2019-20

K.R.T.Arts, B.H. Commerce and A.M. Science
(K.T.H.M.) College, Nashik
Internal Quality Assurance Cell

Program Outcome
Program Specific Outcome
Course Outcome

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Chemistry

Program Outcome: B.Sc. (Chemistry)	
1.	The students are expected to understand the fundamentals, principles, and recent developments in the subject area.
2.	It is expected to inspire and boost interest of the students towards chemistry as the main subject.
3.	To impart practical skills and learn basics behind experiments.
4.	To prepare background for advanced and applied studies in chemistry.
5.	To inculcate the scientific temperament in the students and outside the scientific community.
6.	To inculcate the scientific temperament in the students and outside the scientific community.
7.	Use modern techniques, decent equipments and Chemistry softwares.

Program Outcome: M.Sc. Chemistry)	
1.	Students are made aware of safety techniques and handling of chemicals.
2.	Students are made aware of carrying out different types of reactions and their workup methods.
3.	Students will be able to explore new areas of research in both chemistry and allied fields of science and technology.
4.	Develop skills to critically read the literature and effectively communicate research in a peer setting.
5.	Students will be able to function as a member of an interdisciplinary problem solving team.
6.	Describe the importance of chemical biology research and interdisciplinary work.
7.	Understand the principle, working and application of Nuclear magnetic resonance spectroscopy & Mass Spectrometry.
8.	Student should understand the various systems of medicines. To understand concept of drug and different sources of drugs. Students should able to learn lead discovery and pharmacophore identification. To know about bioassays and toxicological evaluation of new drugs.
9.	Understand aspects of entrepreneurship development Innovation and creativity. Development of an idea in marketing and finance. Entrepreneurship success and failure
10.	Understand different name reactions. Learn monitoring of reactions. Be able to purify and characterize the reaction products.
11.	Use and applications of protecting and deprotecting reagent. Applications of enamine and umpolung in synthesis. Retro analysis of one and more functional group. Synthons, Convergent and divergent synthesis.

12.	Applications of multicomponent and Cyclic ring formation reactions in synthesis. Different name reactions involving transition metal viz. Pd, Ni, Ru, Co, Fe, Cu etc. Organometal applications and uses of Al, Li, P, B. Sharpless azide cycloaddition, Domino and biomimetic synthesis

Program Specific outcome: B.Sc./ (Chemistry)	
1.	Gain the knowledge of Chemistry through theory and practicals.
2.	To explain nomenclature, stereochemistry, structures, reactivity, and mechanism of the chemical reactions.
3.	Identify chemical formulae and solve numerical problems.
4.	Use modern chemical tools, Models, Chem-draw, Charts and Equipment's.
5.	Know structure-activity relationship.
6.	Understand good laboratory practices and safety.
7.	Make aware and handle the sophisticated instruments/equipment.
8.	Develop research-oriented skills.
9.	Study and understand the different technique used in purification of compounds.

Program Specific outcome: M.Sc. (Chemistry)	
1.	Carry out experiments in the area of organic analysis, estimation, separation, derivation process, conduct metric and potentiometric analysis.
2.	Project helps for creating research attitude among the post graduate students.
3.	Develop research oriented skills.
4.	Introduce advanced techniques and ideas required in developing area of Chemistry.
5.	Understanding of new techniques to understand the subject.

Course Outcomes of F. Y. BSc (Chemistry)
Semester I

Class	Course title	Outcome
FY (Paper-I)	Physical Chemistry I	• Students will be able to apply thermodynamic principles to physical and chemical process • Calculations of enthalpy, Bond energy, Bond dissociation energy, resonance energy • Variation of enthalpy with temperature –Kirchoff's equation • Third law of thermodynamic and its applications
FY (Paper-II)	Organic Chemistry II	• The students are expected to understand the fundamentals, principles, and recent developments in the subject area. • It is expected to inspire and boost interest of the students towards chemistry as the main subject. • To familiarize with current and recent developments in Chemistry. • To create foundation for research and development in Chemistry.

Semester II

Class	Course title	Outcome
FY (Paper-I)	Inorganic Chemistry I	• Various theories and principles applied to revel atomic structure • Origin of quantum mechanics and its need to understand structure of hydrogen atom • Schrodinger equation for hydrogen atom • Explain rules for filling electrons in various orbitals- Aufbau's principle, Pauli exclusion principle, • Hund's rule of maximum multiplicity • Discuss electronic configuration of an atom and anomalous electronic configurations
FY (Paper-II)	Analytical Chemistry	• Calculations of mole, molar concentrations and various units of concentrations which will be helpful for preparation of solution. • Relation between molecular formula and empirical formula. • Basics of type determination, characteristic tests and classifications, reactions of different functional groups. • Basics of chromatography and types of chromatography • Theoretical background for Paper and Thin Layer Chromatography

S. Y. B. Sc. (Chemistry) Semester I

S.Y.B.Sc.- (Paper-I)	CH-211 Physical & Analytical Chemistry	• Introduction to Analytical Chemistry, Chemical analysis and its applications, Sampling, Common techniques, Instrumental methods and other techniques, Choice of method. Basic principles in qualitative analysis, Meaning of common ion effect, Role of common ion effect and solubility product
SYBSc (Paper-II)	CH-212 Organic & Inorganic Chemistry	• In Organic Chemistry, Students learnt about the Stereochemistry, where they have dealt with chirality, optical activity and polarimetry, enantiomers, absolute configuration, R/S system nomenclature. In addition, they learnt about Baeyer strain theory and cyclohexane's conformations and geometrical isomerism. Also organic reaction and mechanism. Substitution and elimination reactions also have been studied. • Definition of corrosion. ii) Types of corrosion. iii) Mechanism of corrosion. iv) Factors affecting corrosion. v) Methods of prevention of metal from corrosion. vi) Meaning of passivity. vii) Different theories of passivity. viii) Galvanising, Tinning

S.Y.B.Sc. (Chemistry) Semester II

SYBSc (Paper III)	CH-221 Physical &	• Meaning of equivalent weight, molecular weight, normality, molality, primary and secondary standards.

	Analytical Chemistry	Different way to express concentrations of the solution, Preparation of standard solution, Calibrate various apparatus such as burette, pipette, volumetric flask, barrel pipette etc. Types instrument
SYBSc (Paper-IV)	CH-222 Organic & Inorganic Chemistry	• Learnt about oxidation and reduction concept. Catalytic hydrogenation were studied, where Birch reduction, Resenmund's reduction were studied.
SYBSc (Paper-V)	Practical Course in Chemistry CH – 223	• Verify theoretical principles experimentally • Interpret the experimental data • Improve analytical skills • Correlate the theory and experiments and understand their importance

T.Y.B.Sc. (Chemistry) Semester III

TYBSc (Paper-I)	CH-331 Physical Chemistry	• Write an expression for rate constant K for third order reaction • Solve the numerical problems based on Rate constant • Understand the term specific volume, molar volume and molar refraction • Know the meaning of phase, component and degree of freedom • Derive the expression for rotational spectra for the transition from J to J+1
TYBSc (Paper-II)	CH-332 Inorganic Chemistry	• Know the meaning of various terms involved in co-ordination chemistry • To understand Werner‟s formulation of complexes and identify the types of valences • Know the limitations of VBT • Know the shapes of d-orbital‟s and degeneracy of d-orbital‟s • Draw the geometrical and optical isomerism of complexes
TYBSc (Paper-III)	CH-333 Organic Chemistry	• Define organic acids and bases. • Distinguish between geometrical and optical isomerism. • Discuss kinetics, mechanism and stereochemistry of SN1 and SN2 reactions. • Compare between E1 and E2 reactions. • Understand the evidences, reactivity and mechanism of various elimination and substitution reactions.
TYBSc (Paper-IV)	CH-334Analytical Chemistry	• Know the principles of common ion effect and solubility product. • Study the methods of thermo-gravimetric analysis. • Understand the principles of Spectro-photometric analysis and properties of electromagnetic radiations. • Study the Voltammetry and Polarography as an analytical tool. • Measure the absorbance of atoms by AAS.
TYBSc	CH-335	• Know the importance of chemical industry.

(Paper-V)	Industrial Chemistry	• Classify various insecticides. • Study the nutritive aspects of food constituents. • Understand the characteristics of some food starches. • Study the manufacture of cement, dyes, Glass, Soap and Detergents by modern methods.
TYBSc (Paper-VI)	CH-336-Environmental Chemistry	• Know the role of environmental chemistry and its potential • Understand the basic concept of properties of soil & its classification on the basis of pH. • Know the different plant nutrients, their functions and deficiency symptoms. • Identify the problematic soil pollution, air, water pollution. • Have the knowledge of various pesticides, insecticides, fungicides and herbicides and their impact

T.Y.B.Sc. (Chemistry) Semester IV

TYBSc (Paper-I)	CH-331 Physical Chemistry	• Understand Mechanics of system of particles. • Know the Redox reaction. • Study the Nuclear Chemistry. • Solve the cell reaction and calculate EMF.. • Calculate interplanar distance. • Understand De-Broglie hypothesis and Uncertainty principle • Derive Schrodinger's time dependent and independent equations
TYBSc (Paper-II)	CH-332 Inorganic Chemistry	• Study the electronic configuration of lanthanides and actinides. • Get knowledge of Crystalline solid. • Understand different operation in stoichiometric molecule. • Study the Bio-inorganic chemistry. • Understand the p-type semiconductor and n-type semiconductor
TYBSc (Paper-III)	CH-333 Organic Chemistry	• To study UV, IR and NMR spectroscopy. • Discuss different types of rearrangement reactions. • Determine structure of compound by spectroscopic methods. • Understand the difference between carbocation and carbanion. To study alkaloids, Ephedrine, citral molecule with their properties and application.
TYBSc (Paper-IV)	CH-334Analytical Chemistry	• Know the different analytical techniques. • To understand different types of separation techniques. • To study principle, construction and working of GC and HPLC. • To give an extended knowledge about chromatographic techniques used for separation of amino acids. • Discuss the problem based on distribution coefficient and

		extraction techniques.
TYBSc (Paper-V)	CH-335 Industrial Chemistry	• Know the various pharmaceutical drugs, their application and synthesis. • To study the waste management. • To understand the function of dyes, paints and pigments. • To study the various type of surfactants. • To know about molasses and bagasse. • To study the different types of polymer.
TYBSc (Paper-VI)	CH-336-EEnvironmental Chemistry	• Know the various environmental issuesand their solution. • To study the waste management. • To understand the function of chemicals and application of green chemistry. • To study the various type of surfactants. • To know natural sources of energy. • To study the different types of hazardous and toxic chemicals.
TYBSc (Paper-VII)	CH-347 Physical chemistry practical's	• Calculate molar and normal solution of various concentrations. • Determine specific rotations and percentage of optically active substances by polarimetrically. • Study the energy of activation and second order reaction. • Study the stability of complex ion and stranded free energy change and equilibrium constant by potentiometry. • Find out the acidity, Basicity and PKa Value on pH meter.
TYBSc (Paper-VIII)	CH 348Inorganic chemistry practical's	• Study the gravimetric and volumetric analysis of ores and alloy. • Prepare a various inorganic complex and determine its % purity. • To study binary mixture with removal of borate and phosphate. • To understand the chromatographic techniques
TYBSc (Paper-IX)	CH-349 Organic chemistry practical's	• Perform the Binary mixtures. • Preparation of organic compounds, their purifications and run TLC. • Determination of physical constant: Melting point, Boiling point. • Different separation techniques.

Course Outcomes of MSc I (Chemistry) Semester I

Class	Course title	Outcome
MSc I	**CCTP-1** CHP-110 Physical Chemistry-I (Fundamentals of Physical Chemistry)	• To understand the concept of State function, path function, exact differential and inexact differential, internal energy and enthalpy, temperature dependent internal energy and enthalpy, reversible and irreversible adiabatic expansion. • To understand the Applications of quantum chemistry • To understand Valence bond theory, applications to simple π-systems.

		• To understand Collision theory of bimolecular gas phase reactions, diffusion controlled and activation controlled reaction in solution, activated complex theory of reaction rate, Eyrings equation.
MSc I	CCTP-2: CHI-130, Inorganic Chemistry-I, (Molecular Symmetry and Chemistry of Main Group Elements)	• Student should visualize/ imagine molecules in 3 dimensions. • To understand the concept of symmetry and able to pass various symmetry elements through the molecule. • Understand the concept and point group and apply it to molecules. • To understand product of symmetry operations. • To apply the concept of point group for determining optical activity and dipole moment .
MSc I	CCTP-3:CHO-150, Organic Chemistry-I, Basic Organic Chemistry	• To understand some fundamental aspects of organic chemistry, to learn the concept aromaticity, to understand the various types of aromaticity • To study heterocyclic compound containing one and two hetero atoms with their structure, synthesis and reactions. • To know stereochemistry of organic compounds; able to do interconversion of Fischer to Newmann, to Sawhorse and vice versa, Able to assign R and S to given molecules; understand stereoselective and stereospecific reactions; acquire knowledge on topicity. • To study structure, formation, stability and related name reaction of intermediates like Carbocation, Carbanion, Free Radical, Carbenes and nitrenes; Recognize neighboring group participation • To study rearrangement reaction with specific mechanism and migratory aptitude of different groups. • To study Ylides and their reaction. • To understands the basis of redox reaction; acquire knowledge about the reagents which causes selective oxidation / reduction in various compounds; learn the basic mechanism of oxidation / reduction in organic compounds.
MSc I	CBOP-1: CHG – 190, General Chemistry-I, Introduction to Solid State of Matter	• Bonding in solids – band theory • Electronic conductivity • Semiconductors, photoconductivity • Non-stoichiometry, defects and types of defects in solids • Ionic conductivity and their applications • Superconductivity and theory of superconductivity • Method of synthesis of solids
MSc I	**CCPP-1 CHP-107** Basic Practical Chemistry-I	• Kinetic decomposition of diacetone alcohol by dilatometry. • Determination of an order of a reaction. • Brönsted primary salt effect. • Kinetics of oxidation of ethanol by K2Cr2O7

		• Determination of surface excess of amyl alcohol or TX-100 surfactant by Capillary rise method. • Determination of molecular weight by steam distillation. • Glycerol radius by viscosity. • Partial Molar Volume (Polynometry) Determination of the densities of a series of solutions and to calculate the molar volumes of the components.

Semester II

Class	Course title	Outcome
MSc I	**CCTP-4** CHP-210 Physical Chemistry - II (Molecular Spectroscopy and Nuclear Chemistry)	• Enlist the Types of molecule on the basis of moment of inertia and rotational spectra of di- and poly-atomic molecules. • Explain the Quantum and classical theory of Raman effect, pure rotational Raman spectra, vibrational Raman spectra. • Discuss the Electronic spectra of diatomic molecules. • Explain the Principle, Instrumentation and Applications of Mossbauer Spectroscopy. • Illustrate the Types of radioactive decay, general characteristics of radioactive decay, decay kinetics, general expression for the activity of a daughter nuclide. • Justify Chemistry: Interaction of radiation with matter, interaction of γ radiation with matter, units for measuring radiation absorption, Radiation dosimetry.
MSc I	**CCTP-5** CHI-230 Inorganic Chemistry -II (Coordination and Bioinorganic Chemistry)	• Student should able to find out the no of microstates and meaningful term symbols, construction of microstate table for various configuration • Hund's rules for arranging the terms according to energy. • Student should understand interelectronic repulsion. • Student should know the concept of weak and strong ligand field. • Student able to find out splitting of the free ion terms in weak ligand field and strong ligand field. • To draw correlations diagram for various configurations in Td an Oh ligand field. • Student should know basic instrumentation and selection rules and relaxation in rules. • Student should know basic d-d transition, d-p mixing, charge transfer spectra. • Interpretation of electronic spectra for spin allowed oh and td complexes using Orgel diagram.
MSc I	**CCTP-6** CHO-250 Organic Chemistry-II (Photochemistry	• Students should able to understand free radicals' formation, stability and reactivity and should also be able to use the basic understanding in writing probable reaction mechanisms. • Students should able to write MO diagram for various

	, Pericyclic and Organic spectroscopy)	olefinic compounds and should able to predict the products, the stereochemistry as well as should able to understand the preferred reaction pathways. • Students should able to calculate □□max of organic compounds containing more than one and less than four conjugated systems. Students should able to correlate IR bands with functional groups using numerical data as well as spectral data. • Students should able to solve 1H-NMR problems and should also able to draw the 1H-NMR spectrum for simple organic compounds mentioning multiplicity pattern and coupling constant with the help of "Tree Diagram" Should able to predict and analyze the multiplicity patterns with more than one coupling constants. • Students should able to use 13C-NMR data to interpret the structure NMR problems and should also able to draw the 1H-NMR spectrum for simple organic compounds mentioning multiplicity pattern and coupling constant with the help of "Tree Diagram" Should be able to predict and analyze the multiplicity patterns with more than one coupling constants. • Students should know various key factors responsible for the spectroscopic data acquisition and should able to solve Problems based on UV, IR, MS, 1H-NMR,13C-NMR.
MSc I	**CBOP-2 CHG-290** Material Characterization Technique	• Different characterization technique of solids. • Principle of XRD, instrumentation of powder XRD, Brags law, applications of XRD for crystal structure determination, numerical problems. • Principle of SEM, instrumentation of SEM and interpretation of surface morphology of solid from SEM. • Principle of TEM, instrumentation of TEM and interpretation of TEM images. • Basics of X-rays, Principle of XRF, types of XRF, instrumentation, qualitative and quantitative analysis, numerical.
MSc I	**CCPP-2 CHP-227** Basic Practical Chemistry-II .	• Students are trained to different purification techniques in organic chemistry like recrystallization, distillation, steam distillation and extraction. • Students are made aware of safety techniques and handling of chemicals. • Students are made aware of carrying out different types of reactions and their workup methods. • This practical course is designed to make student aware of green chemistry and role of green chemistry in pollution reduction.

Course Outcomes of M.Sc (Chemistry): Semester III

Class	Course title	
M.Sc. II (Organic Chemistry)	CHO-350-Organic Reaction Mechanism	• Learn the reaction mechanism of nucleophile with elecrophile • Learn the acidity and basicity in organic compounds
	CHO-351-Organic Spectroscopy	• Understand the PMR and CMR values and their predictions • Understand the prediction of 2-D spectra
	CHO-352-Organic Spectroscopy	• Understand the 3-D way view of cyclohexane and related cyclic compounds • Learn to stereochemical principles with stereochemistry • Able to find out Cotton effect of different cyclic and acyclic molecules
	CHO-353-Photochemistry, Pericyclic and Heterocyclic chemistry	• Understand the electronic movements in thermal and photochemical excitations, their effects in reactions • Learnt about aromatic electrophilic and nucleophic substitution reactions involving variety of heterocycles such as prrrole, furan, thiophene, quinoline, isoquinoline, etc. In addition, various synthesis have been studied.
	CHO-347-Single Stage Preparation	• Get the idea about reaction set up • Understand the importance of purification techniques recrystallisation during TLC and physical const. determination
M.Sc. II (Analytical Chemistry)	CHA-390 Electro analytical and radio analytical methods of analysis	• Study of colorimeter, Faraday 1st law, Faraday 2nd law. • Study of voltametry and paleographic method of analysis, • heterodynamic voltametry, plus paleography and cyclic voltametry. • Study of ampherometry and their application
	CHA-391 Pharmaceutical analysis.	• Study of apparatus for test and assay, cleaning of glassware, role of FDA in pharmaceutical industry. • Learn biological test and assay, microbiological test and assay, physical test, determination, limit test sterilization. • Analysis of vegetable drug, sources of impurities in pharmaceutical row materials and finished products. • Learn standardization and quality control of different row materials.
	CHA-392 Advanced analytical techniques	• Study the classical approach for aqueous extraction, solid phase extraction, micro extraction and SFE. • Learn: AAS, FES, ICPAES, and DCP. • Study atomic fluorescence, resonant ionization and LASER based enhanced ionization • Study of different detectors and their applications.

	CHA-380 Geochemical and alloy analysis and analytical method development and validation.	• To understand assay validation and inter laboratory transfer. • Study the statistical analysis and analytical figure. • Learn the analysis of geological materials and alloys. • Study the analysis of soil, sampling, chemical analysis as a measure of soil fertility
M.Sc. II (Inorganic Chemistry)	CHI-326- Organometallic Chemistry & Homogeneous catalysis	• Learn organometallic compound ,sigma-pi complexes,Fluxional behavior of for organometallic compound • Learn homogenous catalysis
	CHI-330- Inorganic Reaction Mechanism	• Learn photochemistry of compounds • Learn about Magnetic propreties of coordination compounds • Learn types of reaction in detail, intermediate formation, electron transfer reaction.
	CHI-331 - Physical Methods in Inorganic Chemistry	• Learn Principles, Instrumentation &applications of TGA,DTA-DSC,CV. • Learn Mossbauer spectroscopy X-Ray Diffraction Powder &Single Crystal X-ray Photoelectron & ESR Spectroscopy.
	CHI-332- Bioinorganic & Inorganic medicinal chemistry	• Learn the various metalloenzymes of metals, structure &functions. • Learn the Radiopharmaceuticals, MRI contrasting agents, Leaching of metal by microorganisms

Course Outcomes of M.Sc II (Chemsitry): Semester IV

Class	Course title	Outcome
M.Sc. II (Organic Chemistry)	CHO-450- Natural Products	• Learn the idea of protection and deprotection for the synthesis of large, multistep organic compounds • Learn the use of naturally occurring small precursors for synthesis of big molecules
	CHO-451- Advanced Synthetic Organic chemistry	• Understand synthesis of C-C ,C=C bond formations using organometallic compounds • Understand the multicomponent reactions,click chemistry,importance of B and Si in organic synthesis
	CHO-452- Carbohydrates, Chiron approach and medicinal chemistry	• Learn the idea of protection and deprotection for the synthesis of multistep, large organic compounds • Learn the use of naturally occurring small precursors for synthesis of big drug molecules • iii) Importance of naturally occurred chiral precursors in medicinal and drug development
	CHO-453- Designing	• Learnt about the protection and deprotection concept in organic synthesis. Various protecting groups of

	Organic Synthesis and asymmetric synthesis	hydroxyl, amine, ester, and aldehyde and ketones were studied. Also learnt about retrosynthetic approaches.
	CHO-447-Double Stage Preparation	• Get the idea about monitoring of organic reactions using TLC technique • Understand about importance of quality of product by TLC and physical constant
	CHO-448-Green Chemistry/ Biochemical expts.	• Understand about the product purification by recrystallisation • Understand the importance of green reagents and methods in organic synthesis
M.Sc II (Analytical chemistry)	CHO-490 Analytical spectroscopy	• Study of ESCA, Detectors and their applications. Learn X-ray method of analysis, numerical problems. • Understand an introduction to microscopy, its applications. • Study of chemiluminescences, Fluorescence and phosphorescence. • Study of NMR spectroscopy
	CHO-491 Analytical methods for analysis of fertilizer detergent, water and polymer paint and pigments.	• Study of analysis of fertilizer, sampling and sample preparation, kjeldal‟s method. • Understand the analysis of soap and detergents, UV-spectroscopicanalysis of detergent. • Study of water pollution and analysis of polluted water
	CHA-492 Pollution monitoring and control and analysis of body fluid.	• Study of pollution monitoring, removal of heavy toxic metals Cr, Hg, Cd, Pb, As. • Learn the removal of particulate matters, SO2 And NOx. • Study the collection of specimen blood, urine, faeces. • Learn the analysis of blood and urine, Vitamin in body fluid. • Study the liver function and kidney function test.
	CHA-481 Analytical toxicology and food analysis.	• Study of acute poisoning, clinical toxicology. • Learn the isolation, identification and determination of narcotics, stimulants and depressants. • Study the classification function, analysis of carbohydrate, Protein,lipid. • Study the food preservatives, identification determination, and composition.
	CH-A-387 Analysis of materials	• Study the gravimetric and volumetric analysis of ores and alloy. • Prepare a various inorganic complexes and determine its % purity. • Preparation of nonmaterial.

		• To understand the chromatographic techniques. • Estimation of Iron By Various methods.
	CH-A-487 Instrumental Analysis	• Spectral analysis best on instrumental techniques • Photometric determination. • Study of Conductometer, FES, Polarography. • Analysis of riboflavin by photoflurometry. • To Study the spectroscopic techniques. • To study the terbidometry and Neflometry
	CH-A-488 Single stage preparations by Green synthesis.	• Study the dissolution of tablet. • Learn the spectroscopic techniques. • Study Volumetric and gravimetric estimation. • Analysis of Quinine sulphate by photoflurometry
M.Sc II (Inorganic chemistry)	CHI-430- Inorganic Polymers and Heterogeneous Catalysis	• Learn the Heterogeneous catalysis • Inorganic polymers,Heteropolyacids. • Application of Heterogeneous catalysis • Learn about Zeolites,, structure,function & applications
	CHI-431- Material science – I: Solid state and other Inorganic materials	• Learn solid state chemistry 2)Learn crystal defect, magnetic materials, superconducting materials, ceramic & composite materials, Biomaterial &cementetious material
	CHI-432- Materials Science-II: Nanomaterials	• Learn, Introduction,synthesis characterization,properties of Nanomaterials • Photochemistry and Electrochemistry of nanoassemblies, Nanoporous materials • Learn applications of nanomaterials- biological applications and as a sensor
	CHI-445- Inorganic Chemistry Applications in Industry, Environment and Medicine	• Learn Dyes and pigments • Learn Electrochemical applications • Learn applications of metal ions in medicine
	CHI-387- Experiments & computer applications in Inorganic Analysis	• Learn Analysis of alloys, ores, vitamin-c, cu-fungicide • Learn Flame photometric analysis • Learn Ion-exchange analysis • Learn Statistical analysis.
	CHI-388- Preparation of Inorganic compounds Metal complexes	• Learn to Preparation & characterization of inorganic Metal complexes. • Preparation of Solid Materials, ferrites, oxides. • Learn to the study of Kinetics of Aquation reactions .
	CHI-488- Project work /Extended	• Learn to preparation and purity of Metal complexes using Ligands : 1)DMG 2)8-hydroxy quinoline , 3)

	Practicals in Inorganic Chemistry	Salicylaldoxime ,4) Thiourea • Learn to structural determination of above complexes using following techniques like UV, IR, TGA-DTA,solution conductivity. • Project work: Synthesis of ligands and its metal complexes &their characterization using UV, IR, TGA-DTA & solution conductivity.

