articulate the ethical and social justice implications of sociological inquiry.