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Botany

Program outcome : B.Sc. (Botany)	
1.	PO-1. Students know about different types of lower & higher plants their evolution in from algae to angiosperm & also their economic and ecological importance.
2.	PO-2.Cell biology gives knowledge about cell organelles & their functions
3.	PO-3.Molecular biology gives knowledge about chemical properties of nucleic acid and their role in living systems.
4.	PO-4.Genetics provides knowledge about laws of inheritance, various genetic interactions, chromosomal abrasions & multiple alleles.
5.	PO-5. Structural changes in chromosomes.
6.	PO-6. Student can describe morphological & reproductive characters of plant and also identified different plant families and classification.
7.	PO-7. They knows economic importance of various plant products & artificial methods of plant propagation
8.	PO-8. Use modern Botanical techniques and decent equipments.
9.	PO-9.To inculcates the scientific temperament in the students and outside the scientific community
10.	PO-10 Industrial Botany: By studying this course students can apply this knowledge in various industries such as Mushroom cultivation, biofertilizer production, biopesticide, etc. They can also set up their own industries.

Program outcome :M.Sc. (Botany)	
1.	PO-1. . Student can identify and classify all plant groups from algae to angiosperms, also understand the evolutionary relationship and their taxonomic aspects.
2.	PO-2. Knows the concept, process, physiology, and molecular basis of plant development. Also knows the methods of cultivation & economic importance of various species, millets, leguminous plants, fruits, essential oils, vegetables etc.
3.	PO-3. Students know about economically important algae, their cultivation and applications. and also methods of preparation and application of algal products.
4.	PO-4. Understand the application of Biopesticides; know about sources, methods

	and production of biofuel.
5.	PO-5. Acquired knowledge of fermentation technology and production of fermented products.
6.	PO-6.In seed technology student gain knowledge about seed structure development, chemical composition, seed production, processing, seed testing, quality control, seed certification and new hybrid variety.
7.	PO-7.Students learn the basic biostatistics, experimental statistics and bioinformatics.
8.	PO-8. Students understood plant organism interaction,
9.	PO-9.To inculcates the scientific temperament in the students and outside the scientific community

Program Specific outcome: B.Sc. (Botany)	
1.	PSO-1. Students acquire fundamental Botanical knowledge through theory and practical's.
2.	PSO-2. To explain basis plant of life, reproduction and their survival in nature.
3.	PSO-3. Helped to understand role of living and fossil plants in our life.
4.	PSO-4. Understand good laboratory practices and safety.
5.	PSO-5 To create awareness about cultivation, conservation and sustainable utilization of biodiversity.
6.	PSO-6. To know advance techniques in plant sciences like tissue culture, Phytoremediation, plant disease management, formulation of new herbal drugs etc.
7.	PSO-7 Students able to start nursery, mushroom cultivation, biofertilizer production, fruit preservation and horticultural practices

Program Specific outcome: M.Sc. (Botany)	
1.	PSO-1. Students acquired knowledge through practical work in fields as well as in laboratory.
2.	PSO-2. Students are expose to various industrial process by industrial training.
3.	PSO-3. Project helps for creating research attitude among the post graduate students

Course Outcomes of B.Sc. (Botany): Semester I

Class	Course title	Outcome
FYBSc (Paper-I) BO 111	Plant life and utilization I	Co-1 Study of morphology & Anatomy of lower plants Co-2 know about life cycle of different plant groups i.e., cryptogams and phanerogams Co-3 Study of Classification of plants
FYBSc- (Paper-II) BO 112	Plant morphology and Anatomy	Co-1 Study of morphology & Anatomy of higher plants Co-2 Know about different types of infloroscences and parts of typical flower Co-3 Types of fruits and seeds Co-4 Tissue differentiation and different types of tissues Co-5 Internal origination of primary plant body
FYBSc- (Paper-III)	Practical based on theory paper I& II	Co-1 Study of anatomy and morphology of different plants Co-2 Know about different types of infloroscences and parts of typical flower

		Co-3 life cycle of different plant groups i.e., cryptogams and phanerogams Co-4 Study of internal organization of plant

Semester II

Class	Course title	Outcome
FYBSc (Paper-I) BO 121	Plant life and utilization II	Co-1 Study of morphology & Anatomy of vascular plants Co-2 Introduction to plant diversity Co-3 Utilization and economic importance of Pteridophytes, Gymnosperm and angiosperms
FYBSc- (Paper-II) BO 122	Principles of plant science	Co-1 Applications of plant physiology Co-2 Study of diffusion, osmosis, plasmolysis, plant growth Co-3 Study of cell cycle Co-4 Study of plant cell Co-5 Study of molecular biology – Study of DNA, RNA and replication
FYBSc- (Paper-III) BO 123	Practical based on theory paper I& II	Co-1 Study of anatomy and morphology of different plants Co-2 Study of plasmolysis, DPD Co-3 Study of mitosis and meiosis Co-4 Study of prokaryotic and eukaryotic cells

Semester I

SYBSc- (Paper-I)	Taxonomy of Angiosperms	Co-1 Know principals of taxonomy, methods in taxonomy Co-2 Types of taxonomy, Sources of data for taxonomy CO-3Methods of preparation of Herbarium, E- Herbarium etc.
SYBSc (Paper-II)	Plant Physiology	Co-1Applications of plant physiology, Mechanism of Absorption of water, Transpiration Co-2 Plant growth and growth regulators, Nitrogen Metabolism in plants Co-3 Physiology of flowering

Semester II

SYBSc (Paper-I)	Plant Anatomy and Embryology	Co-1Know different tissue systems in plants Co-2Normal secondary growth and different types of anomalous secondary growth Co-3 Study of male and female gametes in angiosperms, Process of fertilization and types of endosperms and structure of embryo.
SYBSc (Paper-II)	Plant Biotechnology	Co-1Know various application of biotechnology like Enzyme technology, Fermentation technology Co-2Single Cell Proteins and Environmental biotechnology Co-3Know Basics of Plant Genetic Engineering, Methods of gene transfer in plants and applications of plant genetic engineering in crop improvement Co-4 Knowledge about Nanotechnology and its applications in Agriculture
SYBSc (Paper-III)	Practical based on theory paper I & II	Co-1Know practical knowledge of plant family of angiosperms Co-2Study of different ecological groups and methods to study vegetations in forests

		Co-3Study different parameters of plant physiology like WHC, DPD, Rate of transpiration and Different instruments used in physiology Co-4 Study of Different tissue systems and normal and anomalous secondary growth Co-5 Study of fermentation techniques, *Spirullina* cultivation for SCP

Semester III

TYBSc (Paper-I)	Cryptogamic Botany	Co-1 Systematics and Taxonomy Co-2 Evolution from Cryptograms to phanerogams Co-3 Classification, economic and ecological importance.
TYBSc (Paper-II)	Cell and Molecular Biology	Co-1 Cell biology gives the knowledge of Internal organization of the cell Co-2 Cellular signaling, transport and trafficking, Cellular Processes. Co-3 Molecular biology provides the Gene structure and Function, DNA: Structure, Functions and Damage
TYBSc (Paper-III)	Genetics and Evolution	Co-1Genetics provides knowledge regarding Classical Genetics, Microbial Genetics & Cytogenetics Co-2 Plant Breeding Co-3Evolution provides Information about Darwin theory and lamark's theory
TYBSc (Paper-IV)	Spermatophyta and Palaeobotany	Co-1 SPERMATOPHYTA gives knowledge of general characters, economic importance and classification of Gymnosperm and Angiosperm. Co-2 PALAEOBOTANY provides the information regarding the Fossils.
TYBSc (Paper-V)	Horticulture and Floriculture	Co-1 Understand economic importance of plant and plant product. Co-2 Know the methods of plant propagation. Co-3 Understand the fruit & vegetables production technology, scope & importance of floriculture. Co-4 Methods of cultivation of different flowering plants.
TYBSc (Paper-VI)	Computational Botany	Co-1 Study the scope & importance of biostatistics. Co-2Know scope and some basic commonly used terms like sampling, data, dispersion, population, central tendency etc. Co-3Knowledge to apply statistical analysis to biological data for testing different hypothesis.

Semester IV

TYBSc (Paper-I)	Plant Physiology and Biochemistry	Co-1Plant physiology and Biochemistry give knowledge regarding the Photosynthesis, Respiration, Translocation of organic solutes Co-2 Carbohydrates, Amino acids and proteins, Secondary Metabolites
TYBSc (Paper-II)	Plant Ecology and Biodiversity	Co-1 Know the biotic and abiotic components of ecosystem. Co-2Food chain & food web in ecosystem. Co-3Understand diversity among various groups of plant kingdom.

		Co-4Understand plant community & ecological adaptation in plants. Co-5Scope, importance and management of biodiversity.
TYBSc (Paper-III)	Plant Pathology	Co-1 Study scope and importance of plant pathology. Co-2 Know disease cycle and disease development, Co-3 Effect of plant diseases on economy of crops. Co-4 Know the methods of studying plant diseases They can identify the plant diseases like bacterial, nematode, and fungal, disease forecasting. Co-5Study prevention and control measures of plant diseases.
TYBSc (Paper-IV)	Medicinal and Economic Botany	Co-1 Understand scope and importance of pharmacognosy. Co-2 Know the cultivation, collection, processing & importance of various herbal drugs and scope of economic botany. Co-3 Know the botanical resources like non wood forest products and study the concept of Ayurvedic pharmacy.
TYBSc (Paper-V)	Plant Biotechnology	Co-1 Study of Plant tissue culture Technology and Recombinant DNA technology Co-2 Understand Role of microbes in agriculture, medicine & industry. Co-3Study the concept of bioinformatics & genomics proteomics.Understand technical germplasm & cryopreservation.
TYBSc (Paper-VI)	Plant Breeding and Seed technology	Co-1 Study the scope & importance of plant breeding. Co-2 Study the technique of production of new superior crop varieties, heterosis, hybrid vigor etc. Co-3 Know the process of hybrid variety, development & their release. Co-4 Know about seed germination, processing , production
TYBSc (Paper-VII)	Practical I	Co-1 Study of Vegetative and Reproductive structure of Algae, Fungi, Bryophytes and Pteridophytes Co-2 Study techniques of cytology, Mitosis, Meiosis, Chromosome morphology Co-3 Estimation of DNA and RNA Co-4 Estimate Chlorophyll, TLC, Proteins and Amino acids Co-5 Study of advanced biotechnological techniques
TYBSc (Paper-VIII)	Practical II	Co-1 Study plant families Co-2 Study structural heterozygote's, Gene mapping, Co-3 Study of Vegetative and Reproductive structure of gymnosperms and Pleobotany
TYBSc (Paper-IX)	Practical III	Co-1 Study techniques in Horticulture and floriculture like cutting, Layering, Budding, Grafting Co-2 Calculating Mean mode median, methods of graphical presentations Co-3Study different plant diseases like fungal, bacterial, microbial etc. Co-4 Study medicinal plants and methods of preparation of extracts and quantitative analysis of alkaloids, tannins etc.

Course Outcomes of M.Sc (Botany): Semester I

Class	Course title	Outcome
M.Sc. I	BOTANY. BOUT 111 -Plant Systematics I	CO-1. To study the classification of Algae, Fungi, Bryophytes CO-2. Understand the evolutionary relationships between plant groups. CO- 3. Know about systematic classification & nomenclature. CO-4. Knows about taxonomic aspects of Cryptogamic plants.
M.Sc. I	BOUT 112 Cell Biology and Evolution	CO-1.Knows about cell structure and cell organelles CO2.Cell Signalling and Cell cycle. CO-3. Study of Evolution, Cellular and Miolecular evolution
M.Sc. I	BOUT 113 Genetics and Plant Breeding	CO-1.Study of Classical genetics CO-2. Study of recombination, Linkages and Mutations CO-3. Study of Microbial Genetics and Cytogenetics CO-4. Study of Different Techniques of Plant Breeding.
M.Sc. I	BODT 114 Biofertilizer and Algal Technology	CO-1. Gain idea about economically important algae their cultivation & application. CO-2. Gain knowledge about methods of preparation & applications of biopesticides.
M.Sc. I	BODT 114 Pomoculture and Fruit Processing Technology	CO-1Get ideas about different types of fruits. CO-2. Knows methods, processing of preservation of fruits.
M.Sc. I	BOUP 115	CO- 1 Morphological observation and documentation of algae, fungi, bryophytes CO- 2 Study of mitosis, meiosis and different cell component CO- 3 Study of chromosome, population genetics Co 4 Study of floral biology

Semester II

Class	Course title	Outcome
M.Sc. I	BOUT 121 Plant Systematics II	CO-1. To study the classification of Pteridophytes, gymnosperm and angiosperm CO-2. Understand the evolutionary relationships between plant groups. CO- 3. Know about systematic classification & nomenclature. CO-4. Knows about taxonomic aspects of vascular plants.
M.Sc. I	BOUT 122 Molecular Biology	CO-1. Study of Structure and properties of Nucleic acid. CO-2. Study of Gene structure, Transcription and Translation.
M.Sc. I	BOUT 123 Biochemistry	CO-1. – Know about Enzymes and Biomolecules such as amino acids, carbohydrates, Proteins
M.Sc. I	BODT 124 Floriculture and Nursery Management	CO-1. – Understand floriculture & its importance CO-2. – Gain knowledge about nursery management
M.Sc. I	BODT 124 Mushroom	CO-1. – Gain knowledge about methods of preparation & applications of biopesticides.

	Cultivation and Biopesticide Technology	CO-2. – Gain knowledge about methods of Mushroom Cultivation
M.Sc. I	BOUT 125	CO-1. Studies on the families as per Bentham and Hooker's system of classification CO-2. Morphological, anatomical and reproductive studies of pteridophytes and gymnosperm CO-3. Isolation of DNA, separation of protein, restriction , endonuclease activity

Semester III

Class	Course title	Outcome
M.Sc. II	Botany. Bo.3.1 Spermatophytic Botany:	CO-1. To study the classification o gymnosperm & angiosperms. CO-2. Understand the relationship between living & non living fossil gymnosperms CO- 3. Know about systematic classification & nomenclature. CO-4. Knows about taxonomic aspects of angiosperms.
M.Sc. II	Bo.3.2 Development And Economic Botany:	CO-1.Knows the concept, features & process of plant development. CO-2.Understand embryological aspects of development. CO-3. Know about the polyembryony, apomixis, parthenogenesis etc. CO-4. They also understand physiology, molecular basis of development CO-5. Know about various spices, millets, leguminous crop plants and their economic importance.
M.Sc. II	Bo.3.3 Industrial Botany-1	CO-1. Gain idea about economically important algae their cultivation & application. CO-2. Gain knowledge about methods of preparation & applications of biopesticides. CO-3. Understand floriculture & its importance. CO-4. Get ideas about different types of fruits. CO-5. Knows methods, processing of preservation of fruits.
M.Sc. II	Bo.3.4 Advanced Angiosperms	CO-1. Gain scientific knowledge of modern trends in Angiosperm taxonomy CO-2.Understanding Phytogeography, ecology, genetics and taxonomy related to angiosperms. CO-3. Gain knowledge about molecular systematics, ultrasystematics Co-4 Study of morphological variations, systematic position, interrelationships of different plant families

Semester IV

Class	Course title	Outcome
M.Sc. II	Bo.4.1- Computational Botany	CO-1. Know the basic terms and test of hypothesis in biostatistics. CO-2. Understand the technical experimental statistics.

		CO-3. Know the concept of bioinformatics. CO-4. To know the concept of sampling methods and analysis of biostatical data in Botany.
M.Sc. II	. Bo.4.2- PLANT ORGANISM INTERACTION.	CO-1. Understand various kinds of plant-plant interaction like epiphytic plant, parasitic plant and Plant association. CO-2. Understand the interaction between herbivorus, carnivorus, and omnivores organisms. CO-3. Know the symbiotic association between various organism lke lichen, mycorrizae etc. CO-4. Understand the mechanism of seed dispersal and pollination.
M.Sc. II	Bo.4.3-Industrial Botany-Ii	CO-1. Know the concept, scope and importance of herbal technology. CO-2. To study the various type of plants such as Aromatic, medicinal etc. CO-3. Understand the floriculture and its importance. CO-4. Get ideas of gardening methods and landscaping. CO-5. Gain knowledge about Plant tissue culture techniques. CO-6. Know the ideas about fruit preservations.
M.Sc. II	Bo.4.4- Plant Pathology	CO-1. Know the concept, scope and importance of Plant pathology. CO-2. Understand courses of disease development. CO-3. Account of Plant disease classification.

Program outcome: M.Phil. (Botany)	
M.Phil. (Botany)	1. M.Phil. Botany or Master of Philosophy in Botany is a postgraduate Botany course. Botany is a branch of biology and is the scientific study of plant life and development. Botany covers a wide range of scientific disciplines that study higher plants, algae, and fungi including structure, growth, reproduction, metabolism, development, diseases, and chemical properties and evolutionary relationships between the different groups. The duration of this pre-Doctorate degree, generally, is two years. The degree course is career orienting in nature which opens a lot of job scopes for the candidates after its completion. 2. **M.Phil. Botany Course Suitability** They should have clear and concise verbal and written communication skills, a high level of curiosity about the world around them, be creative in solving problems. Other essentials are a good understanding of the scientific method and the rigors of scientific research and detail-oriented in their work. They must have good interpersonal skills, mental stamina to work long hours, the ability to work with microscopes and computer skill. Those who are willing (also want to pursue their Ph.D.) to go for teaching fields at higher degree level i.e. college and university level both in private and government institutions also are suitable for it. 3. **M.Phil. Botany Employment Areas** Drug Companies Lumber and Paper Companies The Chemical Industry Food Companies Educational Institutes The Oil Industry Biotechnology Firms Biological Supply Houses Fruit Growers Seed and Nursery Companies Fermentation Industries 4. **M.Phil. Botany Job Types**

	Botany Research Ofcer Botany Lecturer Clinical Business Associate Medical Representative Nutrition Specialist Phlebotomist

Program outcome: Ph.D. (Botany)	
Ph.D. (Botany)	1 Ph.D. in Botany is 3-year doctorate degree in Botany. Botany is a branch of biological science that focuses on the study of plants and how they survive and interact with other living and nonliving components of the environment. At undergraduate and graduate levels, the curriculum of the course typically consists of lecture-based lessons, lab sessions, and field research. Doctoral programs however, focus more on research. 2. **Ideal candidates for the course would possess:** data-handling skills such as recording, collating, and analyzing data using appropriate techniques and equipment. written communication skills presentation and oral communication skills such as to present research findings and make presentations in a clear, succinct way. project management skills, such as organizing and undertaking research projects, experiments, etc. (including budgeting, contingency planning, and time management). good understanding of information technology ability to work both independently and as part of a team. 3. **On completion of the programme, students will be able to:** Demonstrate critical understanding, at an advanced level, of up-to-date knowledge and research methodology of a particular field Implement effective academic and personal strategies for carrying out research projects independently and ethically Contribute original knowledge in response to issues in their specialist area Communicate research findings at a diverse range of levels and through a variety of media Evaluate one's own research in relation to important and latest issues in the field **4. Engage in critical intellectual enquiry** *Critically evaluate information and ideas from multiple perspectives Integrate knowledge at the forefront of a particular field* **5. Demonstrate a thorough understanding of research methodologies and techniques at an advanced level** *Develop, design and implement research projects competently and independently* **6. Conduct innovative, high-impact and leading edge research** *Engage in original research that takes a new technological, methodological, or theoretical approach* **7. Provide novel solutions to complex problems** *Identify and define emerging problems Offer innovative and original solutions to problems and issues in novel situations* **8. Demonstrate adherence to personal and professional ethics** *Maintain the highest standards of personal and academic integrity Understand complex ethical and professional issues* **9. Demonstrate leadership and advocacy skills** *Articulate analyses and propose solutions in response to social issues Communicate and disseminate research findings effectively in the academic*

	community and to stakeholders in society **10. Work with others and make constructive contributions** *Engage in intellectual exchange with researchers from other disciplines to address important research issues Collaborate effectively with researchers from different cultures* **JOB OPPERTUNITIES** **Taxonomist** -Taxonomists research about, and sub-divide types of plants into classifications, subsequent to observing their species and grouping them based on similitudes **Agronomist** -Agronomist are soil and plant researchers who work to enhance the yield of field crops like grain and cotton. They develop techniques that help farmers in creating more yield and avoiding harvest-failures **Ecologists** -Ecologists observe and research on plants' relationship and behavior with the soil and with other living beings. They research on the biological categories of plants with the objective of explaining their life phenomena. **Mycologists**- Mycologists consider growth patterns and how harming living beings harms vegetation. Mycologists are a kind of Microbiologists that observe and analyze microscopic organisms and green growth in relation to microorganisms. **Plant Breeders** -Plant Breeders apply customary hybridizing and crossbreeding methods, instead of hereditary building, to enhance plants for human use, with focus on nature's conservation. Plant Breeders are a type of Plant Geneticists, and Geneticists work directly in the science of plant genomes.

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Biotechnology

Program Outcome: B.Sc. Biotechnology	
1.	Acquiring a strong base of all the concepts related to the life science and core biology.
2.	Developing a Scientific aptitude and a keen interest in the biological sciences helping form an evaluative decision.
3.	Forms an Interdisciplinary approach by combining basic sciences with the advance technology.
4.	Understanding the need of world and thinking rationally to fulfill them in an environment friendly way.
5.	Applying the basics of biotechnology to day- to-day life and upliftment of society.
6.	Gaining skills to manage personnel, space, inventory and the technical equipments.
7.	Compliance with safety and health regulations.
8.	The objective is to prepare long term biotech professionals and researchers for advance research methodologies.

Program Outcome: M.Sc. Biotechnology	
1.	Developing an interdisciplinary approach and a rational thinking.
2.	Improvising the technical skills and implying them.
3.	Learning about a vast array of new products that are designed to enrich lives, make day-to-day living easier, and make us healthier.
4.	Designing of research projects that are cost effective, ecofriendly, potent and beneficial to mankind.
5.	Use of scientific reasoning to make evaluative decisions.
6.	Handling of sophisticated instrumentations and interpretation and analysis of data.
7.	The objective is to prepare long term biotech professionals and researchers for advance research methodologies.

Program Specific Outcome: B.Sc. Biotechnology	
1.	Acquiring through knowledge through theory and practicals.
2.	Developing a deep-rooted foundation at cellular, molecular, genetic and metabolic level.
3.	Making the agricultural practices easier through Plant tissue culture and Recombinant DNA technology.
4.	Knowledge of Biomolecules, their formation and interaction.
5.	Studying about Micro organisms, strain improvement for industrial applications.

6.	Inculcating good laboratory practices and safety.
7.	Learning various techniques and handling of laboratory instruments.

Program Specific Outcome: M.Sc. Biotechnology	
1.	To introduce to concepts in detail related to the Biotechnology and allied subjects.
2.	To know the current research and implying knowledge of Genetic engineering, Plant Biotechnology and Agriculture Biotechnology and present new biotechnologies.
3.	Using various Bioinformatic tools for data collection, storing and accessing.
4.	Understanding the Environment related issues and following bioethics and clean gene technology.
5.	Use of common programs and algorithms to analyze data.
6.	Learning about scientific writing and ethics in sciences.
7.	Improvising the communication and presentation skills.

Course Outcomes of B.Sc. Biotechnology: Semester I

Class	Course Title	Outcome
F.Y. B. Sc Biotech	BBt 101: Fundamentals of Chemistry-I	CO 1: To study the structure of atom and molecular orbitals. CO 2: To get knowledge of theories associated with molecular structures and concept of hybridization. CO.3: To study chemical bonding and basics of organic chemistry-nomenclature, conformations, reactions and structure. CO.4: To understand the energy transductions in the chemical and biological systems and Role of ATP. CO.5: To understand the basics of stereochemistry with respect to representation of molecules, conformational isomerism.
F.Y. B. Sc Biotech	BBt 102: Fundamentals of Physics	CO.1: To study the physical quantities and its units and Dimensions, Conversions of units, CO.2: To study the properties of fluids and various methods to study the properties. CO.3: To learn the concept of surface tension, different factors that can affect it and its importance in life science. CO.4: To understand the Waves and Oscillations and study its Applications in life sciences. CO.5: To study the Optical Properties, Reflection and Refraction due to lens and Mirror.
F.Y. B. Sc Biotech	BBt 103: Biochemistry I	CO1: To understand the Origin of life, abiotic production of biomolecules, cellular and chemical foundation of life. CO2: Understand the concept of pH, pka, buffers, types of solutions, osmosis, and properties of water Study configuration and stereochemistry of bio molecules Study of types of bonds and strong and weak interactions CO3 : Learn carbohydrate biochemistry which includes classification as Monosaccharides, Disaccharides and polysaccharides . Biologically important functions CO4: Study lipids classification, physical and chemical properties of lipids and important biological roles

F.Y. B. Sc Biotech	BBt 104: Biophysics	CO.1: To Understand the Historical background of Atomic structure, Different model on the basis of atoms, and understand the Quantum numbers. CO.2: To study the properties of Radioactivity and nuclear radiations, and study the applications of radiations in Biology. CO.3: To understand the Cell membrane and electrical properties related to cell membrane. CO.4: To study the Various Biological Processes Corresponding to Cell biology.
F.Y. B. Sc Biotech	BBt 105: Animal Sciences I	CO 1: Understanding classification of Animalia family. CO 2: To learn the characteristics of the classes included in phylum Chordata. CO.3: To study different types of animal tissues, their physiology, morphology and anatomy. CO.4: To understand various parasites and their life cycle. CO.5: To study various techniques of animal science beneficial economic point of view
F.Y. B. Sc Biotech	BBt 106: Plant Sciences I	CO.1: Understand general and unique features of plant. CO.2: Get information about different plant groups and their characteristics. CO.3: Study about plant classification. CO.4: Understand internal and external structure of plant organs. CO.5: Understand and get the knowledge about primary structure of root, stem and leaf. CO.6: Get detailed knowledge about secondary growth, growth rings formation, cambium and its activities.
F.Y. B. Sc Biotech	BBt 107: Microbiology I	CO.1: To understand the history and invention in microbiology as well as the biotechnology CO.2: Study the scope of microbiology in biotechnology CO.3: To get aware with the five major classes of microorganisms CO.4: To understand the cytology of the bacterial cell and how it differs from the eukaryotic cell. CO.5: To understand the morphology of bacterial cell with the help of various staining techniques. CO.6: To study the functioning of microscope.
F.Y. B. Sc Biotech	BBt 108: Biomathematics and Biostatistics	**Mathematics:** CO.1: To study the prerequisites of mathematics CO.2: To study complex numbers, sequences and series, partial differentiation, differential equations, matrices and systems of linear equations, vector spaces **Statistics:** CO.1: To get knowledge of statistics with scope in biosciences, statistics as statistical data and data representation CO.2: To understand population, sampling methods CO 3: To study descriptive statistics, probability, standard probability distribution, testing hypothesis and correlation
F.Y. B. Sc Biotech	BBt 109: Practical in Chemistry and	CO.1: Understand the concept of Molarity, Normality, methods of expressing concentration of solute, biochemical calculations Learn to prepare stock solutions and buffers CO2: Working of Colorimetry and preparation of standard graph

	Biochemistry	CO3: Isolation starch from plant source CO4: Qualitative estimation sugars and lipids CO5: To calculate Saponification number of given lipid CO6: Quantitative estimation cholesterol
F.Y. B. Sc Biotech	BBt 110: Practical in Plant and Animal Science	**Practical in Plant Science-I** CO.1: Study of Algae, fungi, bryophytes, pteridophytes, gymnosperms CO.2: Study on morphological parameters of angiosperms CO.3: Study on anatomy of root, stem & leaf of dicot plant CO.4: Study on anatomy of root, stem & leaf of monocot plant **Practical in Animal Science-I** CO.1: Study of Paramecium CO.2: Learn culturing of Paramecium CO.3: Study of Hydra and Drosophila CO.4: Learn culturing of Drosophila
F.Y. B. Sc Biotech	BBt 111: Practical in Microbiology and Statistics-I	**Microbiology** CO.1: Study the principles of microbiology laboratory and common microbiology laboratory instruments e.g. Incubator, Hot Air Oven, Autoclave, Colorimeter, pH Meter, Distillation Unit, Chemical Balance, Laminar air flow hood, Clinical Centrifuge. CO.2: Understand handling of microorganisms and biosafety measures CO.3: Develop a microbial sample observation view by various staining techniques like, monochrome staining, negative staining, Grams staining, spore staining. Also, to study the bacterial motility by hanging drop technique. **Biostatistics** CO.1: Study MS Excel and use of spreadsheets for data organization and basic mathematics calculations. CO.2: Understand the data representation using various graphical types. CO.3: Study hypothesis testing using 'Data analysis tools': t-test, Chi square test. CO.4: Understand analysis of variance. CO.5: Introduce with the concept of correlation and regression analysis of data and graphical representation
F.Y. B. Sc Biotech	BBt 112: Practical in Physics and Biophysics	CO.1: To Measure the Physical quantities by using Vanier calliper, micrometer screw gauge, Spectroscope, measure the surface tension and Viscosity and Understand the diffraction of light by plane diffraction grating. CO.2: To study the Biological process by Osmosis, Diffusion pressure deficit and dialysis, To Understand the nuclear radiations by using G. M. Counter.

Semester II

Class	Course Title	Outcome
F.Y. B. Sc. Biotech	BBt 201: Fundamentals of Chemistry-II	CO 1: To study the gaseous state, chemical kinetics, colligative properties and phase rule CO.2: To get knowledge ionic equilibrium, electrolytic conductance and ionization constants of weak acids and bases

		CO.3: To understand the principles of electrochemistry, basics of stereochemistry with respect to representation of molecules, conformational isomerism. CO.4: To understand the mole concept
F.Y. B. Sc. Biotech	BBt 202: Biochemistry II	CO1: Study the hierarchy of protein structure, properties of amino acids, concept of zwitterion, and biological significance of proteins CO2: Learn basics of enzymology, mechanism of enzyme action, enzyme classification, and inhibition CO3: Study the structure and role of important vitamins and coenzymes CO4: Study nucleic acid structures, their building blocks and nucleic acid stabilizing forces, Properties of nuclei acids
F.Y. B. Sc. Biotech	BBt 203: Bioinstrumentation	CO.1: To understand the basic concepts of bioinstrumentation. CO.2: Study of instrument spectrophotometer which is used for quantifying concentration of solution, principle on which it works and its types. CO.3: To understand and study Biophysical technique Chromatography and its type for the separation of different biomolecules CO.4: Study of an instrument (Centrifuge) used to separate mixture of molecules, its principle and types. CO.5: Study different types of microscopes and different specimen preparation for different microscopes. CO.6: To know about the thermoregulation and homeostasis.
F.Y. B. Sc. Biotech	BBt 204: Animal Sciences-II	CO.1: To understand the physiological processes like digestion and respiration and organal systems associated with it. CO.2: To study the mechanism of nerve impulse propagation and its role in muscle contraction. CO.3: To study the host-parasite relationship. CO.4: to learn about life history and pathogenesis of examples of parasites from protozoa and helminthes CO.5: To learn the economical importance of zoology in fields like vermiculture, aquaculture, sericulture and apiculture
F.Y. B. Sc. Biotech	BBt 205: Plant Sciences II	CO.1: Introduce the student to the concept of plant water relationship, permeability, diffusion, imbibition, osmosis, osmotic pressure, turgor pressure etc. CO.2: Understand the concept of plant metabolism, photosynthesis, respiration, nitrogen metabolism. CO.3: Get knowledge about growth and development of plant, introduce to photoperiodism and vernalization. CO.4: Study economic importance of plants.
F.Y. B. Sc. Biotech	BBt 206: Microbiology II	CO.1: Study the screening and isolation of microorganism by various cultivation techniques, as well as by various microbial growth characteristics. CO.2: Understand the concept and principles behind the sterilization and to study the various techniques used for the control of microorganism. CO.3: Get the idea about the microbial relation with the other organisms by studying positive as well as negative interaction of

		microbes with plant animal and other microbe.
F.Y. B. Sc. Biotech	BBt 207: Biomathematics and Biostatistics-II	CO.1: To understand the concept of linear equations and differential equations CO.2: To learn differentiation and its application in biology CO.3: To know about the types of distribution and their use in biology CO.4: To understand the meaning of hypothesis, hypothesis testing, types of error and significance level CO.5: To solve the problems of hypothesis testing using t-test, chi square test, ANOVA test
F.Y. B. Sc. Biotech	BBt 208: Computer in Biology	CO.1: To know about the historical background in the development of computers. CO.2: To learn the basic concepts related to input devices, output devices and storage devices. CO.3: To analyze biological data and handling of computer. CO.4: To study scanning for viruses, word processing CO.5: To study use of internet searching and surfing on Medline, PubMed CO.6: Need, types and applications of databases CO.7: To learn about data modelling- Network and Hierarchical, Usage of Multimedia database
F.Y. B. Sc. Biotech	BBt 209: Practical in Chemistry and Biochemistry-II	**Chemistry** CO.1: To determine viscosity of a given liquid by Ostwald's viscometer CO.2: To understand the titration concept and determine content of acetic acid in vinegar using NaOH and to determine normality/molarity using acid base volumetric titration CO.3: To learn stereochemistry, different conformations of biomolecules using models CO.4: To study Separation Techniques like Recrystallization, distillation, sublimation, and TLC **Biochemistry II** CO.1: Estimation of concentration of protein by Biuret Method and Lowry's method CO.2: To estimate concentration of cholesterol in given sample CO.3: To determine Melting temperature Tm of nucleic acid CO.4: To separate amino acids and sugars by thin layer chromatography (TLC) CO.5: To determine Enzyme activity of Amylase
F.Y. B. Sc. Biotech	BBt 210: Practical in Plant and Animal Science-II	**Practical in Plant Science-II** CO.1: Study the process of Osmosis and Turgor pressure and determination of Diffusion Pressure Deficit CO.2: Estimation of chlorophyll content CO.3: Learn effect of plant growth regulators on germination of seed CO.4: Studies on economically important plants by preparing herbarium specimens **Practical in Animal Science-II** CO.1: Study and Dissection of Honey Bee CO.2: Study of *Plasmodium sps*.

		CO.3: Study of *Fasciola sp* CO.4: Enumeration of red blood cells CO.5: Understand Collection, Classification and preservation of Insects
F.Y. B. Sc. Biotech	BBt 211: Practical in Microbiology II and Bioinstrumentation	CO.1: Understand the concept of sterilizing various nutrient media and glassware for the cultivation of microorganism and to avoid the contamination. CO.2: Study the bacteria present in air, on the table surface, finger tips on nutrient media. CO.3: Understand the various techniques, like streak plate, pour plate and spread plate, for the isolation of bacteria. CO.4: Understand the structure and working of microscopes CO.5: Learn the calibration of pH meter using prepared buffer solutions CO.6: To learn the separation of molecules using chromatographic techniques CO.7: Principle, Working and components of spectrophotometer and colorimeter CO.8: Determination of isoelectric point of amino acids
F.Y. B. Sc. Biotech	BBt 212: Practical in Computer and Biostatistics	**Computer** CO.1: Learn the application of Microsoft word in document making CO.2: Understand the use of wizards, templates, graphics, tables and charts CO.3: To understand the basics of spreadsheet and applications of Microsoft Excel CO.4: Organization of files using Microsoft Access **Biostatistics** CO.1: Study MS Excel and use of spreadsheets for data organization and basic mathematics calculations. CO.2: Understand the data representation using various graphical types. CO.3: Study hypothesis testing using 'Data analysis tools': t-test, Chi square test. CO.4: Understand analysis of variance. CO.5: Introduce with the concept of correlation and regression analysis of data and graphical representation

Course Outcomes of B.Sc. Biotechnology:

Class	Outcome
S.Y. B.Sc Biotechnology	• The Second year course integrates the living system and indulges towards the study at Cellular, Molecular, Genetic and Metabolic levels. • Integrating and the correlation between the subjects is developed. • The Developmental studies related to this living system are included.
T.Y.B.Sc. Biotechnology	• Advancement of course from molecular and cell biology to Recombinant Biotechnology, Plant and Animal sciences to Plant and Animal Tissue Culture, from environmental biology to biodiversity, from microbiology to bioprocess engineering, is done.

	• Handling of Sophisticated instrumentation, Good Laboratory Practices and safety are a part. • Theory supplemented with extensive practical skill help the student acquire a better knowledge related to subjects and prepare them for their Post graduations.

Course Outcomes of M.Sc. Biotechnology: Semester I

	Course Title	Outcome
M. Sc. I Biotech	MBT 101: Advanced Biological Chemistry	CO 1: Able to discuss the primary, secondary and tertiary protein structure and their function. CO 2: To understand aspects of protein modification and folding pathways. CO 3: To gain knowledge of the disorders associated with protein misfolding and aggregate formation. CO.4: Engineering of protein of interest and their applications in fields like medicine and diagnosis CO.5: To understand the basic concepts related to enzyme structure and enzyme activity CO.6: Gain the knowledge of enzyme kinetics with respect to single substrate and bisubstrate reactions CO.7: Understand the enzyme engineering and applications of enzyme in clinical and industrial field CO.8: Gain the knowledge of different metabolic processes taking place in a cell and energy transductions taking place simultaneously CO.9: To learn about the metabolome and metabolic flux analysis CO.10: Learn about the pathways for secondary metabolites synthesis in plants (Mevalonate, Shikimate and Isoprene Unit Pathways) CO.11: Understand the potential in the field of metabolomics for strain improvement. CO.12: To discuss about different classes of secondary metabolites in plants. CO.13: Study the structure and different applications of phytochemicals like alkaloids, phenolics and terpenoids. CO.14: Learn the chemical tests for detection and quantitative determination of phytochemicals.
M. Sc. I Biotech	MBT 102: Cell and Molecular Biology	CO.1: Study Cell structure and cytoplasmic membrane system. Cell structure and function with inter relationship of cell organelles and energy transformation, transport across plasma membrane and intra-cellular transport. Cell membrane – Plasma membrane types (animal, plant and bacterial) CO.2: Understand the cell signaling: communication between cells and environment, function of second messengers. Signaling at cell surface, signaling molecules, hormones and receptors signaling pathways that control gene activity CO.3: Understanding the mechanism of cell differentiation, cell death, cell transformation Cell Cycle and its regulation, Cell differentiation in plants and animals including terminal cell

		differentiation Role of hormones and growth factors Programmed cell death Cell transformation and etiology of cancer. CO.4: Understand the genome structure and organization in prokaryotes and eukaryotes, histones and their effect on structure and function of chromatin,concept of gene families, clusters, pseudogenes, genome complexity and renaturation kinetics of genome. Understand Transposable elements in bacteria, IS elements composite transposons, replicative and non-replicative transposons and transposable elements in eukaryotes CO.5: Understand the process of DNA replication in prokaryotes and eukaryotes and models for replication. Study about Recombination Homologous and site-specific recombination, models for homologous recombination- Holliday junction, NHEJ, Proteins involved in recombination. To study DNA damage and Repair -types of DNA damage and DNA repair mechanisms- nucleotide excision repair, base excision repair, mismatch repair, recombination repair, double strand break repair. CO.6: Study about gene expression in prokaryotes and eukaryotes. Regulation of transcription including transcription factors. Post-transcriptional processing and transport of mRNA. Understanding the concept of Gene Silencing, transcriptional and post transcriptional gene silencing, RNAi pathway (si RNA and mi RNA). To study Co- and post-translational modifications of proteins: Control of translation in eukaryotes (Antisense RNA, Heme and interferon).
M. Sc. I Biotech	MBT 103: Genetics and Immunology	**Genetics:** CO.1: To be able to recollect the concepts of Mendelian genetics, CO.2: Understand the genetics of Drosophila and Arabidopsis as a model organism. CO.3: To understand genetic mosaics, genetic epistasis in context of developmental mechanism. CO.4: To acquire knowledge about population genetics and genetics of evolution, CO.5: Study the Hardy Weinberg equilibrium, In-breeding depression & mating systems; population bottlenecks, spatial variation & genetic fitness. CO.6: To be able to understand genetics behind human disorder, Clinical genetics, diagnostic tools and techniques for human genetic disorder Genetic approaches to complex genetic diseases- hypertension, diabetes and Alzheimer's CO.7: To be able discuss the process of genetic mapping CO.8: To be able to calculate the distances between two genes on the basis of Genetic recombination and linkage CO9: Understand Genetic mapping and physical mapping CO.10: to understand necessity of Molecular markers & marker based genetic linkage maps CO.11: know about Linkage Disequilibrium, Genome-wide

		association study and haplotype mapping, Applications of genetic maps **Immunology**: CO.1: Understand the basic concepts of immune system as well as the types of the immune system and the cells and organs playing important roles for the immune system activation. CO.2.: Study the concepts behind the MHC. CO.3: Study the immune responses generated by the B and T lymphocytes CO.4: Study the concepts behind the B and T cell responses by various agents like cytokines, ADCC. CO.5: Understand the concept of antigen and antibody interactions by studying the principles of various immunological techniques like RIA, ELISA, Western blotting, Elispot assay, CMI techniques. CO.6: Learn and study the background behind the vaccinology with the help of various vaccine development processes like attenuated vaccines, plant-based vaccines, monoclonal antibodies, gene library, adjuvants and conjugate vaccines.
M. Sc. I Biotech	MBT 104: Laboratory Course I	CO.1: To purify enzyme by the different methods of protein purification studied. CO.2: To study the enzyme kinetics of enzymes and correlate it with their applications. CO.3: To study any plant with respect to its secondary metabolites, their extraction and applications. CO.4: Isolation of chromatin, histones and nuclei CO.5: Isolation of RNA CO.6: Study various plant various tissue explants (xylem vessels, tracheids, stomata, root hair) CO.8: Study of programmed cell death in chick embryo CO 9: Separation of leucocytes by dextran method. CO10 Isolation of nuclei and chromatin Mononucleosome size determination by agarose gel electrophoresis 2 11 Extraction and Analysis of Histones 2 12 Isolation of RNA and analysis by agarose gel 1 13 Demonstration of PCR/RT-PCR using suitable genes 2 14 Restriction digestion of DNA using suitable RE and resolution on agarose gel. 1 15 Isolation of mitochondria and lysosomes and assay of SDH and acid phosphatase activity respectively 1 16 Programmed cell death during limb development In Chick 1 17 Staining of animal cells (Histone by Fast green; DNA by Fuelgen; RNA by Methyl green Pyronin).
M. Sc. I Biotech	MBT 105: Environmental Biotechnology	CO.1: Understand the concept of energy and environment. CO.2: Introduction to environmental components, future scenarios of global environment. CO.3: Get knowledge about waste management and solid waste management. CO.4: Get knowledge about bioremediation, removing pollutants from environment. CP.5: Understand concept of remote sensing and GIS, environmental impact assessment.

		CO.6: Study environmental laws and policies **Practical** CO.1: Perform bio stimulation and phytoremediation CO.2: Determination of dissolved oxygen, BOD, COD of sewage sample CO.3: Learn acquisition of google earth images CO.4: Review on EIA case study

Semester II

Class	Course Title	Outcome
M. Sc. I Biotech	MBT 201: Genetic Engineering	CO.1: Understanding various tools in genetic engineering like enzymes, vectors used for preparing a recombinant. CO.2: To study various strategies useful to produce high quality and quantity of biomolecules used in industrial prospective. CO.3: Study of different techniques and methods useful in genetic engineering for preparing a recombinant. CO.4: To study application of various tools and techniques studied in genetic engineering for detection or diagnosis of disease, criminology, preparing vaccines, transgenic models.
M. Sc. I Biotech	MBT 202: Bacteriology and Virology	CO 1: To be able discuss the procaryotic cell structure and its applications in designing drugs. CO 2: To isolate and culture any bacteria of interest and identify. CO 3: Compare and understand the role of bacteria in public health and biotechnology applications. CO 4: Understand the properties of viruses and their morphology. CO 5: Discuss the different classification system of viruses. CO 6: Understand the mechanisms of viral genome replication. CO 7: Know the methods involved in studying of viruses their cultivation and pathology. CO 8: Discuss the different antiviral agents with their mode of action. CO 9: Discuss the types of infective viruses. CO10: To understand the field of epidemiology and its applications. CO11: To understand the concept of immunopathogenesis. CO12: Awareness about the new emerging diseases and how to tackle with them. CO13: Able to know different animal and poultry viruses which is of importance in animal husbandry. CO14: Study plant viruses with the knowledge of their pathogenesis
M. Sc. I Biotech	MBT 203: Plant Biotechnology	CO.1: To study algal and fungal biotechnology CO.2: to get knowledge of micro propagation, in vitro androgenesis, somatic hybridization CO.3: To study transgenic plant production through various biotechnological techniques
M. Sc. I Biotech	MBT 204: Laboratory Course II	CO.1: To study techniques for engineering or modification of genetic material by isolating the genetic material, cutting (restricting), joining (ligating), and transforming the genetic

		material. CO.2: To study different techniques for amplification, hybridization and analysis of the engineered genetic material CO.3: To obtain the microbiological skills of handling equipments and microorganisms for identification and applications. CO.4: To be able to isolate any bacterial species and identifying upto genus level. CO.5: To study animal and bacterial viruses by basic techniques Co.6: To perform the determination of antigen titer by hemagglutination test
M. Sc. I Biotech	MBT 206: Medical Biotechnology	CO 1: Introduction to molecular basis of Disease To study Chromosomal Disorders with examples, Classifications of Genetic diseases Single Gene disorders: Sickle cell anaemia and Thalassemia, polygenic diseases like Type I diabetes, Alzhimer Disease, Infectious disorders CO 2: To study various diagnosis methods like diagnosis using protein and enzyme markers: Enzyme probes (Glucose oxidase, Monoamine oxidase), Diagnosis of hormonal disorders & infectious diseases using Monoclonal antibodies, DNA/RNA based Diagnosis using nucleic acid probes and Microarray Technology for disease diagnosis. To understand Genetic counselling. CO3: To understand the gene therapies methods in detail: ex vivo & in vivo gene therapy, Strategies of Gene therapy like Gene augmentation, antisense therapy, ribozymes. To study the Vectors used in gene therapy and Gene therapy trials: ADA deficiency, Cystic fibrosis, HIV. To study Enzyme therapy for Gauchers disease, and Hormone replacement therapy for Diabetes. To understand Subunit Vaccines and Attenuated Vaccines CO4: To learn Stem Cell Therapy and Nanotechnology. Stem cells in therapy -embryonic & adult stem cells, Characteristics & properties of stem cells. Potential use of stem cells. To study Cell & Tissue engineering, Bio-artificial organs (liver, Blood cells, skin). To study the application of Nanotechnology in diagnosis

Course Outcomes of M.Sc. Biotechnology

Class	Outcome

M.Sc II	• The master's in biotechnology degree allows students to enhance their knowledge through a specialized curriculum. • The course includes core as well as implies subjects that make the students ready for tomorrow. • They acquire knowledge of various implied subjects like Proteomics, Genomics, IPR, Bioinformatics, Stem cells and Medicine etc. • Projects make students imply core concepts/theory studied, analyse current research critically and using of scientific reasoning for evaluative thinking. • The projects undertaken are aimed to be cost effective, ecofreiendly, potent and coping with recent research. • The objective of course is to prepare long term biotech professionals and researchers for advance research methodologies.

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Zoology

Program Outcome : B.Sc. (Zoology)	
8.	Demonstrate, solve and an understanding of major concepts in all disciplines of Zoology.
9.	Solve the problem and also think methodically, independently and draw a logical conclusion.
10.	Understand the evolution, history of phylum.
11.	Create an awareness of the impact of Zoology on the environment, society, and development outside the scientific community
12.	To study and understand the classification of whole phyla includes in Non-chordates with the help of charts/models/pictures.
13.	To inculcate the scientific temperament in the students and outside the scientific community.
14.	Use modern techniques, decent equipment's

Program Outcome : M.Sc. (Zoology)	
13.	PO1. Zoology knowledge: Apply the knowledge of Zoology, Life Sciences and allied subjects to the understanding of complex life processes and phenomena.
14.	PO2. Problem analysis: Identify, review research literature, and analyse complex situations of living forms.
15.	PO3. Design/development of solutions: Design processes/strategies that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
16.	PO4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions in real situations.
17.	PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and ICT tools for understanding of the subject.
18.	PO6. The Postgraduate and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
19.	PO7. Environment and sustainability: Understand the impact of the natural and anthropogenic activities in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. Identify a range of invertebrates and vertebrates and justify their conservation.
20.	PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the work/research practice.
21.	PO9. Individual and team work: Function effectively as an individual, and as a

	member or leader in diverse teams, and in multidisciplinary settings.
22.	PO10. Communication: Communicate effectively on complex life activities with the scientific community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
23.	PO11. Project management and finance: Demonstrate knowledge and understanding of Zoology and management principles and apply these to one's own work, as a member and leader in a team.
24.	PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific outcome : B.Sc./ (Zoology)	
10.	Gain the knowledge of Zoology through theory and practical's.
11.	Study and understand the DNA Recombinant technology.
12.	Understand the testing of hypothesis.
13.	Use modern Zoological tools, Models, Charts and Equipment's.
14.	Know structure-activity relationship.
15.	Understand good laboratory practices and safety.
16.	Make aware and handle the sophisticated instruments/equipment.
17.	Gain the knowledge of Zoology through theory and practical's.
18.	Study and understand the DNA Recombinant technology.

Program Specific outcome : M.Sc. (Zoology)	
6.	Students acquired knowledge through practical work in fields as well as in laboratory.
7.	Project helps for creating research attitude among the post graduate students.
8.	Develop research oriented skills.
9.	Develop the application of statistical techniques in research
10.	Understanding of new techniques to understand the subject

Course Outcomes of FYBSc (Zoology) : Semester I

Class	Course title	Outcome
FY (Paper-I)	Animal Diversity I	• The student will be able to understand classify and identify the diversity of animals. • The student understands the importance of classification of animals and classifies them effectively using the six levels of classification. • The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.
FY (Paper-II)	Animal Ecology	• The learners will be able to Identify and critically evaluate their own beliefs, values and actions in relation to professional and societal standards of ethics and its impact on ecosystem and biosphere due to the dynamics in population. • To understand anticipate, analyse and evaluate natural resource issues and act on a lifestyle that conserves nature. • The Learner understands and appreciates the diversity of

		ecosystems and applies beyond the syllabi to understand the local lifestyle and problems of the community. • The learner will be able to link the intricacies of food chains, food webs and link it with human life for its betterment and for non-exploitation of the biotic and abiotic components. • The working in nature to save environment will help development of leadership skills to promote betterment of environment.

Semester II

Class	Course title	Outcome
FY (Paper-I)	Animal Diversity II	• The student will be able to understand classify and identify the diversity of animals. • The student understands the importance of classification of animals and classifies them effectively using the six levels of classification. • The student knows his role in nature as a protector, preserver and promoter of life which he has achieved by learning, observing and understanding life.
FY (Paper-II)	Cell Biology	• The learner will understand the importance of cell as a structural and functional unit of life. • The learner understands and compares between the prokaryotic and eukaryotic system and extrapolates the life to the aspect of development. • The dynamism of bio membranes indicates the dynamism of life. Its working mechanism and precision are responsible for our performance in life. • The cellular mechanisms and its functioning depend on endo-membranes and structures. They are best studied with microscopy.

Course Outcomes of SYBSc (Zoology) : Semester I

Class	Course name	Outcomes
SYBSc-(Paper-I)	Animal systematics and Diversity III	• Understanding of phylum Arthropoda, Mollusca and Echinodermata with respect to habits and habitats • Understanding of morphology and anatomy of starfish • Understanding of larval forms of above mentioned phyla • Economic importance of Arthropods and molluscs
SYBSc (Paper-II)	Applied zoology I	• Understanding of application of fishery science • Understanding of science of pest control • Understanding of different pests and their infestation

Semester II

Class	Course name	Outcomes
SYBSc (Paper-I)	Animal systematics and Diversity	• Understanding of Phylum Chordata and its classes • Understanding of general characteristics of reptiles aves and mammals.

	IV	• Understanding of Scoliodon systems • Understanding of adaptations according to their habitat
SYBSc (Paper-II)	Applied zoology II	• Understanding of apiculture and sericulture • Understanding of tools and techniques used in apiculture and sericulture • Understanding of enemies of honey bees and silk moths

Course Outcomes of TYBSc (Zoology) : Semester III

Class	Course name	Outcomes
TYBSc (Paper-I)	Animal Systematic and Diversity- V	• Understand the evolution, history of phylum. • Understand about the Non Chordate animals. • To study the external as well as internal characters of non chordates. • To study the distinguishing characters of non chordates. • Understand the economical importance of Molluscs • Understand the various internal systems like Digestive system,nervous system with the help of charts. • Understand the functions of Gemmules and spicules. • Understand the economical importance of Molluscan shells.
TYBSc (Paper-II)	Mammalian Histology	• Understand the terms Histology and Physiology • Understand the cell, tissue, organ, system and organisms. • Study the derivatives of skin- horns, nails, hairs. • Study and understand the terms- acidosis, alkalosis, asphexia, hypoxia, anoxia and cyanosis
TYBSc (Paper-III)	Biological Chemistry	• Understand about the agencies responsible for Production of various products using biochemistry. • Understand the term pH, Buffer. • Understand the structure and function of carbohydrate, amino acids, proteins, and lipids. • Understand the concept Enzymes and also Vitamins and minerals. • Understand the Principle role of Vitamins in metabolism and the deficiency diseases.
TYBSc (Paper-IV)	Enviromental Biology & Toxicology	• Know the biotic and abiotic components of ecosystem. • Food chain & food web in ecosystem. • Understand diversity among various groups of animal kingdom. • Understand Animal community & ecological adaptation in animals. • Scope , importance and management of biodiversity
TYBSc (Paper-V)	Parasitology	• To study and understand the scope and branches of Medical Zoology. • To aware the students for various parasites and diseases which spreads • in human with the help of study of host-parasite relationship. • To increase awareness for the health in students. • Understand the various disease causing vectors like

		Mosquitoes. • To aware about the typhoid, cholera likes disease.
TYBSc (Paper-VI)	Cell Biology	• Understand the Scope of cell biology, because cell is the basic unit of life. • Understand the Main distinguishing characters between plant cell and animal cell. • To study and understand the whole cell organelles with their structure and function. • Understand the cell cycle and know the importance of various cells in body of organisms. • Understand the various applications of cells by using cell biology like study of various types of tumor. • Understand the Animal cells and various cell organelles by using microphotographs.

Semester IV

Class	Course name	Outcomes
TYBSc (Paper-I)	Biological Techniques	• Understand the various Applications of Biotechnology. • Study and Understand the Hybridoma technology as well as Enzyme biotechnology. • Study and understand the DNA Recombinant technology. • Understand the industrial and environmental biotechnology. • Study and understand the Stem cell biotechnology. • Understand the Scope and Significance of Biotechnology.
TYBSc (Paper-II)	Mammalian Physiology and Endocrinology	• Understand the Importance of physiology and branches of it. • Understand the terms-Osmosis, diffusion, pH and Buffer. • Understand the Digestion and Excretion process, by studying the organs of it • Understand the process of Metabolism. • Understand the term Detoxification. • Understand the Circulatory system and Lymphatic system. • Study the nervous system.
TYBSc (Paper-III)	Genetics and Molecular Biology	• Understand the Molecular biology and molecular biology. • Understand the cell divisions and types of mutation. • Understand the structure and function of the cells. • Understand the term cell signaling. • Aware the students for Cancer. • Understand the Tools and Techniques in Molecular Biology. • Understand the term ELISA technique and DNA finger printing.
TYBSc (Paper-IV)	Organic Evolution	• To understand Origin of life with respect to prokyariotic and eukaryotic cells. • Understand the evidences of organic evolution by anatomical embryological list, paleontological, physiological, genetics and molecular biology evidences. • Understand theories of organic evolution, isolation,

		speciation. • Understand geological time scale, methods and classification of animal distribution and factors affecting animal distribution.
TYBSc (Paper-V)	General Embryology	• Understand the terms: Gametogenesis, Fertilization and early development. • Understand the Morphogenesis and Organogenesis in animals. • Understand the Aging, Apoptosis and Senescence.
TYBSc (Paper-VI)	Medical Entomology	• Understand the fundamentals of agricultural, forest, medical and veterinary entomology. • Understand, Morphology and Anatomy of Insects. • Understand intra specific and inter specific relationships among insects. • To understand significance of beneficial and harmful insects with reference to their habit and habitat, life cycle, diseases caused by them and their control measures.

Course Outcomes of MSc I (Zoology): Semester I

Class	Course title	Outcome
MSc I	ZOUT 111 Biochemistry and Biochemical Techniques.	• CO1: Define basic terms in biochemistry and biochemical techniques. • CO2: Explain the applications of the various biochemical techniques. • CO3: Explain the structure and functions of various biomolecules. • CO4: Explain the importance of tools and techniques in biology. • CO5: Illustrate the importance of pH, buffer and water in living systems. • CO6: Illustrate the principle, working and applications of basic techniques used in biology. • CO7:Draw the structures of various carbohydrates and amino acids. • CO8: Classify enzymes with examples. **Biochemical techniques:** • CO1: Explain the importance and applications of techniques in biochemistry. • CO2: Explain theprinciple and applications of various chromatographic techniques with examples. • CO3: Explain the principle, working, materials used and applications of electrophoresis. • CO4: Describe the concept of light, electromagnetic spectrum and its application in absorption spectroscopy. • CO5: Illustrate the importance of radioactive compounds and radioactivity in biology. • CO6: Demonstrate the principle and working of Warburg's apparatus.

		• CO7: Demonstrate the principle, working, applications of centrifugation. • CO8: Justify the applications of radioactivity compounds in biology. • CO9: Compare the various separation techniques.
MSc I	ZOUT 112 Cell Biology and Developmental Biology	• CO1: Label the various cell parts • CO2: Sketch and label various types of cells and cell organelles. • CO3: Explain carbon as backbone of biomolecules. • CO4: Explain the ultrastructure and functions of various cell organelles. • CO5: Explain the concepts of cell signalling. • CO6: Illustrate the chemistry and organization of cytoskeleton. • CO7: Illustrate the types, development and causes of tumor. • CO8: Diagrammatically represent the cell cycle phases and its regulation. **Developmental Biology:** • CO1: Define the terms in developmental biology • CO2: Explain the significance of model organism for developmental studies. • CO3: Explain the types of eggs, concept of fertilization and cleavage pattern. • CO4: Explain the concept of mesoderm induction and pattern formation with examples. • CO5: Describe neural competence and induction. • CO6: Explain the concept of growth and differentiation. • CO7: Illustrate postembryonic development. • CO8: Compare and contrast spermatogenesis and oogenesis.
MSc I	ZOUT 113 Genetics and English in Scientific Communication.	• CO1: Define the basic terminologies in genetics. • CO2: Identify genetic disorders based on Karyotypes and traits. • CO3: Explain the concept of Mendelian genetics, gene, gene regulation and multiple alleles. • CO4: Discuss Linkage and crossing with their types and significance. • CO5: Explain the principles of Population genetics. • CO6: Illustrate the modified Mendelian laws of inheritance. • CO7: Justify the inheritance of qualitative and quantitative traits. • CO8: Solve the problems based on gene frequency. **English in Scientific Communication:** • CO1: Write the outline of a scientific paper. • CO2: Write the title, abstract, discussion and citations of a given scientific article.

		• CO3: Prepare a scientific presentation using PowerPoint. • CO4: Explain language as a tool for effective scientific communication. • CO5: Use the formal elements of specific types of scientific writing. • CO6: Critically analyze data from research; incorporate it into assigned writing clearly, concisely, and logically; and attribute the source with proper citation. • CO7: Practice the unique qualities of professional rhetoric and writing style, such as sentence • conciseness, clarity, accuracy, honesty, avoiding wordiness or ambiguity, using direct order organization, readability, coherence and transitional devices. • CO8: Justify the importance of plagiarism check and Proof-read given article.
MSc I	ZODT 114 Biostatistics	• CO1: Explain the application of sampling in biological sciences. • CO2: Explain standard Probability distributions. • CO3: Explain the concept and types of central tendency. • CO4: Explain the concept of correlation and regression with their properties. • CO5: Classify the given data. • CO6: Graphically represent the given data. • CO7: Illustrate the measures of dispersion with examples. • CO8: Solve statistical problems.
MSc I	ZODP 114 Practical Biostatistics	• CO1: Construct frequency distribution chart. • CO2: Graphically represent the given data. • CO3: Solve the statistical problems based on Central Tendency, Dispersion, Correlation andregression. • CO4: Apply computer software for statistical analysis. • CO5: Solve numerical problems on test of hypothesis using biological data.
MSc I	ZODT 114 Freshwater Zoology	• CO1: Enlist the diagnostic features of shrimps. • CO2: Explain the types of aquatic habitats. • CO3: Discuss the aquatic adaptations of common freshwater forms. • CO4: Explain the adaptations in freshwater Turtles and Crocodiles. • CO5: Illustrate the physicochemical properties of water. • CO6: Demonstrate the effect of pollutants on freshwater bodies • CO7: Justify the presence of zooplanktons and aquatics forms in freshwater bodies.
MSc I	ZODP 114 Practical Freshwater Zoology	• CO1: Identify commercially important freshwater fish. • CO2: Identify the aquatic adaptations in common freshwater forms. • CO3: Prepare the culture of Paramecium and Daphnia. • CO4: Estimate the hardness and chloride content in water

		samples. • CO5: Analyze the Zooplanktons from local freshwater bodies. • CO6: Evaluate the bio-indicators of pollution in freshwater.
MSc I	ZOUP 115 Basic Zoology Lab-1	• CO1: Identify the developmental stages of chick embryo, cell structures and phases of cell division • CO2: Identify the grammatical mistakes from the given paragraph and common errors in written and spoken presentations. • CO3: Write a scientific project and research article along with its proof reading. • CO4: Demonstrate the working of different microscopes, colorimetric and spectrophotometric methods, cell fractionation and ligature in Drosophila larvae, • CO5: Determine the gene distance and order, genotype and phenotype ratios and allelic frequencies from the given data. • CO6: Estimate sugar and protein by suitable biochemical method, and isolate protein from biological source. • CO7: Prepare acid and base solutions of desired strength, buffers, bacterial Culture, chick embryo culture and Drosophila culture. • CO8: Prepare temporary slide of various cells to demonstrate the cell morphology and cell division, giant chromosome and pedigree analysis chart. • CO9: Calculate % retention and % elution of amino acids on given ion exchanger.

Semester II

Class	Course title	Outcome
MSc I	ZOUT 121: Molecular Biology and Bioinformatics	• CO1: Explain the DNA structure & types, topology, Physical properties; chromatin structure and organization. • CO2: Discuss genome organization, DNA and Protein sequencing with their application in evolutionary studies. • CO3: Explain the mobile DNA elements. • CO4: Explain mechanism of DNA damage and repair. • CO5: Illustrate the process of DNA replication, transcription, translation and their regulations. • CO6: Illustrate the database tools with their significance. • CO7: Schematically represent the processes of central dogma. • CO8: Justify the post translational and post transcriptional modifications.
MSc I	ZOUT 122 Endocrinology and Parasitology.	• CO1: Discuss the roles of Pituitary gland and pineal body. • CO2: Explain hormonal regulation of biomolecules and mineral metabolism. • CO3: Describe the role of osmoregulatory and

		gastrointestinal hormones. • CO4: Explain the role of hormones in moulting, change in body colour of crustaceans; yolk synthesis in amphibians; insect development. • CO5: Explain the hormonal regulation of metabolism. • CO6: Illustrate the mechanism of hormone action and role of hormone receptors. • CO7: Justify hormones as coordination molecules. • CO8: Justify the significance of biological clocks and rhythms. **Parasitology:** • CO1: Define the terminologies of parasitology. • CO2: Explain the concepts of animal association with examples. • CO3: Describe the role of parasites in public health and hygiene. • CO4: Explain the morphology and life cycle of common parasites. • CO5: Explain the pathogenicity and control measures of common parasites. • CO6: Illustrate the process of parasitic infections to human. • CO7: Justify the importance of control strategies against parasitic infections. • CO8: Justify the significance of vectors and disease transmission.
MSc I	ZOUT 123 Comparative Animal Physiology & Environmental Biology.	• CO1: Explain the physiology of processes like digestion, respiration, muscle contraction and excretion. • CO2: Describe the mechanism of thermoregulation in both poikilotherms and homeotherms. • CO3: Explain the mechanism of chemical communication in vertebrates. • CO4: Comment on the structure and functions of various sense organs. • CO5: Illustrate the concept of osmotic regulation in various animals with suitable examples. • CO6: Compare the physiology of regulatory mechanisms in various groups of animals. • CO7: Justify the survival strategies of organism in varied climatic conditions. • CO8: Justify the evolution of various life processes in living forms. **Environmental Biology:** • CO1: List the endangered, endemic and extinct animal species of India. • CO2: Identify various types of natural resources, human impact on these resources, and common resource management practices.

		• CO3: Explain the structure and impact of biogeochemical cycles, ecosystems and energy transformation across trophic levels. • CO4: Describe concepts in population ecology and their significance. • CO5: Discuss environmental hazards and risks and the socio-economic implications. • CO6: Illustrate the impact of climate and anthropogenic factors on biodiversity with reference to India. • CO7: Illustrate the wildlife management practices and their significance.
MSc I	ZODT 124: Metabolic Pathways	• CO1: Define basic terminologies of metabolic pathways. • CO2: Explain the laws of thermodynamics, concept of free energy and ATP as currency molecule. • CO3: Describe the Concepts and regulation of metabolism. • CO4: Discuss the oxidation of fatty acids and its significance. • CO5: Illustrate the electron transport chain and oxidative phosphorylation. • CO6: Illustrate the reactions, energetics and regulation of glycolysis, glycogen biosynthesis, TCA cycle, Purine and Pyrimidine metabolism • CO7: Write the general reactions of various metabolic pathways. • CO8: Justify the role of enzymes in metabolism
MSc I	ZODP 124: Practical in Metabolic Pathways.	• CO1: Identify the common diseases/conditions caused due to errors in metabolism. • CO2: Explain the principle of Colorimetry and Spectrophotometry. • CO3: Use the basic equipment in biochemistry lab. • CO4: Illustrate the enzyme activity from suitable material. • CO5: Demonstrate the effect of various physical and chemical factors on enzyme activity. • CO6: Demonstrate the absorption studies of biomolecules. • CO7: Estimate the concentration of cholesterol, uric acid, amino acids and starch. • CO8: Separate biomolecules by chromatographic methods.
MSc I	ZODT 124: Ichthyology	• CO1: Identify the common fishes in India. • CO2: Explain the general characters and evolution of fishes. • CO3: Explain the fish morphology and anatomical modifications. • CO4: Illustrate the physiology of reproductive and endocrine organs in fish. • CO5: Discuss the signs, symptoms and control measures of common diseases in fish.

		• CO6: Justify the role of respiratory and excretory organs in survival of fishes. • CO7: Classify fishes upto order level. • CO8: Setup aquarium and manage it.
MSc I	ZOUP 125 Basic Zoology Lab-2	• CO1: Identify the various parasites and parasitic stages of common parasites, nitrogenous • Waste products of animals, freshwater planktons and slides of endocrine glands. • CO2: Explain the principle and significance of gonadectomy, thyroidectomy and pancreactomy. • CO3: Demonstrate the role of eye stalk and insulin in sugar level in crab. • CO4: Demonstrate the retro cerebral complex in cockroach. • CO5: Demonstrate the RBCs of common vertebrates and effect of various osmolarities. • CO6: Demonstrate the effect of body size, oxygen consumption and Insulin on aquatic animal. • CO7: Determine the bleeding and clotting time, heartbeat of crab, species richness in selected area, physico-chemical properties of soil and water. • CO8:Perform Sterilization of lab equipment, prepare microbial culture, Isolate Bacterial, liver DNA and RNA from given sample, quantify and resolve them using electrophoretic procedures, analyse protein sample by PAGE and SDS PAGE and • construct phylogenetic tree using tools in bioinformatics

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Microbiology

Program outcome : B.Sc. (Microbiology)	
1.	A candidate who is conferred an UG (Hons) degree i.e. B.Sc. (Hons) degree in microbiology needs to have acquired/developed following competencies during the programme of the study:
2.	PO -1 Acquired knowledge and understanding of the microbiology concepts as applicable to diverse areas such as medical, industrial, environment, genetics, agriculture, food and others.
3.	PO -2 Demonstrate key practical skills/competencies in working with microbes for study and use in the laboratory as well as outside, including the use of good microbiological practices.
4.	PO -3 Competent enough to use microbiology knowledge and skills to analyze problems involving microbes, articulate these with peers/ team members/ other stake holders, and undertake remedial measures/ studies etc.
5.	PO -4 Developed a broader perspective of the discipline of Microbiology to enable him to identify challenging societal problems and plan his professional career to develop innovative solutions for such problems.

Program outcome : M.Sc. (Microbiology)	
1.	The objective of the Master's Programme in Microbiology is to equip the students with updated knowledge of prokaryotic and eukaryotic cellular processes, microbial taxonomy, biostatistics, molecular biophysics, molecular biology and biochemistry.
2.	PO -1 To enrich students' knowledge and train them in the pure microbial sciences
3.	PO -2 To introduce the concepts of application and research in Microbiology
4.	PO -3 To inculcate sense of scientific responsibilities and social and environment awareness
5.	PO -4 To help students build-up a progressive and successful career
6.	PO -5 To introduce the concepts of mathematics in biology

Program Specific outcome B.Sc. (Microbiology)	
1.	PSO1- For the subject of Microbiology the outcomes are defined in terms of the understanding and knowledge of the students in microbiology and the practical skills the students are required to have to be competitive microbiologist so that they are able to play their role as microbiologist wherever required in the society such as the diseases caused by the microbes, their diagnosis and remedies; the role of microbiologists in the biotechnology industry and how they may be able to fit the bill in the industry.
2.	PSO2 - The students are also trained in such a way that they develop critical

	thinking and problem solving as related to the microbiology.
3.	PSO3 - The curriculum envisions that the student, once graduate as specialists in a discipline, have an important role to play in the newer developments and innovations in the future in the subject for advancement of the discipline.
4.	PSO4- The students graduating in this degree must have through understanding of basic knowledge or understanding of the fundamentals of Microbiology as applicable to wide ranging contexts.
5.	PSO4- They should have the appropriate skills of Microbiology so as to perform their duties as microbiologists.
6.	PSO5- The students graduating in microbiology should also develop excellent communication skills both in the written as well as spoken language which are must for them to pursue higher studies from some of the best and internationally acclaimed universities and research institutions spread across the globe.

Program Specific outcome : M.Sc. (Microbiology)	
1.	PSO1- students should be well acquainted with research methodology which includes different skill developments in scientific writing, data handling and processing, development of research ideas and planning / designing of research projects. The skill sets thus evolved will help the students in academic and applied research
2.	PSO2- They must be able to analyze the problems related to microbiology and come up with most suitable solutions.
3.	PSO3-As microbiology is an interdisciplinary subject the students might have to take inputs from other areas of expertise. So the students must develop the spirit of team work.
4.	PSO4- Microbiology is a very dynamic subject and practitioners might have to face several newer problems. To this end, the microbiologists must be trained to be innovative to solve such newer problems.
5.	PSO5- The students are trained to pick up leads and see the possibility of converting these into products through entrepreneurship. To this end, the students are made to interact with industry experts so that they may able to see the possibility of their transition into entrepreneurs.
6.	PSO6- They are also made aware of the requirements of developing a Microbiology enterprise by having knowledge of patents, copyrights and various regulatory process to make their efforts a success
7.	PSO7 - Besides attaining the attributes related to the profession of Microbiology, the post graduates in this discipline should also develop ethical awareness which is mandatory for practicing a scientific discipline including ethics of working in a laboratory work and ethics followed for scientific publishing of their research work in future.
8.	PSO8- The students graduating in microbiology should also develop excellent communication skills both in the written as well as spoken language which are must for them to pursue higher studies from some of the best and internationally acclaimed universities and research institutions spread across the globe.

Course Outcomes of B.Sc. (Microbiology): Semester I

Class	Course title	Outcome
FYBSc	MB 111 -	CO-1 Development of microbiology as a discipline

(Paper-I)	Introduction to Microbial World	CO-2 Golden Era of Microbiology
		CO-3. Modern Era of Microbiology
		CO-4. Nobel laureates in Life Sciences of 21st Century
		CO-5. Types of Microorganism and their differentiating characters
		CO-6. Beneficial and Harmful effects of microorganisms
FYBSc-(Paper-II)	MB 112 - Basic Techniques in Microbiology	CO-1 Introduction to Modern SI units
		CO-2 Principles and Working of different types of Microscopes
		CO-3 Staining Techniques
		CO-4 Sterilization and Disinfection
		CO-5 Checking of efficacy of chemical disinfectant
FYBSc-(Paper-III)	MB 113 - Practical Course based on theory paper I and II	CO -1 Safety measures and Good Laboratory Practices in microbiology laboratory
		CO-2 Introduction, operation, precautions and use of common microbiology laboratory instruments (Standard operating procedures SOPs Principles of operation)
		CO-3 Checking of efficacy of chemical disinfectant working and care of bright field microscope.
		CO-4 Observation of Microorganisms
		CO-5 Introduction and use of common laboratory glass wares
		CO-6 Basic staining techniques
		CO-7 Observation of motility in bacteria
		CO-8 Checking of efficacy of chemical disinfectant

Semester II

Class	Course title	Outcome
FYBSc (Paper-I)	MB121 - Bacterial Cell and Biochemistry	CO-1 Bacterial Cytology : Structure, chemical composition and functions of the components in bacterial cell
		CO-2 Chemical Basis of Microbiology
		CO-3 Chemistry of Biomolecules : Structure, organization and functions Carbohydrates: Definition, classification
		CO-4 Classification of Bacteria and Viruses
FYBSc-(Paper-II)	MB122 - Microbial cultivation and growth	CO-1 Cultivation of Microorganisms : nutritional classification, Design and preparation of media, Isolation and Enumeration and maintenance of bacteria, Role of Culture collection centres and National Biodiversity Authority for culture collection centres
		CO-2 Bacterial growth : Kinetics, Growth curve and Generation time, Methods of enumeration of bacterial growth
F.Y.B.Sc.-(Paper-III)	MB123- Practical Course based on theory paper I and II	CO-1 Preparation of simple laboratory nutrient media
		CO-1 Checking sterilization efficiency of autoclave
		CO-1 Preparation of Winogradsky's column
		CO-1 Special staining techniques
		CO-1 Isolation and Enumeration of bacteria
		CO-1 Study of normal flora of skin
		CO-1 effect of different parameters on growth of E. coli
		CO-1 Preservation of cultures

Semester I

Class	Course Title	Outcomes
SYBSc-(Paper-I)	MB – 211: Bacterial Systematics & Physiology	• Bacterial Systematics : Chemotaxonomy, Numerical taxonomy, Genetic basis of taxonomy • Bacterial Physiology: Radioisotopes, Metabolic pathways, High Energy Compounds, Electron transport chain, phosphorylation • Biocatalysts: Enzymes, Nomenclature & classification and structure of active site, enzyme catalyzed reactions,effect of different parameters on enzyme activity,activators and inhibitors.
SYBSc (Paper-II)	MB – 212: Industrial And Soil Microbiology	• Introduction To Industrial Microbiology: • Characteristics of industrially important microorganisms, Screening and inoculums development, Design of a fermenter, Monitoring of different fermentation parameters, Types of fermentations,Media for industrial fermentations. • Soil Microbiology:Types Of Soil and Soil Microorganisms, Microbial Interactions, Rhizosphere Microflora ,Composting And Humus Formation, Biofertilizers , Biocontrol Agents • Elemental Cycles In Nature, Degradation Of Cellulose, Hemicelluloses, Lignin And Pectin

Semester II

Class	Course title	Outcome
SYBSc (Paper-I)	Mb – 221: Bacterial Genetics	• Understanding Molecules Of Heredity: • RNA world and shift to DNA world with time, Discovery of transforming material ,nucleic acid as genetic material, Prokaryotic genome organization • Concept of Gene, different forms of DNA. • DNA Replication And Expression • Mutations And Reversions • Plasmid Genetics
SYBSc (Paper-II)	MB – 222: Air And Water Microbiology	• Air Microbiology • Water Microbiology • Sewage and Waste Water Microbiology

SYBSc (Paper-III)	MB – 223: Practical Course Based On MB 211, 212, 22 1, 222	• Calculation of air flora by air sampling • Micrometry • Calculation of growth rate, specific growth rate and generation time • Bacteriological tests of potability of water • Determination of B.O.D., total solids and total suspended solids of Waste waters • Biochemical characterization and identification of bacteria • CO-6 Diversity determination of Air Flora: • CO-7 Induction of mutations and isolation of mutants by any suitable method

Semester I

Class	Course title	Outcome
TYBSc (Paper-I)	Mb – 331: Medical Microbiology - I	• Introduction to infectious diseases related to :Respiratory system, Gastrointestinal system, Kidney and Liver, Genital system, Central nervous system • Epidemiology: Mortality and morbidity rates, Disease distribution, Case control and cohort studies, Clinical trials, Epidemiology of infectious diseases. • Study of bacterial pathogens: Enteric pathogens, Pyogenic organisms, Spirochetes Clostridium, Bacillus anthracis, Mycobacterium, Rickettsia, Pneumococci and Neiserria
TYBSc (Paper-II)	Mb – 332: Genetics And Molecular Biology	• Gene Linkage and crossing over: Mendelian laws • Recombination in eukaryotes, Gene linkage and cross over, Chromosome mapping Tetrad analysis and parasexual cycle. • DNA Replication: Single replicon, Priming reaction, DNA polymerases, Termination, Mismatched repair • Prokaryotic and Eukaryotic Transcription • Prokaryotic and Eukaryotic Translation • Guidelines for gene manipulation: recombinant DNA technology and its guidelines for recombinant DNA technology laboratory set up • CO-6 Techniques used in recombinant DNA technology

TYBSc (Paper-III)	MB – 333: ENZYMOLOGY	• Enzymes: Structure of enzymes, Role of cofactors in metabolism. • Enzyme assays: Principles of enzyme assays, Enzymes assays by Spectro photometric methods, Spectro flurometric methods, Radioisotope assay • Principles and Methods of Enzyme purification: cell fractionation, Principles and methods of enzyme purification, Criteria for purity and Characterization of enzymes. • Enzyme Kinetics : Concept and use of initial velocity, Michaelis Menton equation, plots for plotting Kinetic data, Enzyme Inhibitions • Metabolic Regulations : Allosteric enzymes, regulatory enzymes, Isozymes, Multienzyme complex • CO-6 Immobilization of enzymes and whole cells: methods of immobilization and applications
TYBSc (Paper-IV)	MB – 334: Immunology – I	• Classification of Immunity • Formation of blood cells • Organs of immune system • Innate immunity • Antigens • CO-6 Immunoglobulins • CO- 7 Adaptive / Acquired Immunity: Humoral and cell mediated immune response • CO-8 Transplantation and Immunity
TYBSc (Paper-V)	MB – 335: Fermentation Technology – I	• Strain Improvement • Media optimization: • Sterilization of Media: • Scale-up and Scale-down: • Principles and methods of downstream processing: • CO-6 Quality assurance (QA) of fermentation product • CO-7 Fermentation economics • CO-8 Introduction to Intellectual Property Rights (IPR)
TYBSc (Paper-VI)	MB – 336: Food And Dairy Microbiology	• CO -1 Dairy Microbiology: Dairy Development in India, Milk Chemistry and Constituents, Microbiology of milk, Preservation of Milk by Pasteurization & its storage, Microbial analysis of milk • Food Microbiology: Classification of Foods based on stability, Food spoilage and preservation, Microbial food poisoning and food infection, Fermented foods, Applications of genetically modified microorganisms and Food Sanitation and regulation

Semester II

Class	Course title	Outcome
TYBSc (Paper-I)	Mb – 341: Medical Microbiology - II	• Chemotherapy, Parameters Of Good Chemotherapeutic Agent ,Routes Of Drug Administration • Mode Of Action Of Antimicrobiol Agents On • Bacteria,Fungi,Viruses,Protozoa,Resistance To Antibiotics. • Introduction To Cultivation Of Viruses: Study Of Following Groups Of Viral Pathogens HIV, Polio Virus, Hemorrhagic Viruses (Dengue, Ebola),Hepatitis A And Hepatitis B Viruses,Influenza Virus (Human, Swine And Bird)FMD Virus And Rinderpest Virus,Japanese Encephalitis Virus,Rota Virus,Rhabdoviruses (Rabies), Herpes Virus (Simplex, Zoster),Oncogenic Viruses (DNA, RNA) • Study Of Following Groups Of Parasites: Plasmodium,Entamoeba, Giardia • Study Of Following Groups Of Candida And Non-Candida Fungal Pathogens
TYBSc (Paper-II)	Mb – 342 : Genetics And Molecular Biology	• Gene transfer, Recombination and Mapping Techniques: • DNA damage and repair • Recombination and Mutants in Bacteriophages • Tools of Recombinant DNA technology • Generation of recombinant DNA molecule
TYBSc (Paper-III)	MB – 343: METABOLISM	• Membrane transport mechanisms • Bioenergetics • Biosynthesis and Degradation • Bacterial Photosynthesis
TYBSc (Paper-IV)	MB – 344: Immunology – II	• Major Histocompatibility Complex • CO -2 Cytokines • Antigen- Antibody Interactions • CO 4 Immunohematology • CO- 5 Public health immunology Types of vaccines and antisera • CO-6 Hypersensitivity • CO-7 Monoclonal Antibodies : Preparation and Production
TYBSc (Paper-V)	MB – 345: Fermentation Technology – II	• Introduction to Solid State Fermentation and Submerged Fermentation • Large scale production of: Vitamins, Amino acids, Organic acids, Ethanol and alcoholic Beverages, Antibiotics, Enzymes, Microbial transformation of steroids, Biomass based products, Milk products, Vaccines and Immune sera

TYBSc (Paper-VI)	MB – 346**:** Agricultural And Environmental Microbiology	• Agriculture Technology: Plant growth improvement, disease control, Biochemistry and production of bio-fertilizers, Bioremediation, Bioaugmentation, Biosorption, Bioleaching • Nanobiotechnology: Synthesis of Nanoparticles using microorganisms and its' applications • Microbial Biosensors and Biochips in Environmental Monitoring • Biofuel cells and Biodegradable plastic: • Bioterrorism
TYBSc (Paper-VII)	MB – 347**:** Practical Course I Applied Microbiology	• Screening and isolation of pesticide degrading microorganisms • Isolation and identification of lactic • Laboratory scale fermentation, estimation, product recovery and yield • calculation of ethanol • Antibiotic and growth factor assay (agar gel diffusion technique) • Sterility testing of non-biocidal injectables • CO-6 MIC and MBC of Antibacterial compounds • CO-7 Tests for Milk and Dairy products • CO-8 Enrichment, Isolation, Preparation and Application of Bioinoculants • CO-9 Isolation and identification of Xanthomonas, Aspergillus • 0 Antifungal activity of Lactic acid bacteria. • 1 Microscopic examination of Fungi causing Rust and Smut infections in Plants • 2 Dye removal from wastes by dead microbial Biomass
TYBSc (Paper-VIII)	MB – 348: Practical Course – II Biochemistry And Molecular Biology	• Determination of absorption spectra and molar extinction co-efficient • Estimations of: blood sugar, blood urea, serum cholesterol, serum proteins and albumin • Qualitative analytical tests for proteins and carbohydrates • Preparation of buffers • Paper chromatography • CO-6 Estimation of total carbohydrates, reducing sugar and proteins • CO-7 Screening of amylase producing organisms, Production, Precipitation and determination of specific activity of crude and purified amylase • CO-8 Isolation and enumeration of bacteriophages • CO-9 Genomic (bacterial) DNA isolation and detection • 0 Isolation of plasmid DNA and gel electrophoresis • 1 Transformation of E. coli and selection of recombinants

TYBSc (Paper-IX)	MB – 349: Practical Course –III Diagnostic Microbiology And Immunology	• Clinical microbiology: Physical, Chemical and Microscopic examination of Clinical samples, Isolation, identification of pathogens from clinical samples • Epidemiological survey • Hemogram • Immunohematology • Agglutination tests • CO-6 Immunoprecipitation • CO-7Serum protein separation by electrophoresis • CO-8 ELISA (Antigen/ Antibody detection) • CO-9 Egg inoculation

Course Outcomes of M.Sc-I (Microbiology): Semester I

Class	Course title	Outcome
M.Sc-I	MB501-Microbial Systematics	CO-1 Bacterial Systematics, Phenetic Phylogenetic & Polyphasic Approach
		CO-2 Microbial Diversity, Species divergence and measurement of microbial diversity,Measures and indices of diversity
		CO-3 Exploration of Un-culturable microbial diversity, Culture independent molecular methods for identifying unculturable bacteria.
		CO-4. Evolution, evolutionary theory(Lamarckism, Darwinism), Neo Darwinism, r and k selection
	MB502-Quantitative Biology	CO-1 Descriptive Statistics, Measures of central tendency – Mean Mode, median, Data presentation,
		CO-2 Inferential Statistics, Uncertainty: Variation, Probability and inference, The concepts of null hypothesis, Test statistics, Parametric statistical test: Z-test, t-test and F-test
		CO-3 Inferential Statistics-2, Chi square test, ANOVA One way and two way, Nonparametric Tests
		CO-4 Probability and Probability Distribution, Laws of probability (addition and multiplication);Probability distribution – Normal ,Binomial and Poisson distributions.
	MB503-Biochemistry and Metabolism	CO-1, Protein Chemistry, classification of amino acids, Structural classification of proteins, Ramchandran plot
		CO-2, Biochemistry and Molecular Biology Techniques, Chromatography, Electrophoresis, Polymerase chain reaction, Sequencing methods
		CO-3 Developmental Biology, Conserved nature of development, Hox code, MPF, Morphogenesis and organogenesis in plants
		CO-4 Cell biology, Endoplasmic Reticulum, Golgi apparatus, Nucleus, Mitochondrion, chloroplast, Cytoskeleton.
Choice Based Optional Papers	MBTE13-Microbial communication, Membrane	CO-1Communication and Coordination among microorganisms, Life cycle of Dictyosteliumdiscoideum, Quorum sensing
		CO-2 Membrane transport and signal transduction, Solute

Elective/ Departmental Course	transport and signal transduction	transport across membranes, Signal transduction pathways in bacteria, chemotaxis
	MBPE13- Practicals Based on Microbial communication, Membrane transport and signal transduction	CO-1, Communication And Coordination among microorganisms, estimation of biofilm, Bioassay for determination of quorum sensing signals,
		CO-2, Membrane transport and signal transduction, , Different methods of cell disruption
Core Compulsory Practical paper	MBCP1 Biochemical Techniques (Practical based on compulsory theory credits)	CO-1-Safety rules in Laboratory
		CO-2-Preparation of buffers
		CO-3-Computer applications
		CO-4-Study principles of osmosis and diffusion using artificial membranes
		CO-5-Isolation and identification of Alkaliphiles and Thermophiles
		CO-6-Extraction of Protein and Exo-polysaccharide
		CO-7-Chromatography
		CO-8-Electrophoresis

Course Outcomes of M.Sc-I (Microbiology): Semester II

Class	**Course title**	**Outcome**
M.Sc-I		Students should become conversant with the topics mentioned below :
Core Compulsory Theory Papers	MB601, Instrumentation and Molecular Biophysics	CO-1- Separation and analysis of biomolecules, Chromatography, Electrophoresis
		CO-2- Spectroscopy, UV/Visible, Fluorescence, Infrared, Mass spectroscopy
		CO-3- Biophysical Techniques, NMR spectroscopy, X-ray crystallography,
		CO-4- Radioisotopes in Biology and Confocal Microscopy, Radiation and Radioactive isotopes, confocal principle, resolution and point spread function,
	MB602, Molecular Biology	CO-1- RNA processing &Molecular Techniques , RNA Processing: Eukaryotic, Chromatin Immuno-precipitation (ChIP),Designing probe, Epitope tagging
		CO-2- Tools for Genetic engineering, Restriction endonucleases and methylases, Vectors for cloning and gene expression, Construction of cDNA and genomic libraries
		CO-3- Genome projects, Gene annotation ,Human Genome project and its applications,
		CO-4- Moleculardiagnostics and applications, Detection of miRNA signatures of Cancer, Protein arrays to detect polygenic diseases

	MB603, Enzymology, Bioenergetics and Metabolism	CO-1- Enzymology, Kinetics of reversible inhibitions, Concept of allosterism, positive and negative co-operativity
		CO-2- Bioenergetics, Laws of thermodynamics, entropy, enthalpy, free energy, High energy compounds, Atkinson's energy charge
		CO-3- Lipid Chemistry and Metabolism, Structure and function of: triglycerides, phospholipids, sphingolipids, terpenes, prostaglandins, waxes, and steroids. Degradation of fatty acids, Lipids as signal molecules
		CO-4- Carbohydrate Chemistry and Metabolism , Isomerism in sugars, Sugar derivatives, Regulation of Glycogen synthesis, TCA cycle- regulation
Choice Based Optional Papers Elective/Depa rtm ental Course	MBTE23, Nitrogen Metabolism, respiration and Photosynthesis	CO-1- Nitrogen Metabolism, Biosynthesis of five families of amino acids and histidine,Biosynthesis of purine and pyrimidine bases
		CO-2- Respiration, . Anaerobic Respiration, oxidized sulfur compounds, and nitrate as electron acceptor, Biochemistry of methanogenes
		CO-3- Photosynthesis, Organization of photosystem I and II, cyclic and non-cyclic flow of electrons, Z scheme, Hill reaction, photolysis of water,C3, C4 CAM plants, Photorespiration, Regulation of photosynthesis
	MBPE23, Practicals based on Nitrogen Metabolism, respiration and Photosynthesis	CO-1- Isolation, production and Detection of Indole acetic acid, Siderophore,
		CO-2-, Enrichment ,Isolation and characterisation of nitrogen fixing activity of bacteria, lignin/xylan degraders from Soil
		CO-3- Extraction and estimation of a) polyphenols, b) tannins,
		CO-4- Enrichment, Isolation and characterisation of Sulphur reducing bacteria/Methanogens, Cyanobacteria
Core Compulsory Practical paper	MBCP2, Molecular biology, enzymology and instrumentation Techniques(Prac tical based on compulsory theory credits)	CO-1- Concept of lac-operon: Lactose induction of Beta galactosidase; Glucose Repression; Diauxic growth curve of E. coli.
		CO-2- Plasmid DNA isolation, DNA quantitation, Curing of bacterial Plasmid
		CO-3- Construction of restriction digestion map of plasmid DNA
		CO-4- Purification of enzymes (Amylase/Invertase), Determination of Km, Vmax and Kcat values of enzyme
		CO-5- Determination of molecular extinction coefficient of biomolecule
		CO-6- Extraction and Detection of Aflatoxin in food
		CO-7- Scientific Communication and Research Methodology , scientific writing skills, Significance of communicating science, ethical issues, copyrights and plagiarism

Course Outcomes of M.Sc II (Microbiology): Semester III

Class	Course title	Outcome
M.Sc-II	MB – 701: Immunology	• Students should become conversant with the topics mentioned below : • Cell surface molecules and receptors, Structure and function of G-protein coupled • receptors, Toll-like receptors, Tyrosine kinase linked receptors • Regulation of Immune response, Negative regulation - Immunological tolerance, Regulation of immune responses by: antigen, antigen-antibody complexes, Immunomodulation: BRMs for therapy • Experimental Immunology, Animal Cell Culture techniques, In vitro systems –Quantification of cytokines (ELISPOT assay), In vivo systems- Inbred animal strains, Knock- out mice, transgenic animals • Infection and Immunity, Host immune response to pathogens, , pathophysiology and Immunotherapeutic approaches, Bacterial, Viral, Parasitic infections • Immunological disorders, Pathophysiology, diagnosis, prognosis and therapeutic approaches, Immunodeficiency disorders, Autoimmune disorders
M.Sc-II	MB – 702: Molecular Biology – I	• Tools in molecular biology, Activity gel assay, ChIP,, Designing probe, Detection of DNA binding, DMS foot printing, Protein foot printing, Knockout mice, RFLP, finding the replicon, DNA finger printing • Fine Control of Prokaryotic and Eukaryotic transcription, Lactose operon, The Arabinose operon, The trp operon, Sigma factor Switching • RNA processing, mRNA processing: splicing, capping, polyadenylation, rRNA processing: tRNA processing, Non coding RNAs • Mobile DNA elements, Transposable elements in bacteria, IS elements, Replicative, nonreplicative transposons, and Mu transposition, Tn A, Tn 5 and Tn 10 transposition, SINES, LINES and Alu elements • Techniques in Molecular biology and diagnostic applications, , nested PCR, Hot start PCR, RT –PCR and Real time PCR (Q –PCR), DNA microarray

	MB- 703: Industrial wastewater treatment	• Principles of Wastewater Treatment, The need for Wastewater Treatment, Methods for estimating parameters used for determining treatment efficacy • Pretreatment & Primary treatment process (Unit Processes), Flow equalization, Screening, Flocculation, Flotation • Secondary and Tertiary Treatment process (Unit Processes) ,Biological Processes (Aerobic), Biological Processes (Anaerobic), Biological processes (Combined • Current industrial wastewater treatment processes, Dairies, Food processing • Dyeing industry / Dye-house effluents, Paper manufacture • Advanced, Combined and Innovative wastewater treatment processes, Submerged Aerobic Fixed Film reactors (SAFF),Membrane bioreactors (MBRs)
M.Sc-II	MB-711: Practical course based on Immunology, Pharmaceutical Microbiology and Environmental Microbiology	• Antigen . Antibody Interactions • Precipitation reactions of antigen-antibody • Cell Culture Techniques • Chick embryo fibroblast cell culture • Detection and isolation of anti-infectives from plant, Extraction of bioactive principles from plant and activity fractionation • Industrial waste water treatment, Estimation of pollution load of a natural sample • On-site experimentation, Visit to institute / Industry for demonstration of ELISPOT / CFT / FACS / animal inoculation and bleeding
M.Sc-II	MB-712: Practical course based on Molecular Biology (I and II) and Microbial Technology	• Molecular Biology – I, Plasmid DNA isolation and Characterization,Transformation • Molecular Biology – II, Molecular Characterization of bacterial isolates, Gene annotation • Bioconversion, Bioconversions using immobilized systems (cells / enzyme) • Laboratory scale production • Laboratory scale production and media optimization for exopolysaccharide / bioemulsifier production • Biosorption, Biosorption of dyes or metals using dead biomass.

Course Outcomes of M.Sc II (Microbiology) : Semester IV

Class	Course title	Outcome
MSc II	MB – 801: Pharmaceutical and Medical Microbiology	• Drug Discovery and Development: • Development of Anti-infectives: Susceptibility Testing: • Determinants of Microbial Pathogenicity:, Toxigenesis, Bacterial resistance to host defenses, Molecular basis of bacterial pathogenicity • Discovery of anti-infectives: Drug targets in bacteria with examples of established drugs, Methods to study mode of action of anti-infectives, Laboratory methods to assess activity of antimicrobial combinations • Quality Assurance and Validation in Pharmaceutical Industry: Good Manufacturing Practices (GMP) and Good • Laboratory Practices (GLP) in pharmaceutical industry. Quality assurance and quality management in pharmaceuticals ISO, WHO and US certification, Safety profile of drugs
MSc II	MB 802: Molecular Biology	• Genomics • Gene technology • Genetically modified plants and animals • Bioremediation and biomass utilization • Genome projects
MSc II	MB 803: Microbial Technology	• Bioreactor design and operation • Process Variables and Monitoring • Microbial Processes and Intellectual property rights: Intellectual Property Rights (IPR): Upstream, Fermentation and Downstream Processing • Microbial Growth characteristics and product formation: Kinetics of growth and product formation • Principles of Validation Process / Method Validation: The concept of ISO Certification.Preparation of SOPs
MSc II	MB 811: Dissertation I & MB 812: Dissertation II	• Collection of qualitative and quantitative data, • Data presentation-Tables and Graphs (Histogram, bar, pie and line) • Application of measures of central tendency and dispersion to the data • Collection of samples from different eco-systems • Isolation and characterisation of microbes. • CO-6- Application of microbes

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Electronic Science

Program outcome : B.Sc. Electronic Science	
1.	PO1: Student acquire adequate knowledge of Analog systems design, digital system design, communication systems, basics of nanotechnology, nanoelectronics.
2.	PO2: Student design and test Analog and design digital system
3.	PO3: Student learns various methods to analyse working of systems
4.	PO4: Students learn the applications of various circuit blocks
5.	PO5: Student learn some consumer products block diagrams, working and specifications,
6.	PO6: Students write the program in C language and uses MATLAB tool to solve different task
7.	PO7: Students acquire more practical knowledge and circuit building skill by completing their project.
8.	PO8:Use modern techniques, equipments, devices and software's to design, develop and test their projects

Program outcome : M.Sc. (Electronic Science)	
1.	PO1: Student acquire adequate knowledge of Mathematical methods to analyse Analog, digital systems.
2.	PO2: Students performed experiments using optical fiber communication systems.
3.	PO3: Student design and test Analog and design digital systems
4.	PO4: Students learn the applications of various circuit blocks
5.	PO5: Student learn some consumer products block diagrams, working and specifications,
6.	PO6: Students write the program in c language and uses MATLAB tool to solve different task
7.	PO7:Use modern techniques, equipments, devices and software's to design, develop and test their projects
8.	PO8: Students acquire more practical knowledge and circuit building skill by completing their final year project.

Program Specific outcome : B.Sc. (Electronic Science)	
1.	PO1: Gain the knowledge of Electronics through theory and practical's.
2.	PO2: Students design, build, test and explain the working of electronic analog and digital circuits.
3.	PO3: Students learn the analysis using different theorems.
4.	PO4: Learn Analog, Digital communication, Communication systems and communication technologies.

5.	PO5: Learn sensors, transducers, instrumentations, optical fiber system..
6.	PO6: Make aware and handle the sophisticated instruments/equipments

Program Specific outcome :M.Sc. (Electronic Science)	
1.	PSO1: Gain in depth understanding various aspects of the Electronics through theory and practical's.
2.	PSO2: Acquired the working principles, design guidelines and experimental skills associated with different semiconductor devices and circuits.
3.	PSO3: Understood the mathematical and analysis techniques, electromagnetic and instrumentation principles.
4.	PSO4: Learn the design methodologies for digital and embedded systems
5.	PSO5: Students aware of theory and practicals of communication electronics, Digital signal processing and control systems.
6.	PSO6: Learned Antenna parameters, Antenna softwares, Microwave and satellite communications, various applications software, circuits and systems.
7.	PSO7: Learned Human right, Robotics skill development courses.
8.	PSO8: Students completed application oriented projects using different microcontrollers and using different softwares (XILINX, C, MATLAB, AVR, PIC) which developed research oriented skills.
9.	PSO9: Students were acquired information of PLD, CPLD, FPGA and their applications.
10.	PSO10: Students handle the sophisticated instruments/equipments

Course Outcomes (Electronic Science): Semester I

Class	Course title	Outcome
FYBSc (Paper-I)	EL- 111 Basics of Applied Electronics	CO1:To identify different parameters/functions/specifications of components used in electronic circuits CO2:To solve problems based on network theorems. CO3:To perform simulations using simulator for analysing network performance.
FYBSc-(Paper-II)	EL-112 Electronic Devices and Circuits	CO1: To study op amp parameters of various ICs. CO2: Learned circuit designing using OP-AMP(741) CO3: to learn internal diagram of IC 555. CO4: To study multivibrator using IC 555. CO5: Students are able to design analog circuits. CO6: Student are able to make short projects on analog electronics circuits
FYBSc-(Paper-III)	EL-113 Electronics Lab IA	CO1: To identify different components and devices as well as their types CO2 : To understand basic parameters associated with each device CO3 : To know operation of different instruments used in the laboratory CO4 : To connect circuit and do required performance analysis CO5. To compare simulated and actual results of given particular experiment CO6: Conducted small practical competitions during practical sessions, has improved skills of students.

Semester II

Class	Course title	Outcome
FYBSc (Paper-I)	EL-121 Fundamentals of Digital Electronics	CO1:To solve problems based on interconversion of number systems CO2:To reduce the expression using Boolean theorems CO3:To reduce expressions using K maps in SOP and POS forms CO4:To understand how to use flip flops to build modulus counter CO5:To get familiarize with applications of counters like ring counter or event counter
FYBSc-(Paper-II)	EL-122 Analog and Digital device Applications	CO1: Familiar with concepts of Analog Devices used in electronics CO2: Learned symbols working principles of analog devices. CO3: Studied characteristics of each analog device. CO4: Students are able to design analog circuit .
FYBSc-(Paper-III)	EL-123 Electronics Lab IB	CO1: Students are able to connect opamp circuits and analyzed the output CO2: Studied application circuits of opamp CO3: Student designed the IC 555 as astable/monostable multivibrator. CO4: Students are able to compare simulated and actual results of given circuit. CO5: Students get familiar with various instruments & components in the LAB. CO6: Conducted small practical competitions during practical sessions, has improved skills of students.

Course Outcomes of F.Y.B.Sc. (Comp. Sci. Electronics): Semester I

Class	Course title	Outcome
FYBSc (Paper-I)	ELC-111: Semiconductor devices & basic electronic system	CO1: Students are able to understand importance of Electronics in day today life CO2: Student could identify different parameters/functions/specifications of components used in electronic circuits CO3: Student aware of basics of Semiconductor Devices-Diode, Transistor, MOSFET etc. CO4: Students are able to build and test the circuits like street light controller using electronic devices CO5: Students get familiar with operating principle of IC 555 and types of DAC/ADC and their performance.
FYBSc-(Paper-II)	ELC- 112: Principles of Digital Electronics	CO1: Student are able to understand different number systems and codes CO2: Students will get familiarized with logic gates and there truth tables CO3: Students are able to understand combinational logical circuits and sequential logical circuits. CO4: Students are able to reduce the expression using Boolean Expressions with different methods CO5: Student gets familiar with different integration

		technology and logic families. CO6: Students will familiarized with types of Boolean expression and its conversion from one form to another
FYBSc-(Paper-III)	EL-113:Practical	CO1: Students are able to identify different components and devices as well as their types. CO2: Understood basic parameters associated with device-diode, transistor. CO3: Studied the operation of different instruments used in the laboratory CO4: Student could connect circuit and did required performance analysis CO5: Students learn amplifier, rectifier experiments. CO6: Acquired knowledge of basic logic gates, derived logic gates, Interconversion. CO7: Learn half adder, full adder, half substrctor etc logic circuits. CO8: Students are ready to assemble analog and digital circuits using bread board.

Course Outcomes of F. Y. B. Sc. (Comp. Sci. Electronic): Semester II

Class	Course title	Outcome
FYBSc (Paper-I)	EL-121: Instrumentation System	CO1: Students are able to understand important instrumentation systems. CO2: Student could identify different specifications of instrumentation system. CO3: Students are able to design instrumentation systems. CO4: Students are introduced with smart instrument systems & smart sensors.
FYBSc-(Paper-II)	ELC-122: Digital System Hardware	CO1: Student acquired the skill to design the UP/DOWN counters. CO2: Students will understand the Concept of Sequential Circuit design with its basic component like Flip Flops CO3: Students will understand the basic computer organization like CPU organization and memory organization CO4:students will familiarized with CPU organization of Computer CO5:students will familiarized with Memory organization of Computer
FYBSc-(Paper-III)	EL-123: Practical	CO1: Students are able to identify different components and devices as well as their types CO2: Understood basic parameters associated with device-diode, transistor. CO3: Studied the operation of different instruments used in the laboratory CO4: Student could connect circuit and did required performance analysis CO5: Students learn amplifier, rectifier experiments. CO6: Acquired knowledge of basic logic gates, derived logic gates, Interconversion.

		CO7: Learn half adder, full adder, half substrctor etc logic circuits.

Course Outcomes of BSc. Electronic Science: Semester I

SYBSc-(Paper-I)	EL211: Analog Circuit Design	CO1:Understand the working of various analog circuits and frequency response of analog circuits CO2: Know about the various types of amplifier like Voltage amplifier, power amplifier and multistage amplifier , and its applications like PA System CO3: Know the concept of feedback, concept of feedback amplifiers and their characteristics and applications CO4: Design the different oscillator circuit. CO5: Applications of Operational Amplifiers like Adder, Subtractor, Integrator, Differentiator, Log amplifiers , Comparator etc
SYBSc (Paper-II)	EL212: Digital Circuit Design	CO1: Develop a Digital logic and apply it to solve real life problems. CO2: Analyse, Design and implement combinational logic circuits like Adder, Subtractor, Parity generator, magnitude comparator. CO3: Analyse, Design and implement sequential logic circuits like Counters, shift registers etc. CO4: Use of k-maps in the design of combinational circuits. CO5: Understand the design and working of various data converters 4CO6: Applications of counters like Auto-parking System, totalizer , Digital clock, bank token display CO7: Interfacing of LED's, single and multi digit 7 segment display/ driver, Switches, Keypad, Thumb, wheel switches with digital systems

Semester II

SYBSc (Paper-I)	EL221: Electronic Instrumentation	CO1: Students can design Volt meter, Current meter, Ohm meter, multi-range meters, multi-meter, AC Voltmeter. CO2:Use of signal generation for testing various communication and instrumentation circuits, fault finding in the circuits CO3: Students design various sensor based instruments like PH meter, energy meter, digital thermometer, Lux meter etc. CO4: Students can manufacture different types of power supplies.
SYBSc (Paper-II)	EL222: Communication Electronics	CO1: Understand different blocks in communication system and how noise affects communication system using different parameters. Block diagram of Telephone system. CO2: Distinguish between different modulation schemes like AM, FM, PM etc. With their advantages, disadvantages and applications. CO3: Understand basics of AM and FM Receivers. CO4: Identify differet Radio receiver circuits and role of AGC

		CO5: Understand the digital communication system and its application like FDM,TDM,MODEM, Set Top Box etc.
SYBSc (Paper-III)	EL 203	CO1: Students use the basic concepts for building different electronic circuits.. CO2. They understand design procedures of different electronic circuit. CO3: Student able to build experimental setup and test the circuits. CO4: They acquired the skills of analyzing test results of experiments.

Course Outcomes of BSc. (Computer Science): Semester I

Class	Course title	Outcome
SYBSc (Paper-I)	ELC 211: Digital System Hardware	CO1. To study the applications of logic gates. CO2. Students are able to design different digital circuit design using K-maps. CO3. Understands basics of microprocessors CO4. Students are able to understand fundamentals of multi-core technology.
SYBSc-(Paper-II)	ELC 212: Analog Systems	CO1. Understood basics of analog electronics CO2. Leaned different types of sensors CO3. Understood different types of signal conditioning circuits CO4. Studied data conversion techniques CO5. Now can apply knowledge of analog systems in different applications

Course Outcomes of BSc. (Computer Science): Semester II

Class	Course title	Outcome
SYBSc (Paper-I)	ELC 221: The 8051 Architecture, Interfacing & Programming	CO1. Studied the basics of 8051 microcontroller CO2. Students are able to study the Programming and interfacing techniques of 8051 CO3. Students are able to apply knowledge of 8051 to design different application circuits CO4. Studied basic concepts of advanced Microcontrollers.
SYBSc-(Paper-II)	ELC 222: Communication Principles	CO1. Understood basics of communication systems. CO2. Understood modulation, demodulation and multiplexing of signals. CO3. Learned digital communication techniques CO4. Familiar with concepts in advanced wireless communication.
SYBSc-(Paper-III)	ELC-203: Practical Course	**CO1:** Students developed basic concepts for building various applications in electronics. CO2: Understood design procedures of different electronic circuits as per requirement. CO3: Students learned to build experimental setup and test the circuits. CO4: Developed skills of analyzing test results of given experiments.

Course Outcomes of BSc. : Semester I

TYBSc (Paper-I)	EL331:Advanced Digital System Design	CO1: Student studied the Verilog HDL Code of different digital system CO2: They could design different combinational and sequential circuits CO3: Student studied the PLDs and its applications.
TYBSc (Paper-II)	EL332: Microcontrollers	CO1.student learnt architecture of 8-bit microcontroller. CO2. Students are able to use instruction set and addressing modes of microcontroller. CO3. student developed assembly language programming skills. CO4. Students are able to interface memory and I/O devices.
TYBSc (Paper-III)	EL333: Analog Circuit Design and Applications of ICs	CO1: Students study the practical design aspects while using Op-amps CO2: Learns the basic application circuits of Op-Amps CO3: Learns the specifications and selection criterion for linear ICs CO4: Students acquired the information about different special purpose ICs and their applications CO5: Students refer and understand data manuals.
TYBSc (Paper-IV)	EL334: Principles of Semiconductors Devices	CO1 : Students can grow the crystal on substrate CO2: They are able to understand the structure with reference to semiconductors. CO3: Understood the theory of metal-semiconductor and p-n junctions CO4: Understood the working of semiconductor devices like BJT , FETs MOSFETs etc.
TYBSc (Paper-V)	EL335: C programming	CO1. Students become familiar with fundamentals of C language, which is powerful tool in industry. CO2. Developed algorithm/flowcharts for problem solving and writing programs. CO3. They learn various tools to use functions, arrays, pointers and file handling in C language. CO4. They studied different types of algorithm. CO5. C-subject is skilled based, industrial oriented.
TYBSc (Paper-VI)	EL336: Fiber Optic Communication	CO1: understand basic laws of optical communication and working of various types of optical components. CO2: Understand FOC link structure, propagation and transmission properties of OF. CO3: Learned about various types of optical sources, detectors and fiber types and their suitability/ choice for any applications. CO4: Estimate the losses and analyze the propogation characteristics of an optical signal in optical fiber. CO5: Design FOC link based on budgets. CO6: Learned about different optical test instruments.

Semester II

TYBSc (Paper-I)	EL341: Advanced	CO1: Student studied the various types of antenna and its parameters

	Communication Systems	CO2: They could identify the AM and FM transmitter and receiver. CO3: Student studied the digital modulation techniques like ASK, FSK, Delta modulation, QPSK,QAM.
TYBSc (Paper-II)	EL342: Microcontroller and its Applications	CO1: Student used 'C' language for programming the microcontrollers CO2: Learnt to use Timers, Interrupts and Serial Communication in Microcontroller. CO3: Student are able to apply the knowledge in real world applications
TYBSc (Paper-III)	EL343: Power Electronics	CO1: Students learns the basics of power electronics and familiar with Power Electronic Devices, circuits and applications CO2: Learns about power devices and protections of devices. CO3: Learns various types of power circuits such as rectifiers using thyristers, Inverters, Converters etc. CO4: Learns the applications of power electronics
TYBSc (Paper-IV)	EL344: Foundations of Nanoelectronics	CO1: Understood the concept of cyclotron and its use CO2: Understood the Hall effect and use of to find the types of semiconductor. CO3: Understood the Use of Maxwell's Equations and laws of Electrodynamics, Equation of continuity, Pointing vector theorem. CO4: students know how to find energy transferred from sun to earth.
TYBSc (Paper-V)	EL345: Mathematical Methods and Circuit Analysis using MATLAB	CO1. MATLAB is powerful scientific engineering tool for various designing. CO2. Students learned features of MATLAB as a programming tool. CO3. MATLAB used to promote new teaching model, which is used to develop programming skills and technique to solve mathematical problems. CO4. Revision of Laplace Transform and Fourier series and its applications. CO5. Students introduced with MATLAB as a simulation tool. CO6. MATLAB is skilled based, industrial oriented
TYBSc (Paper-VI)	EL346: Industrial Automation	CO1: Identify the various parameters that are measurable in electronic instrumentation. CO2: Select appropriate passive/active transducers and ac and dc bridges for relevant physical parameter measurement CO3: Get complete view of strategies for process control and process automation. CO4: Understand the terms like Process Characteristics: Process equation, Process load, Process lag, self regulation CO5: Understand Control system parameters: Error, Variable range, control parameter range, control lag, dead time, cycling.
TYBSc (Paper-	EL347: Practical -I	CO1:Students referred the various datasheets of the electronic devices and integrated circuits

VII)		CO2: They learnt how to select the devices, sensors, actuators and ICs for a particular application CO3: Developed the basic skills required to handle the various instruments CO4. Students acquire designing skill of analog and digital circuits/ systems
TYBSc (Paper-VIII)	EL348: Practical -II	CO1. Student learnt the basic C-Programming & Verilog HDL to design basic combinational and sequential circuits CO2. Student get familiar with structural, data flow and behavioural modelling CO3. Student learnt assembly level language of 8051 microcontroller CO4. They used cross compiler to develop C-programs for microcontroller CO5. Student studied the various interfacing circuits to 8051 microcontroller
TYBSc (Paper-IX)	EL 349: Project course (Practical)	CO1: Students developed projects related to Robotics, sensor based Pollution parameter measurements. CO2: Students designed and developed projects using MATLAB tools. CO3: Students participated in different project competitions.

Course Outcomes of M.Sc (Electronic Science): Semester I

Class	Course title	Outcome
MSc.-I	ELUT111 Mathematical Methods in Electronics using C	CO1: Students got familiar with role of differential equations in applied electronics CO2: Student learnt the mathematical tools and techniques for network analysis CO3:Studied the methods of analysis for CT and DT signals and systems CO4: Learned advanced 'c' programming and concept of 'OOPS'
MSc.-I	ELUT112 Analog Circuit Design	CO1: Acquire a basic knowledge in solid state electronic devices like diode, BJT, MOSFET etc. CO2: Learned the characteristics, working and applications of electronic devices CO3: Understand the wideband and narrowband amplifiers using BJT CO4. Developed the ability and skills in analysis and design of analog circuits CO5: To Study the designs of Opamp applications such as integrator, differentiator ,Active filters etc.
MSc.-I	ELUT113 Digital System Design	CO1:To understand sequential and combinational logic design techniques CO2:To get familiar with VERILOG HDL CO3:To learn various digital circuits using VERILOG CO4:To learn PLD, CPLD, FPGA and their applications

MSc.-I	ELDT114 Elective Theory Course 1	1. To understand the architecture of PIC microcontroller 2. To learn assembly language programming for PIC controller. 3. To study concept of interfacing various peripheral devices with PIC microcontroller. 4: To list the steps needed for writing programme code for interfacing devices with PIC controller. 5. To learn software techniques to embed codes in to the systems
MSc.-I	ELUP115 Practical Course 2 (Compulsory Course)	CO1: Students acquire the skill of designing different analog circuits such as Tuned amplifier, Bootstrap ramp generator CO2: Learned to design Instrumentation amplifier for a given gain. CO3: Designed and tested Multiplexed display used for Bank token / two digit counter CO4: Learned the code conversion from binary to gay and vice-versa. CO5: Students learned to generate Waveform using quadrature oscillator, Bubba oscillator. CO6. understood design and implementation of sequential and combinational logic design techniques CO7. Student able to perform VERILOG HDL coding CO8. They learnt various digital circuits using VERILOG CO9. Studied PLD, CPLD, FPGA and their applications CO10: Learned Phase and frequency response from transfer function of a CT system: Low Pass and High Pass, Phase and frequency response from transfer function of a DT system: Low Pass and High Pass CO11: Learned transient and steady state response of CT system: LCR series circuit with different inputs CO12: Simulation of transfer function using poles and zeros and Synthesis of periodic waveform from Fourier coefficients.
MSc.-I	ELDP114 Practical Course 1 (Elective Subject 1)	CO1: Students learned to generate Waveform using PIC microcontroller. CO2: Student learned to interface LCD, LED array with PIC microcontroller. CO3: Student learned to interface Event counter with PIC microcontroller. CO4: Student learned to interface Event counter with PIC microcontroller.

Course Outcomes of M.Sc (Electronic Science): Semester II

Class	Course title	Outcome
MSc.-I	ELUT121 Applied Electromagnetics, Microwaves and Antennas	CO1:To get aware of various the concepts of electromagnetics CO2:To understand the theory of transmission lines and wave guides CO3:To learn various parameters of antennas CO4:To understand various methods of generation of microwaves
MSc.-I	ELUT122 Instrumentatio	CO1. Understand the configurations and functional descriptions of measuring instruments.

	n and Measurement Techniques	CO2: Understand the basic performance characteristics of instruments CO3: Identify the various performance parameters that are measurable in electronic Instrumentation. CO4: Select appropriate passive/active transducers and ac and dc bridges for relevant physical parameter measurement. CO5. Understand the working principles of various types of sensors and transducers and their use in measuring systems.
MSc.-I	ELUT123 Foundation of Semiconductor Devices	CO1: Students understand crystal structure with reference to semiconductors. CO2: They able to grow the crystal on substrate. CO3: They understand concept of quantum and statistical mechanics CO4:understand the characteristics of various semiconductor devices CO5:understand the working principle of diode, transistor and FETs CO6: Students know the importance of Modern BJT structures like polysilicon emitter BJT, Heterojunction bipolar transistor.
MSc.-I	ELDT124 Elective Theory Course 2	CO1: Understand the Fundamentals of AVR microcontroller CO2: Understood the architecture, assembly language and interfacing of different 8-bit microcontrollers. CO3:Understand the applications of AVR. CO4:Learned software techniques to embed codes in to the systems CO5: Learned communication standards and protocols
MSc.-I	ELUP125 Practical Course 4 (Compulsory Course)	CO1: Student familiarized with Instrument and Measurement System. CO2: Student studied various parameters of antennas CO3: Studied the operation of different instruments used in the laboratory CO4: Student could connect circuit and did required performance analysis.
MSc-I	ELDP124 Practical Course 3 (Elective course 2)	CO1: Students learned to generate Waveform using AVR microcontroller. CO2: Student learned to interface LCD, LED array with AVR microcontroller. CO3: Student learned to interface Event counter with AVR microcontroller. CO5: Student learned to interface stepper motor with AVR microcontroller.

Course Outcomes of M.Sc (Electronic Science): Semester III

Class	Course title	Outcome
MSc-II	EL3UT09: Communication Electronics	CO1: Students studied mathematical representations of Amplitude and frequency modulation. CO2: Students acquire knowledge of noise, types internal and external, noise figure, and superhero dyne receiver. Knows the FDM and TDM systems

		CO3: Learn the different digital modulation techniques: Delta, Adaptive delta, ASK, FSK,PSK, QPSK, QAM etc. CO4: Students studied different types of antenna's, antenna parameters and different atmospheric layers and electromagnetic wave propagation. CO5: Students aware of satellite communication, fiber optic communication, 3G, 4G, SDLC, HDLC, VSAT etc.
MSc-II	ELDT02: Advanced Embedded Systems	CO1. Studied the architecture of Advanced RISC machine (ARM7) CO2. Learned assembly level programming of ARM-7 and interfacing hardware CO3. Acquainted to fundamentals of operating system CO4. Students familiar with real time operating system (RTOS) CO5. Learned RTOS in detail
MSc-II	ELDT12:Nano- Electronic Devices	CO1: Students understood basics of quantum and statistical techniques CO2: They able to grow the Nano-materials on substrate. CO3: Understand the characterization techniques of nano-materials CO4: They aware with nano-materials and nano-structured devices like DNA computers, Tunnelling diode, MEMs, ROBOTs, RAM, Flash memory etc.
MSc-II	ELDT12: Digital Communication	CO1:This course helped to provide a background of signals, their characteristics and mathematical representations and noise in signals CO2: Students are well aware of various digital modulation techniques CO3: Students are studied concept of information and coding theory in digital communication CO4: Students are also aware of different coding systems used in Digital communication
MSc-II	EL3UP07:Practical Course –VII	CO1: Students acquire the skill of designing different (FM, ask etc) transmitter/ receiver system in Communication Electronics CO2: Learned Signal conditioning circuits for analog controller CO2: They able to Design and implement ON-OFF Controller P/PI/PID controller CO3: They able to controlled the Motor speed using PWM. CO4: Students understood the concept of Optical fiber and data send through it.
MSc-II	EL3UP08:Practical Course –VIII	CO1**:** Students are understood programming Of ARM microcontroller CO2:Students learned the programming of MATLAB CO3:students are understood the ARM interfacing with LCD, DAC, ADC CO4:students are aware of different Communication techniques with help of MATLAB CO5:Students are understood the different concept of signal and image processing
MSc-II	EL3UP09:Practical Course	CO1: Students selected small projects -Project like experiments (PLE).

	(PLE) –IX	CO2: Students designed, assembled/PCB circuits, and tested the project. CO3: Students prepared the PLE report in bound form. CO4: Students presented their PLE using PPT presentation. CO5: Students demonstrated their PLE to faculty members 2/3 times and also demonstrated to external examiner.

Course Outcomes of M.Sc. (Electronic Science): Semester IV

Class	Course title	Outcome
MSc-II	EL4UT10: Control Systems	CO1. Student got familiar with basic concepts of control theory CO2. Understood different control strategies CO3. Developed problem solving attitude CO4. Imparted information about control instrumentation CO5. Students got familiar with latest trends in industrial control / production systems
MSc-II	ELDT16: Computational Methods for Electronics	CO1: Students learned different statistical techniques. CO2: Students used MPLAB tool for solving algebraic and quadratic equations CO3:MPLAB used for circuit analysis CO4: Students learned numerical methods CO5: Students solves the problems of Interpolation, ordinary and partial differential equations. CO6: Student acquires the knowledge of curve fitting techniques.
MSc-II	ELDT01: Advanced Power Electronics	CO1.Student studied the basic principles and applications of power electronics CO2. They understood the solid-state devices required for power electronic circuits CO3. Student studied and understood the power conversion and power transmission principles CO4. They could understand industrial and domestic applications
MSc-II	ELDT03: Digital Signal Processing	CO1: Studied fundamental aspects of Digital Signal Processing CO2: Student became aware of mathematical background required for DSP CO3: learnt design of digital filters and implementation on digital Signal Processor CO4: Studied DSP applications
MSc-II	EL4UP10: Practical Course –X (Project)	CO1: Students selected project as per their interests based on microcontroller, sensor, wireless etc for 200 marks. CO2: Students study the research papers and find idea or think of society useful applications. CO3: Students gave the PPT presentation of block diagram to faculty members for final topic selection. CO4: They designed, assembled/PCB circuits, and tested project. CO5: Students prepared the project report in bound form. CO6: Students take guidance of their project from faculty members and guide. Even they interact with other department faculty members. CO7: Students demonstrated their PLE to faculty members 2/3 times and also demonstrated to external examiner.

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Physics

Program Outcome : B.Sc. (Physics)	
1.	Scientific attitude will be inculcated in students with in-depth knowledge of scientific and technological
2.	Student will be familiar with recent scientific and technological developments and solid foundation will be created for research and development in Physics.
3.	Analytical abilities to address real world problems will be developed through various experimental and computational tools
4.	Students will be developed to build-up a progressive and successful career in Physics.

Program Outcome : M.Sc. (Physics)	
1.	Research culture will be developed through research projects and Solid foundation will be created for development in Physics
2.	Scientific attitude will be developed in students with in-depth knowledge of recent scientific and technological development.
3.	Analytical abilities to address real world problems will be developed through various experimental and computational tools
4.	Students will be developed to build-up a progressive and successful career in Physics.

Program Specific outcome : B.Sc. (Physics)	
1.	Understand the core concept of Physics subjects
2.	Acquire analytical and logical skill for higher Education.
3.	Be excelled in Experimental and Theoretical Physics.
4.	be trained to take up jobs in allied fields.

Program Specific outcome : M.Sc. (Physics)	
1.	Understand the core concept of Physics in research point of view
2.	Acquire analytical and logical skill for higher Education.
3.	Be excelled in Experimental and Theoretical Physics.
4.	Have in depth knowledge in various branches and subjects of Physics
5.	Fit for future research required for current developments
6.	be trained to take up jobs in allied fields.

Course Outcomes of FYBSc (Physics) : Semester I

Class	Course title	Outcome
F.Y.B.Sc Paper I (Sem I)	Mechanics and properties of matter	• Relative motion. Inertial and non-inertial reference frames. • Newton's laws of motion and its real-life applications. • Motion and its types with examples. • Define and calculate Speed, Velocity, and Acceleration. • Energy, conservation of Energy. Define kinetic and Potential Energy. • Conservative and non-conservative force with examples. • Concept of viscous force, viscosity. • Types of flow. • Raynold's number and its physical significance. • Bernoulli's equations and its applications. • Different properties of matter such as Surface Tension, Elasticity. • Factors affecting surface tension and different methods for determining surface tension. • Applications of Surface Tension. • Concept of Stress, Strain and different elastic Moduli • Factors affecting elasticity. • Apply elasticity to determine the bending of wooden bar. • Using elasticity determination of Young's Modulus and Modulus of Rigidity. • Understanding of Poisson's Ratio. • Relation Between three elastic moduli.
F.Y.B.Sc Paper I (Sem II)	Heat and Thermodynamics	• To understand the basic concepts of thermodynamics. • To be able to state First Law of thermodynamics and to define heat, work and thermal efficiency. • To calculate changes in Enthalpy, Entropy and Internal Energy. • To explain the classification of external and internal combustion engine and sketch the diagram of Processes involved in spark ignition and compression ignition. • Students will be able to read a thermometer. • Students will become familiar with and will be able to convert different temperature scales.
F.Y.Bsc Paper II Sem (I)	Physics Principles and Applications	• To understand the general structure of atom, Spectrum of Hydrogen atom • To understand the atomic excitation and LASER principles • To understand the bonding mechanism and its different types To demonstrate and understanding electro-magnetic waves and its spectrum • Understand the types and sources of electromagnetic waves and applications • To demonstrate quantitative problems solving skills in all the topics covered

F.Y.Bsc Paper II Sem (II)	Electricity and Magnetism	• To understand the concepts of electric field, electric force and electric potential for stationary charge • • Able to calculate electrostatic field and potential of charge distributions using Coulombs Law and Guass law • To understand the dielectric phenomenon and effect of electric field on dielectric. • To study magnetic field for steady current using Biot-Savarts and Ampere circuit Laws. • To understand Magnetic material and its properties • To demonstrate quantitative problems solving skills in all the topics covered
F.Y.B.Sc Paper III (Sem I & II)	Practical (I & II)	A practical physics course enables students to do experiments on the fundamental laws and principles, and gain experience of using a variety of measuring instruments. Practical work enhances basic learning skills. • Students get skills on handling measuring instrument and finding the percentage error in measurement • Enables students to understand Mechanics through experiments • Enables students to understand optics through performing experiments and skills get developed to handle optical instrument's • Students well understand the concepts based on heat and thermodynamics. • Students well understand the concepts based on Electricity and magnetism through various experiments.

SYBSc & TYBSc		
Class	**Course Title**	**Outcomes**
S.Y.B.Sc	Intsrumrntation	Industrial automation and industrial instrumentation are required to control various operations in industries.
S.Y.B.Sc	Optics	1. Describe and discuss waves, colour, frequency, photon energy, phase difference, optical coherence and coherent sources using monochromatic light sources of light 2. Describe and discuss optical interference observed using wavefront splitting and amplitude splitting interferometers optical antireflection coatings 3. Describe and discuss linear, circular and elliptical polarisation and methods to used to generate and analysis polarised light using wave plates. Outline stress Birefriengence and use of polarised light 4. Describe and discuss diffraction effects observed in a single slit and circular aperture and relate to Rayleigh criterion and optical resolution. 5. Derive and manipulate formula and perform fundamental numerical calculations to solve physical optics problems related to waves, polarisation, interference and diffraction phenoneoma Learning Outcomes (LO): On Completion of this laboratory component, the learner will be able to; 6. Investigate and prove fundamental geometrical optical relationships encountered in lecturers.
T.Y.B.Sc	Atomic & Molecular Physics	Students learn about atomic spectrum, molecular spectra, Zeeman effect, Raman spectra & starck effect. There topics helps the students to understand spectroscopic techniques for quantative & qualitative analysis of materials.
T.Y.B.Sc	Quantum Mechanics	Students learn about origin of quantum mechanics wave function ,Probability density, Schrödinger's equations, applications of Schrodinger's equation, and operators in quantum mechanics. This knowledge helps the students to solve the problem in physics by applying quantum theory.
T. Y. B. Sc	Renewable Energy Sources	Trillions MW energy requirement cannot be fulfil with conventional energy sources. There is finite requirement to find the alternative non-conventional energy sources. In this course we studied the various forms of the non- conventional energy sources. Various ways by which we can utilise those sources to fulfil our daily energy need.
T. Y. B. Sc	Classical Electrodynamics	Behaviour of the charge particle in electrostatic as well as magnetostatis gives the new era in physics. The basic laws of electrostatics and magnetostatics used to solve the complicated problems in electrodynamics. Behaviour the field can be used to derive the Maxwell's equation. Using Maxwell's equation can be used for many applications like radar as well as communication purpose.

T. Y. B. Sc	Thermodynamics and Statistical Mechanics	Students can understand different thermo dynamical systems and compute the different terms related to heat and thermodynamics .They can understand connection between microphysics and thermodynamics and statistical mechanics. The understanding of why and when the classical approach to thermo dynamical systems fails gets cleared. Difference between M-B, B-E, and F-D statistics can be understood.
T. Y. B. Sc	Electronics	Industrial automation and motion control, Machine learning, motor drive control, Mechatronics and robotics, Power converting technologies, Photo voltaic systems, Renewable energy applications, Power electronics, and Biomechanics.
T. Y. B. Sc	Mathematical Methods in Physics	The application of mathematics to problems in physics and the development of mathematical methods suitable for such applications and for the formulation of physical theories
T. Y. B. Sc	Advanced Electronics	The process in which assembly of several electrical, measuring and control instruments interconnected for measuring, analyzing and controlling the electrical and non-electrical physical quantities in Automation & Process Control Industry
T. Y. B. Sc	Nuclear Physics	Students get Knowledge about different reactors useful in BRC and Radiation therapy for cancer treatment
T. Y. B. Sc	Classical Mechanics	Students can have deep understanding of Newton's laws. Be able to solve Newton's equations for simple configurations using various methods. Understand the foundation of chaotic motion. To study the basics of Hamiltonian and lagrangian systems.
T. Y. B. Sc	Computational Physics	Students get knowledge about C programming useful to design and development of varies program to control the operation of different machines
T. Y. B. Sc.	Solid state Physics	1- Students will be able to analyze different types of matter depending on nature of chemical bonds and their properties 2- Students will be able analyze the crystal structures by applying crystallographic parameters. 3- Students will be able to determine the crystal structure by analysis of XRD data 4- Students will be able to evaluate and analyze the electrical and optical properties of solids 5- Students will be able to analyze electron transport and energy related problems by applying quantum mechanical principles 6- Students will be able to analyze the lattice vibration phenomenon in the solids 7- Students will know the fundamental principles of semiconductors, including pn-junctions, and be able to estimate the charge carrier mobility and density. 8- Students will be able to account for what the Fermi surface is and how it can be measured 9 Students will - know basic models of magnetism

Course Outcomes (Physics) : Semester I

Class	Course title	Outcome
M. Sc. I PAPER I	PHCT112 Paper I -Mathematical Methods in Physics	• The students will be able to understand and apply the mathematical skills to solve quantitative problems in the study of various courses of physics. • The students will competent to apply integral transform, complex functions and Fourier transforms to resolve mathematical problems of interest in physics. • The students will be able to determine the residues of a complex function and use the residue theorem to compute certain types of integrals. • Students will able to understand the applications of vector space, matrix algebra and special functions • Students will be able to use Fourier, Laplace transform and Integral Transforms to solve mathematical problems relevant to physics.
M. Sc. I PAPER II	PHCT112 Paper II- Classical Mechanics	• Students will able to understand and learn about Lagrangian, Hamiltonian, Canonical • Transformations and Poisson Brackets formulation of Classical Mechanics. • The students will be able to apply the variation principles to various real physical problems. • The students will be able to model mechanical systems, both in inertial and rotating frames, using Lagrange and Hamilton equations. • Kinematics and dynamics of rigid body in detail as well as ideas regarding Euler's equations of motion and small oscillations in detail along with basis of free vibrations. • The classical background of Quantum mechanics and get familiarized with Poisson brackets and Hamilton - Jacobi equation
M. Sc. I PAPER III	PHCT113 Paper III- Quantum Mechanics	• To Learn the mathematical tools needed to solve quantum mechanics problems. • This will include complex functions and Hilbert spaces, and the theory of operator algebra. • Solutions of ordinary and partial differential equations that arise in quantum mechanics will also be studied. Develop problem solving methods that will include mathematical as well as numerical computations and solutions. Build connections between mathematical development and conceptual understanding.
M. Sc. I PAPER IV	PHOT114 Paper IV- Electronics	• Course contains study of analog and digital electronics. • Students will learn and understand • Various analog devices such as SCR, DIAC, TRIAC, SMPS • DC Conversion and power supply • Details of Integrated circuits and applications of Op-Amp • Multivibrator circuit and timmers.

		• Modulation and its type • Voltage controlled oscillator and Phase lock loop concept in IC 556 • Digital logic circuit designing. • Combinational and sequential circuits and code converters • Flip-flops and various types of counters • Various types Digital to analog converters • Various types analog to Digital converters
M. Sc. I PAPER V	PHCT 115 Paper V Physics Laboratory I (Practical)	• Understand the application of basic Principles of electronics and get hands on training • be able to design the electronic circuits. • Be able to assemble and build the circuits • Be able to practically test electronic circuits and troubleshoot the circuits. • Be able to develop circuits required for new applications.

Semester II

Class	Course title	Outcome
M. Sc. I Paper I	PHCT121 Paper I - Electrodynamics	• To describe and solve advanced problems based on electrodynamics using different Maxwell's equation. • The students will be able to understand of the covariant formulation of electrodynamics and the concept of retarded time for charges undergoing acceleration. • Use Maxwell equations in analysing the nature of electromagnetic field due to time varying charge and current distribution. • Describe the nature of electromagnetic wave, inhomogeneous wave equations and its propagation through different media and interfaces involved in different situations.
M. Sc. I Paper II	PHCT122 Paper II Solid state Physics	• They can analysis crystalline structure systems. • They can understand the Quantum Mechanical view of Solid. • Students will understand the significance of Diamagnetism, Para magnetism and Ferromagnetism. • They will understand the Significance of Superconductor and their properties
M. Sc. I Paper III	PHCT123 Paper III- Statistical Mechanics	• Students will be able to understand the relation between thermodynamics and statistical mechanics. • They can understand the microscopic and macroscopic approach towards different thermodynamic systems. • They can understand the Quantum Mechanical and Classical Mechanical approach of different systems in statistical mechanics. • Students will understand the significance of ensemble theory to thermodynamic and statistic mechanical

		system. • They will understand the Significance of kinetic theory of gases and ideal gas equations to statistical mechanics.
M. Sc. I Paper IV	PHOT 124 : Paper IV Atoms and Molecules	• Understand the nature of approximations made on the quantum description of atomic and molecular systems. • Understand similarities and differences between hydrogen atom and single valence electron atoms, as well as helium atom and two-valence electron atoms. • To understand the molecular spectra like rotational and vibrational spectra for diatomic molecules. • To understand the various spectroscopic techniques like microwave spectroscopy, IR spectroscopy and Raman Spectroscopy. • To understand the resonance spectroscopy techniques like NMR & ESR.
M. Sc. I Paper V	PHCT125 Paper V Physics Laboratory II	• Students will be expert in performing practicals based on optics, Handling optical instruments through practicals such as study of Fabry-Parot Etalon and Michelson Morley experiment, To determine the speed of light using transit time of light pulse as a function of a reflecting mirror, Photoconductivity. • Students will have hands on experience and mastery over experiments for charge measurement Faraday Effect, • Millikan Oil Drop method • To determine the radii of droplets. • Specific Heat of Solids: To determine the specific heat of copper, lead and glass at three different temperatures. • Electron Spin Resonance: To study the Electron Spin Resonance and to determine Lande's g-factor • Frank-Hertz experiment: To study the discrete energy levels using Frank-Hertz experiment • G.M. counter and Determination of dead time of GM tube by Double source method • Gouy's Method: Measurement of magnetic susceptibility of MnSO4, Thermionic emission, Four Probe method: Temperature variation and Band gap of Ge-semiconductor, Ionic Conductivity of NaCl, Stefan's constant – Black Body Radiation, To study absorption spectra of Iodine molecule.

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K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Environmental Science

Program outcome : B.Sc. (Environment Science)	
1.	Demonstrate, solve and an understanding of major concepts in all disciplines of Environmental Science.
2.	Solve the problem and also think methodically, independently and draw a logical conclusion.
3.	Understand the audit, ISO, EIA practically
4.	Create an awareness of environment science in society, and development outside the scientific community
5.	To study and understand the conservation methodology of all biotic aspects.
6.	To inculcate the scientific temperament in the students and outside the scientific community.
7.	Use modern techniques, decent equipment's for analysis of environmental abiotic components.

Program outcome : M.Sc. (Environment Science)	
1.	PO1. Environment Science knowledge: Apply the knowledge of Environment Science as an interdisciplinary subjects to the understand the complex life processes and phenomena.
2.	PO2. Problem analysis: Identify, review research literature, and analyse complex situations of living forms.
3.	PO3. Design/development of solutions: Design processes/strategies that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4.	PO4. Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions in real situations.
5.	PO5. Modern tool usage: Create, select, and apply appropriate techniques, resources, and ICT tools for understanding of the subject.
6.	PO6. The Postgraduate and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7.	PO7. Environment and sustainability: Understand the impact of the natural and anthropogenic activities in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8.	PO8. Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the work/research practice.
9.	PO9. Individual and team work: Function effectively as an individual, and as a

	member or leader in diverse teams, and in multidisciplinary settings.
10.	PO10. Communication: Communicate effectively on complex life activities with the scientific community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11.	PO11. Project management and finance: Demonstrate knowledge and understanding of Environmental Aspects and management principles and apply these to one's own work, as a member and leader in a team.
12.	PO12. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific outcome : B.Sc. (Environment Science)	
1.	Gain the knowledge of environment science through theory and practical's.
2.	To visit different sites for studying the conservation strategies
3.	To get knowledge about all air, soil and water technologies
4.	To conduct different programmes on environmental days for awareness.
5.	To study in detail the population sampling and counting.
6.	Understand good laboratory skills for testing soil, water and air..
7.	Make aware and handle the environmental audit under EMS
8.	Gain the knowledge of environmental law, ethics and different policies.
9.	Study and understand the Phytoremediation and Bioremediation technologies

Program Specific outcome : M.Sc. (Environment Science)	
1.	Students acquired knowledge through practical work in fields as well as in laboratory.
2.	Project helps for creating research attitude among the post graduate students.
3.	Develop research oriented skills in all the fields of Environmental Science
4.	Develop the application of biostatistical techniques in research
5.	Understanding of new technology that can be implemented practically

Course Outcome (Environmental Science): Semester : I

Class	Course Name	Outcome
F.Y.B.Sc.	Fundamental of Environmental Biology	• CO1 Understand the biosphere and biotic community • CO2 Appreciate physiology of plants and animals, and relation with environment • CO3 Appreciate the Climatic factors, stress and physiology • CO4 Critically examine the impact of human action on the biological environment
F.Y.B.Sc.	Fundamental of Environmental Chemistry & Physics	• CO1 Comprehensive understanding of the concept of atom, electronic configuration, periodic properties • CO2 Comprehensive understanding acid-base concepts, neutralization, and buffer and buffer capacity
F.Y.B.Sc.	Environmental Science Practical Paper	• Basic understanding on plant and animal physiology • Measurement of chloride, alkalinity, hardness of water • Study of various animal and plant forms • Study of plants and animal diseases

Semester : II

Class	Course Name	Outcome
F.Y.B.Sc.	Fundamental of Environmental Geosciences	• CO1: Should be able to describe the composition and vertical structure of atmosphere. • CO2 : should have understanding of the clear distinction between adiabatic lapse rate and the environmental lapse rate and be able to work out temperatures at higher altitudes based on the lapse rate. • CO3: Should know how geostrophic winds and cyclones are caused in the earth atmospheric system of human action on the biological environment
F.Y.B.Sc.	Fundamental of Environmental Pollution	• CO1 : Knowledge on the types and the science of environmental pollution • CO2 : Appreciation of the effect of polluting on human health • CO3 : Analytical ability to link cause and effect of pollution • CO4 : Critical issues of handling pollution by human beings • CO5 : Ability to develop pollution mitigation/abetment strategies
F.Y.B.Sc.	Environmental Science Practical Paper	• CO1 : Field visit and reporting – Recording bio-complexity at field level (Relationships within plants, animals and between plants and animals in the ecosystem. • CO2 : Understanding and comparing noise levels of localities • CO3 : Visit to a local polluted site-Urban/Rural/Industrial/Agricultural, sampling, analysis and reporting • CO4 : Visit to a Natural Area/ Wildlife Sanctuary/ National Park

Semester : I

Class	Course Name	Outcome
S.Y.B.Sc.	Ecology & Ecosystem	• CO1: Knowledge on ecology, and ecological dynamics • CO2 : Ability to correlate ecological dynamics and regulation of vital processes on earth as biogeochemical cycles • CO3 : Ability to interpret ecosystem services, ecological resilience, ecological economics, and landscape ecology • CO4 : Set up experiments to appreciate concepts of Ecology • CO5 : Critically examine the forces impacting ecosystems viz., climate change, stress, population, consumerism, globalization, land use change
S.Y.B.Sc.	Natural Resource	• CO1: Appreciate attributes of natural resource use and management

	Conservation and Management	• CO2 : Understand the complexity of natural resource and issues, and sustainability • CO3 : Apply theories and methods with interdisciplinary approach towards natural resource management • CO4 : Critically examine the gap in the resource availability, use, and conservation
S.Y.B.Sc.	Practical Course	• CO1 : Field visit and reporting – Recording bio-complexity at field level (Relationships within plants, animals and between plants and animals in the ecosystem. • CO2 : Assessment of biodiversity in a given geographical area – floristic diversity (citing categories of different life forms based on morphological features only). • CO3 : Quadrat study for plants (1m× 1m), involving random sampling to random sampling to measure the abundance, density and frequency of various species in an ecosystem.

Semester : II

Class	Course Name	Outcome
S.Y.B.Sc.	Biological Diversity & its Conservation	• CO1: Systematically understand biodiversity and its vital role in ecosystem function • CO2: Appreciate the need of biodiversity conservation in the context of various developmental pathways and policy framework that the mankind has been undergoing • CO3: Identify the importance of biodiversity in natural environments • CO4: Critically examine biodiversity and human linkages, and help policy formulating for conservation
S.Y.B.Sc.	Environmental Pollution Control Technology	• CO1: Knowledge on the types and the science of environmental pollution • CO2; Analytical ability to link cause and effect of pollution • CO3: Ability to develop pollution mitigation/abetment strategie • CO4: Identify the case specific issues related to pollution • CO5: Apply understanding to generate recourses from wastes
S.Y.B.Sc.	Practical Course	• CO1: Analysis of nitrate, sulphate in samples. • CO2: Sampling of Atmospheric Dust by Gravity Settling to measure the rate of Dustfall. • CO3 : Determination of Optimum Dose of Alum (Coagulant) required for water.

Semester : III

Class	Course Name	Outcome
T.Y.B.Sc.	Terrestrial Ecosystems and	• CO1 :Understand the biosphere and biotic community • CO2:Understand terrestrial ecosystem their pattern

	Management	• CO3:Understand impact of human action on soil and land • CO4: Critically examine the issues of Soil and Land in the environmental perspectives • CO5: Apply knowledge in land conservation projects
T.Y.B.Sc.	Wildlife biology	• CO1: Understand basic ecological principles (the interconnectedness of organisms to each other and their environment) to environmental problems and sustainability issues. • CO2. :Articulate fundamental concepts in wildlife conservation and management • CO3:. Apply understanding of cultural, historical, and current perspectives on the humanwildlife relationship to effectively address wildlife issues. • CO4. :Be capable of assessing status of wildlife and biodiversity
T.Y.B.Sc.	Water Quality	• CO1:Select the sources of water for various water uses • CO2 :Identify the data requirements for water resources and interpret the analysis of the same • CO3 :Critically examine water resource management systems interaction and significance with respect to the environment
T.Y.B.Sc.	Issues in Environmental Science	• CO1 :Develop a critical understanding of the physical environment and social environment • CO2: Apply understanding of Bio-resources and their impact on local economy. • CO3: study Environmental Movements: Genesis of global environmental movement, Chernobyl disaster • CO4. : Citizen participation and representation in environmental issues The national environmental advisory forum Access to environmental information
T.Y.B.Sc.	Environmental Governance and Equity: Law and ethics	• CO1: Understand the Indian constitutional provisions with respect to the environmental protection, division of powers, and fundamental rights • CO2: Appreciation of forest and wildlife laws and environmental laws relating to social justice (Forest Dwellers' Act of 2006; The Biodiversity Act of 2002) • CO3 :Comprehensive understanding of pollution control laws (The Water Act, The Air Act and the Environment (Protection) Act of 1986), and rules • CO4 :Functional understanding of international Environmental laws (Treaties and Protocols), and Indian commitments • CO5 :Appreciate some case studies of environmental litigation
T.Y.B.Sc.	Environmental Biotechnology-I	• CO1: Knowledge on scope of biotechnology in environmental applications • CO2: Knowledge of microbiology and biochemistry • CO3: Ability to perform various molecular biological

		applications, and knowledge of equipment used in molecular biological techniques • CO4: Ability to apply molecular biological techniques in pollution management and industrial applications • CO5: Knowledge of advanced biotechnological applications, and biosafety in analytical procedures

Semester : IV

Class	Course Name	Outcome
T.Y.B.Sc.	Aquatic Ecosystems and Management	• CO1 Knowledge of Aquatic sources and processes involved • CO2 Estimate the design parameters of a aquatic resources system using elementary methods • CO4 Critically examine aquatic resource management systems interaction and significance with respect to the environment • CO5 Application of knowledge on aquatic resources and management.
T.Y.B.Sc.	Nature Conservation	• CO1. Apply understanding of cultural, historical, and current perspectives on the human wildlife relationship to effectively address wildlife issues. • CO2. Identify the primary international, national, and state agencies and scientific organizations, responsible for conservation and management of wildlife, and understand the role of private citizens in decision-making at all levels. • CO3. Appreciate current threats to biodiversity in relation to protected areas and non-protected areas • CO4. Make informed decisions about wildlife conservation and management by critically evaluating information sources
T.Y.B.Sc.	Air and soil Quality	• CO1 Understand principles of land management • CO2 Understand impact of human action on soil and Air • CO3 Critically examine the issues of Soil and Air in the environmental perspectives • CO4 Apply knowledge in water and Air pollution controlling / management projects
T.Y.B.Sc.	Issues in Environmental Science	• CO1 Develop a critical understanding of the physical environment and social environment • CO2 Ecological conflicts and the environmental movements in India • CO3 Appreciate Use of computer in environmental health modelling, environmental health modelling, Resource management by Remote sensing & GIS • CO4 understand environmental rules and regulation, agenda related environment conservation
T.Y.B.Sc.	Environmental Governance and	• CO1 Develop a critical understanding of the ISO and the environment

	Equity: EMS, ISO 14000	• CO2 understanding ISO 14000 family of standards • CO3 understand Environmental audits, Compliance and governance mechanism, Environment Status Report, Various instrumental techniques, EIA in detail with case studies, Environmental Economics, CETP • CO4 Knowledge on National Environmental Policy – 2006 & Provision of Constitution of India regarding Environment (Article 48A and 58A).
T.Y.B.Sc.	Environmental Biotechnology-II	• CO1 Knowledge on scope of biotechnology in environmental applications • CO2 understand use of Bioremediation techniques • CO3 Ability to apply Biodegradation process • CO4 understanding Role of biotechnology in environment protection • CO5 Ability to apply biotechnological techniques in treatment of water & waste water

Course Outcomes of M.Sc (Environmental science): Semester I

Class	Course Name	Outcome
M.Sc I	EVSUT-111 Environmental Biology & Biodiversity	• CO1: Analyse the role of Ecological principles to manage ecosystems. • CO2: Demonstrate distinction between natural and managed ecosystems. • CO3: Empowers on tools and techniques used to analyse the status of ecosystems. • CO4: Develop skills to manage ecosystems for sustainable development. • CO5: Demonstrate importance of diversity at different levels of biological organization. • CO6: Lay foundation on basic concept of ecological and biological processes that ensures long-term stability of ecosystems. • CO7: Train on the methods for measurement of species diversity and molecular diversity. • CO8: Analyse the values of biodiversity and scientific approaches for conservation that can lead to sustainable development.
	EVSUT-112 Environmental Physics & Chemistry	• CO1: Develop understanding on the chemistry of the lithosphere, hydrosphere and atmosphere. • CO2: Gain understanding on the chemistry of various anthropogenic pollutants and basic analytical techniques • CO3: Trains on chemical analysis of water and waste water, and the scientific principle of tools and techniques used for chemical analysis. • CO4 : Knowledge of analytical instrumentations • CO5: Skill developed in the field of environmental instrumentation and analyses • CO6: Basic principle and applications of physics

	EVSUT-113 Earth, Ocean and & Atmospheric Sciences	• CO1 Knowledge of structure and composition of the atmosphere and explain global atmospheric circulation • CO2 Understand the processes involved in the mixing and transport of constitutes against varied stability conditions • CO3 Recognise major chemical/ photochemical pathways of organic and inorganic gases and their implications including acid rain, smog, ozone depletion, visibility impartment • CO4 Application of knowledge in appreciating the atmosphere of large cities and global atmospheric issues • CO5 Understand the ocean physical structure and stratification • CO6 Knowledge of earth resources
	EVSUT-114 Environmental Statistics	• CO1 Knowledge of basic statistical parameters • CO2 Understanding statistical concepts required for model development. • CO3 Test model performance in terms of statistical error estimation • CO4 Understanding study univariate , bivariate and multivariate data

Semester II

Class	Course Name	Outcome
M.Sc II	EVSUT-121 Water & Soil Pollution: Management & Mitigation	• CO1 Select the sources of water for various water uses • CO2 Apply the gained knowledge to practical situations. • CO3 Demonstrate soil quality maintenance practices • CO4 understanding soil pollution sources and how to control them • CO5 studying different case study related to soil
M.Sc II	EVSUT-122 Air, Noise & Radiation Pollution: Management & Mitigation	• CO1 Able to differentiate between primary and secondary pollutants • CO2 Familiarise with different sources and sinks of common air pollutants Develop understanding about different types of monitoring • CO3 techniques available for gaseous and particulate matter. Able to do sampling and analysis of air pollutant • CO4 Develop an understanding of working of air pollution control devices • CO5 understanding noise monitoring techniques and impact criteria
M.Sc II	EVSUT-123 Environmental Law, Ethics & Policy	• CO1 Understand the Indian constitutional provisions with respect to the environmental protection, division of powers, and fundamental rights • CO2 Appreciation of forest and wildlife laws and environmental laws relating to social justice (Forest Dwellers' Act of 2006; The Biodiversity Act of 2002) • CO3 Comprehensive understanding of pollution control

		laws (The Water Act, The Air Act and the Environment (Protection) Act of 1986), and rules • CO4 Functional understanding of international Environmental laws (Treaties and Protocols), and Indian commitments • CO5 Appreciate some case studies of environmental litigation
M.Sc II	EVSUT-124 Water & Wastewater Technology	• CO1 Select the sources of water for various water uses. • CO2 Explain unit operations and processes of water treatment systems • CO3 Apply the principles and design water treatment units • CO4 Apply concepts and will be able to design the water treatment plant. • CO5 Explain unit operations and processes of wastewater treatment systems • CO6 Select the sources of different industries wastewater treatment process
M.Sc II	EVSUP-125 Environmental Sciences Practical Paper	• Physico-chemical parameter of water • Study soil quality parameter • Monitoring of Total Suspended Particulate Matter (TSPM); monitoring of SO2, NO2, NH3, CO and O3, Exposure analysis of SO2, NO2 and CO • Measurement of sounds by DB meter / SLM in silent, industrial, residential and commercial zones, Determination of SPL, Lmax, TWA, Leq, Ldn, L10, L50, L90. • Field visits and its legal interpretation – submission of detailed reports • Visit and study in detail process of water and waste water treatment plant.

Semester III

Class	Course Name	Outcome
M.Sc II	EVSC 301 Environmental Impact Analysis and Environmental Audit	• CO1 Explain the environment and its natural, and socio-economic and cultural components, and its temporal and spatial dimensions • CO2 Comprehensively understand of the origin and development of EIA and the developments in India • CO3 Appreciate the EIA process • CO4 Define impact and identify, and predict impacts • CO5 Understand the Indian EIA process and clearance regime and functional knowledge of environmental management plan (EMP), and environmental audit
M.Sc II	EVSC 302 Environmental Pollution II: Air, Noise and Radiation	• CO1 Able to differentiate between primary and secondary pollutants • CO2 Familiarise with different sources and sinks of common air pollutants Develop understanding about

		different types of monitoring • CO3 techniques available for gaseous and particulate matter. Able to do sampling and analysis of air pollutant • CO4 Develop an understanding of working of air pollution control devices • CO5 understanding noise monitoring techniques and impact criteria
M.Sc II	EVSC 303 Water and Wastewater Technology	• CO1 Select the sources of water for various water uses. • CO2 Explain unit operations and processes of water treatment systems • CO3 Apply the principles and design water treatment units • CO4 Apply concepts and will be able to design the water treatment plant. • CO5 Explain unit operations and processes of wastewater treatment systems • CO6 Select the sources of different industries wastewater treatment process
M.Sc II	EVSC 304 Environmental Law, Ethics and Policy	• CO1 Understand the Indian constitutional provisions with respect to the environmental protection, division of powers, and fundamental rights • CO2 Appreciation of forest and wildlife laws and environmental laws relating to social justice (Forest Dwellers' Act of 2006; The Biodiversity Act of 2002) • CO3 Comprehensive understanding of pollution control laws (The Water Act, The Air Act and the Environment (Protection) Act of 1986), and rules • CO4 Functional understanding of international Environmental laws (Treaties and Protocols), and Indian commitments • CO5 Appreciate some case studies of environmental litigation
M.Sc II	EVSC 305 Practical's III	• Preparation of EIA reports and environmental audit process • Monitoring of Total Suspended Particulate Matter (TSPM); monitoring of SO2, NO2, NH3, CO and O3, Exposure analysis of SO2, NO2 and CO • Field visits and its legal interpretation – submission of detailed reports • Visit and study in detail process of water and waste water treatment plant.
M.Sc II	EVSC 306 In-plant training + Seminars	• Work with various industries, consultancies and NGO's helps for the practical knowledge. Ability to communicate efficiently, management, leadership and entrepreneurship skills. Ability to identify, formulate and model problems and find solution based on environmental pollution.
M.Sc II	EVSC 309 Environmental	• CO1 Knowledge on scope of biotechnology in environmental applications

	Biotechnology(elective course)	• CO2 Knowledge of microbiology and biochemistry • CO3 Ability to perform various molecular biological applications, and knowledge of equipment used in molecular biological techniques • CO4 Ability to apply molecular biological techniques in pollution management and industrial applications • CO5 Knowledge of advanced biotechnological applications, and biosafety in analytical procedures • CO6 understanding Role of biotechnology in environment protection • CO7 Ability to apply biotechnological techniques in treatment of water & waste water • CO7 study different types of Biosensors

Semester IV

Class	Course Name	Outcome
M.Sc II	EVSC 401 Environmental Toxicology, Health and Safety	• CO1 understanding health and safety management • CO2 study toxic compound, hazardous material and measurement • CO3 evaluation methods of toxicology • CO4Internalize ISO 18000 • CO5 Learn and disseminate issues related to occupational health and hazards. • CO6 Protocol development for an industry on disaster prevention, health issues, safety measures and environment management.
M.Sc II	EVSC 402 Restoration Ecology and Watershed Management	• CO1 Ability to think and function as a prudent professional soil scientist. • CO2 Generate and analyse soil quality data towards sustainable solutions. • CO3 Ability to respond flexibly towards restoration of problematic soils of specific areas • CO4 Understanding watershed management techniques structure and functions, traditional and modern methods of managements • CO5 study successful stories of watershed managements.
M.Sc II	EVSC 403 Waste and Hazardous Waste Management	• CO1 Understand the characteristic of wastes and the systems, and processes of waste management. • CO2 Identify the case specific issues related to pollution potentials of solid wastes • CO3 Address solid waste management practices through a cradle-to-grave approach • CO4 Apply understanding to generate recourses from wastes • CO5 Make appropriate decisions through application of waste management principles
M.Sc II	EVSC 404 Renewable and	• CO1 Understanding of solar radiation's spectrum and the energy available from solar radiations

	Non-Renewable Energy	• CO2 Should be able to make a distinction between conventional and renewable energy sources • CO3 Understanding of the principles of energy conversion in case of each of the energy sources • CO4 Should be able to state how the consumption of fossil fuels and biomass leads to adverse impact on health and climate. • CO5 Should have an understanding of the implications of large scale production of power from sources such as hydro, solar, wind etc.
M.Sc II	EVSC 405 Dissertation and Project Work	• The aim of the Project work is to acquire practical knowledge on the particular subject, successful completion of this course, the student should be able to work with practical knowledge/computer-based system, process, component, or program to meet desired. To encourage students to supplement their knowledge and to motivate them to continue their career in Research.
M.Sc II	EVSC 407 Environmental Economics	• CO1 Know the concepts of market and the economics of the environment • CO2 Identify economic solutions to environmental problems and the role of environmental market based instruments • CO3 Apply of economic theories to analyse environmental problems and solutions • CO4 Appreciate risk analysis in providing economic solutions to environmental Problems • CO5 Apply economic analysis in environmental decision making process

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AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Mathematics

Program Outcome : B.Sc. (Mathematics)	
1.	Solve and an understand concepts in all disciplines of Mathematics.
2.	Solve the problems and also think methodically, independently and draw a logical conclusion.
3.	Be well grounded in the basic manipulative skill level of algebra, geometry, trigonometry and beginning level calculus.
4.	Be able to transmit mathematics ideas both orally and in writing.
5.	Apply the underlying unifying structures of mathematics (i.e. sets, relations and functions, logical structure) and the relationships among them.
6.	Gain experience investigating the real world problems and learn to how to apply mathematical ideas and models to those problems.

Program Outcome : M.Sc. (Mathematics)	
1.	Inculcate critical thinking to carry out scientific investigation objectively without being biased with preconceived notions.
2.	Equip the students with skills to analyze problems, formulate an hypothesis, evaluate and validate results, and draw reasonable conclusions thereof.
3.	Imbibe effective scientific and/or technical communication in both oral and writing.
4.	Continue to acquire relevant knowledge and skills appropriate to professional activities and demonstrate highest standards of ethical issues in mathematical Sciences.

Program Specific outcome : B.Sc. (Mathematics)	
1.	Think in a critical manner.
2.	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.
3.	Formulate and develop mathematical arguments in a logical manner
4.	Acquire good knowledge and understanding in advanced areas of mathematics and statistics, chosen by the student from the given courses.
5.	Understand, formulate and use quantitative models arising in social science, business and other contexts.

Program Specific outcome : M.Sc. (Mathematics)	
1.	Create an aptitude for Mathematics for higher studies and creative work in Mathematics.
2.	Inculcate mathematical reasoning.
3.	Prepare and motivate students for research studies in mathematics and related fields.

4.	Provide knowledge of a wide range of mathematical techniques and application of mathematical methods/tools in other scientific and engineering domains.
5.	Nurture problem solving skills, thinking, creativity through assignments, project Work.
6.	Assist students in preparing (personal guidance, books) for competitive exams e.g. NET, GATE, etc.

Course Outcomes of F.Y.B. Sc (Mathematics) : Semester I

Class	Course title	Outcome
FYBSc (Paper-I)	Algebra	• Understand the concepts of Sets, operations on sets, relations and functions. • Identify equivalence relation and find equivalence classes. • Solve various problems on properties of divisibility of integers and use the basic concepts of divisibility, congruence and their applications in basic algebra. • Learn complex numbers as ordered pairs, operations on complex numbers and De-Moivre's theorem and it's applications. • Learn maxima software and use it to solve problems in Algebra.
FYBSc- (Paper-II)	Calculus I	• Identify algebraic and order properties of real numbers. • Identify and apply the function properties of real number system such as the completeness property. • Verify the values of limit of a function at a point using the definition of a limit. • Verify the continuity of the function using definition.

Semester II

Class	Course title	Outcome
FYBSc- (Paper-I)	Geometry	• Understand Analytical Geometry of Two Dimensions. • Reduce equation to standard form and classify them as ellipse, hyperbola, parabola, circle, pair of lines. • know different forms of planes, lines in three dimensions, spheres and use them to solve the problems on lines in three dimensions, planes, spheres. • Learn maxima software and use it to solve problems in Geometry.
FYBSc- (Paper-II)	Calculus II	• Students will be familiar with the techniques of differentiation of function with real variables. • Identify and apply the intermediate value theorem, Mean value theorem and L'Hospital's rule. • Identify types of differential equations and solve differential equations such as Exact, homogeneous, non-homogeneous, and linear and Bernoulli differential equations etc.

Course Outcomes of SYBSc (Mathematics) : Semester I

Class	Course title	Outcome
SYBSc-(Paper-I)	Multivariable Calculus I	• Students learn analysis of multivariable functions, continuity, and differentiability. • learn the concepts of multiple integrals and their application to area and volumes
SYBSc (Paper-II)	Laplace Transforms and Fourier Series	• Learn the methods and properties of Laplace transform and Inverse Laplace Transform, apply them to solve Linear Differential equations. • Apply the fundamental concepts of Fourier series, Fourier Sine series, Fourier Cosine series to find series representation of irrational numbers.
	Discrete Mathematics	• Use Propositional logic and Rules of inference to check validity of arguments. • Study types of proof and use them efficiently. • Learn the basics of counting, Permutation and combinations, Generalized permutation and combinations. • Apply Inclusion-Exclusion principle to solve problems.

Semester II

Class	Course title	Outcome
SYBSc (Paper-I)	Linear Algebra	• Use the concept of basis and dimension of vector spaces linear dependence and linear independence, to solve problems. • Use the concept of inner product spaces to find norm of vectors, distance between vectors, check the orthogonality of vectors, to find the orthogonal and orthonormal basis. • Apply the properties of linear transformations to linearity of transformations, kernel and rank of linear transformations, inverse transformations to solve the problems of matrix transformations, change of basis.
SYBSc (Paper-II)	Multivariable Calculus II	• Students develop knowledge in the limit, continuity, differentiation of vector functions. • Use the various techniques of solving Integral problems of vector valued functions.
SYBSc (Paper-II)	Numerical Analysis	• Know Absolute, relative and percentage errors and do error analysis. • Apply methods to Solve Algebraic and Transcendental Equations. • Use Interpolation formulae effectively for numerical integration. • Learn Least Squares Curve Fitting Procedures. • Solve problems on Numerical Differentiation and Integration.

		• Find Numerical solution of first order ordinary differential equations.

Semester III

Class	Course title	Outcome
TYBSc (Paper-I)	Metric Spaces	• Learn the basic abstract ideas of analysis • Learn the basic ideas open sets, closed sets, limit point, isolated points, boundary points, subspace, product metric spaces and apply them to study the nature of sets. • Learn the theorems on completeness, compactness, connectedness and use them to solve the problems. identify the continuity of a function which is defined on metric spaces, at a given point and identify the set of points on which a function is continuous by using different theorems
TYBSc (Paper-II)	Real Analysis- I	• Know sequence and series of real numbers and their convergence and divergence.
TYBSc (Paper-IV)	Group Theory	• Identify the various algebraic structures with their corresponding binary operations. • Generalize the groups on the basis of their orders, elements, order of elements and group relations • Compare two groups of same orders on the basis of isomorphism Criteria. • Compute the possible subgroups of given group of specific orders and will recognize them.
TYBSc (Paper-V)	Ordinary Differential Equations	• Solve linear differential equations with constant coeffiecients, non-homogeneous differential equations, system of first order equations, solution of differential equations by Power series method
TYBSc (Paper-VII)	Operations Research	• Formulate and model a LPP from a word problem and solve them graphically in 2-D. • Apply Simplex and two phase method to solve LPP. • know primal –dual relationship . • Understand basic notions like feasibility, infeasibility, basic solutions, unbounded solutions etc. • Find IBFS and optimal solution of transportation problem. • Solve assignment problem using Hungarian method.
T.Y.B.Sc. (Paper-VIII) MT 337D	Lattice Theory	• Understand the terms ordered sets, diagrams, down sets and up sets. • Identify the Lattices, sublattices, Ideals , Filters and Join-irreducible elements. • Students can solve examples of products of Lattices, Lattice homomorphisms and ascending chain conditions. • Identify the modular, distributive and Boolean Lattices. • Students can solve the examples of disjunctive normal form.

Semester IV

Class	Course title	Outcome
TYBSc (Paper-I)	Complex Analysis	• Solve problems on basic concepts of modulus, argument of a complex number, De-Moivre's theorem and use them to find roots of an algebraic equation. • Define continuity and differentiability for complex functions. • Prove the Cauchy-Riemann equations and apply them to complex functions in order to determine whether a given continuous function is complex differentiable • Evaluate integrals along a path - directly from the definition and also via the Fundamental Theorem of Contour Integration and Cauchy's Theorem, • Compute the Taylor and Laurent expansions of simple functions, determining the nature of the singularities and calculating residues • Prove the Cauchy Residue Theorem and use it to evaluate integrals.
TYBSc (Paper-II)	Real Analysis-II	• Know convergence of sequence and series of functions, Riemann integrals, Improper integrals and its applications.
TYBSc (Paper-IV)	Ring Theory	• Assess properties implied by the definitions of rings • Use various canonical types of rings • Analyze and demonstrate examples of ideals and quotient rings. • Use the concept of isomorphism and homomorphism for rings.
TYBSc (Paper-V)	Partial Differential Equations	• Form the partial differential equations and Solve the problems on Pfaffian differential equations. • Solve the problems on first order and higher degree partial differential equations and its applications.
TYBSc (Paper-VII) MT 347 D	Graph Theory	• Identify the Graph, Vertex Degree, *Sub graphs, Paths* and Cycles, • Students can solve examples of adjutancy and incidence matrix. • Compute the spanning trees and shortest path problems. • Identify the Euler tours and Hamiltonian cycles. • Students can solve the problems on tournaments and traffic flow.
TYBSc (Paper-VIII)	Computational Geometry	• Learn algorithms , two and three dimensional transformations such as scaling, shearing, reflection, rotation, translation etc. • Assess theoretical and practical problemsthat involves Projection. • Generate uniformly spaced points on circle, ellipse, hyperbola, parabola and learn properties of Be'zier curve. • Generalize basic notions of reflection, rotation, projection with real life examples.

Course Outcomes of MSc (Mathematics): Semester I

Class	Course title	Outcome
MSc I	MTUT111: Linear Algebra.	• Use the concept of basis and dimension of vector spac linear dependence and linear independence, to solve problem • Use the concept of inner product spaces to find norm vectors, distance between vectors, check the orthogonality vectors, to find the orthogonal and orthonormal basis. • Analyze and solve a linear system of equations. • Characterize linear transformations as onto, one-to-one.
MSc I	MTUT-112 : Real Analysis	• Understand the concept of Lebesgue Outer Measure. • Understand the Definition and algebra of Lebesgue Measurable Functions. • Understand the concept of sequential Point wise Limits and Approximations by Simple Functions. • Understand the concept of Differentiation and Integration.
MSc I	MTUT 113 Group Theory	• Identify the various algebraic structures with their corresponding binary operations. • Generalize the groups on the basis of their orders, elements, order of elements and group relations • Compare two groups of same orders on the basis of isomorphism Criteria. • Compute the possible subgroups of given group of specific orders and will recognize them. • Compute factor groups with respect to normal subgroups • Understand Sylow theorem and its applications
MSc I	MTUT 114: Advanced Calculus	• Learn differentiability in Several Variables. • Apply the Implicit Function Theorem . • Know Integration in Higher Dimensions , Multiple Integrals and Iterated Integrals , Apply Change of Variables for solvin Multiple Integrals. • Solve problems on Line and Surface Integrals.
MSc I	MTUT115: Ordinary Differential Equations	• Able to solve Linear equations with constant coefficients an linear equations with variable coefficients . • Obtain regular singular points. • Solve Bessel's equation • Solve system of n order equations.

Semester II

Class	Course title	Outcome
M.Sc. I	MTUT121: Complex Analysis	• This course is aimed to provide an introduction to the theories for functions of a complex variable. • It begins with the exploration of the algebraic, geometric and topological structures of the complex number field. • The concepts of analyticity, Cauchy Riemann relations and harmonic functions are then introduced. • Students will be equipped with the understanding of the fundamental concepts of complex variable theory.

		• Acquire the skill of contour integration to evaluate complicated real integrals via residue calculus.
M.Sc. I	MTUT122: General Topology	• Understand the concept Cartesian Products Finite Sets, Countable and Uncountable Sets ,Infinite Sets and Axiom of Choice ,Well Ordered Sets. • Understand the concept and solve the problem Topological Spaces , Basis for a Topology , Order Topology , Product Topology on $X \times Y$,Subspace Topology ,Closed Sets and Limit Points , Continuous Functions ,The Product Topology, Metric Topology, Quotient Topology. • Understand the concept of Connected and Compact Spaces. • Understand the concept of Countablity and Separation Axioms.
M.Sc. I	MTUT123: Rings and Modules	• Analyze and demonstrate examples of ideals and quotient rings • Use the concept of isomorphism and homomorphism for rings • Assess properties implied by the definitions of rings and modules • Confidently apply algebraic concept
M.Sc. I	MTUT124: Advanced Numerical Analysis	• Learn special matrices including Permutation, Hessenberg, Companion, Nonderogatory, Diagonally dominant and Differenciate between vector and matrix norm. • Calculate errors at the time of various numerical calculation. • Study basic algorithms for computing Norm of a vector, Inner product of two vectors, solution of an Upper Triangular system and other systems. • Apply Gaussian Elimination and LU factorization . • Find Least Squares Solutions to Linear System and do Error Analysis.
M.Sc. I	MTUT125: Partial Differential Equations	• Able to learn compatible systems. • Use Charpit's method and Jacobi's method to solve first order partial differential equations. • Classify second order partial differential equations. • Obtain canonical forms of parabolic , hyperbolic and ellipti equations. • Solve elliptic, parabolic and hyperbolic boundary value problems.

Semester III

Class	Course title	Outcome
M.Sc.II	Combinatorics	• Understand the ideas of permutations and combinations • Understand the addition and multiplication principles for counting • Understand how to apply combinatorial ideas to real life

		problems • Use generating functions to solve variety of combinatorial problems
M.Sc.II	Field Theory	• Understand basic notions in the theory of field extensions • Apply the thms of algebraic extensions, splitting fields, separable and insepa. Extensions to find the various examples of extensions. • Relate the group theory and Galois theory in finding the Galois extension and Galois group. • Understand basic theory of composite extensions, simple extensions and cyclotomic extensions
M.Sc.II	Functional Analysis	• Student learns the basics of functional analysis. • They learn to treat the vector spaces which have the additional property of being topological spaces. • Blending of these two structures brings them an exposure to higher mathematics. Important theorems like the Hahn-Banach theorem are taught here. These theorems stand a student in good stead throughout his mathematical life. • The student having seen basic analysis and linear algebra is expected to learn how these topics play a significant role, first in multi-variate calculus which then naturally leads to calculus on manifolds. • The intimate relationship between analysis and geometry should become apparent at the end of this course.
M.Sc.II	Topics in Analysis -I	• Explain the Fundamental concepts of the Theory of Integral Equation. • Distinguish the difference between Differential Equations and Integral Equations,singular integral equation. Convert he differential equation into an integral equation and vice versa. • Solve the problems on Fredholm integral equations by Adomian decomposition memthod, direct computation method and on Volterra integral equations equations by Adomian decomposition methodseries solution method successive approximation method. • Find the solution of the problems on Fredholm Integro differential equation, Volterra Integro differential equation. • Learn the methods and properties of Laplace transform and Inverse Laplace Transform, apply them to solve Linear Differential equations. • Apply the fundamental concepts of Fourier transform, Fourier Sine Transform, Fourier Cosine Transform to Evaluate Improper Integrals.
M.Sc.II	Topics in Algebra	• Understand the core ideas of countability and uncountability • Understatnd the theory of compactness, connectedness and completeness • Understand the heridatory topological properties • Understand the thms on normal spaces, regular spaces and

		relation between them

Semester IV

Class	Course title	Outcome
M.Sc.II	Number Theory	• Solve various problems on properties of integers and use the basic concepts of divisibility, congruence and their applications in basic algebra. • The students are able to Free Open Learn course, Introduction to number theory, as well as becoming proficient at modular arithmetic, you should find that you are increasingly able to communicate mathematical ideas and apply your knowledge and understanding to mathematics in everyday life, in particular to applications, such as the prevention of errors in ID numbers
M.Sc.II	Differential Geometry	• Recognize different types of graphs and its level sets • Understand basic notions related vector fields, tangent spaces and surfaces • Understand core ideas of orientation, geodesics, parallel transport, Weingarten map and Curvatures • Solve examples on curvatures, arc lengths and line integrals, curvature of surfaces
M.Sc.II	Fourier Analysis and Boundary Value Problems	• Find the Fourier series representation of a function of one variable • Find the solution of Wave equation, Lapalce equation. Heat equation using the fourier series
M.Sc.II	Discrete Mathematics	• Understand the language of graphs and model • Understand the use of graphs as model • Solve real world problems using graphs and trees
M.Sc.II	Topics in Algebra	• Analyze and demonstrate examples of ideals and quotient rings • Use the concept of isomorphism and homomorphism for rings • Assess properties implied by the definitions of rings and modules • Confidently apply algebraic concept

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of Statistics

Program outcome : B.Sc.(Statistics)	
1.	To understand the statistical methods and increase problem solving ability.
2.	To acquire the strong foundation of statistical concepts which will benefit them in a master's degree?
3.	To use the knowledge of Statistical tools and techniques in solving real life problems/situations.
4.	To acquire the knowledge of statistical software for problem solving.
5.	To prepare students for entrance examinations.

Program outcome : M.Sc. (Statistics)	
1.	To have specialized knowledge and understanding of statistical theory at an advanced level which take into account recent advances in the subject.
2.	To acquire the strong foundation of statistical concepts which will benefit them to become good academicians.
3.	To use acquired statistical methodologies and modelling techniques to address real-life problems.
4.	To gain the knowledge of software which has the wide range of opportunities in the Quality control, Planning and development, IT sector, R&D in industries, Business, Government and private sectors etc.
5.	To prepare students for various examinations like National / State level ISS, DSO, CSIR-UGC NET, SLET, GATE, MPSC, UPSC, Banking etc.
6.	To inculcate research attitude.

Program Specific outcome : B.Sc. (Statistics)	
1.	Understand the statistical theory with applications.
2.	To imbibe problem-solving and computational skills.
3.	To enhance self learning and improve own performance.
4.	Gain the knowledge of software which will be useful in Industry.
5.	To get ability in applying the theory/ tools/techniques of statistics in project work .

Program Specific outcome : M.Sc.(Statistics)	
1.	To understand, implement and develop statistical models.
2.	To handle and analyze small as well as large databases with computer skills.
3.	To describe complex statistical ideas to non-statisticians and to present the results of their analyses in written, oral forms and can make practical suggestions for improvement.
4.	To get a wide range of statistical skills in problem-solving.

5.	To prepare students for taking prominent roles in a wide spectrum of employment and research through project work and presentations.

Course Outcomes of FYBSc (Statistics) : Semester I

Class	Course title	Outcome
FY (Paper-I)	ST – 111: Descriptive Statistics I	• to acquaint students with some basic concepts in Statistics • to compute various measures of central tendency, dispersion, skewness and kurtosis • to analyze data pertaining to attributes and to interpret the results
FY (Paper-II)	ST – 112: Discrete Probability and Probability Distributions I	• to introduce to the students the basic concepts of probability, axiomatic theory of probability • to distinguish between random and non-random experiments • to find the probabilities of events • to obtain a probability distribution of random variable (one or two dimensional) in the given situation
FY (Paper-III)	ST – 113 : PRACTICALS	• To use various graphical and diagrammatic techniques and interpretation. • to analyse data pertaining to discrete and continuous variables and to interpret the results, • to compute various measures of central tendency, dispersion, skewness and kurtosis. • to interpret summary statistics of computer output • to summarize and analyze the data using computer

Semester II

Class	Course title	Outcome
FY (Paper-I)	ST - 121: Descriptive Statistics II	• Compute the correlation coefficient for bivariate data and interpret it. • Fit linear, quadratic and exponential curves to the bivariate data to investigate the relation between two variables. • to analyze data pertaining to attributes and to interpret the results
FY (Paper-II)	ST – 112: Discrete Probability & Probability Distributions II	• to apply standard discrete probability distribution to different situations. • To study properties of these distributions as well as interrelation between them
FY (Paper-III)	ST – 123 : PRACTICALS	• to compute correlation coefficient, regression coefficients, • to compute probabilities of bivariate distributions, • to fit binomial and Poisson distributions • to compute probabilities of bivariate distributions. • to draw random samples from Poisson and binomial distributions

Semester I

SYBSc-(Paper-I)	ST 211: Discrete Probability Distributions, Time Series and R-Software	• Apply the discrete distributions in real life problem. • Understand the concept of time series with its components. • Understand basics of R environment. • Perform various operations on data in R
SYBSc (Paper-II)	ST 212: Continuous Probability Distribution -I	• Obtain summary statistics of a continuous random variable. • Obtain probability of events related to continuous random variable. • Identify whether variables are independent. • Obtain correlation and regression lines,m.g.f. moments, probabilities for bivariate continuous random variable. • Explain probability distributions,nature of curve, properties of continuous uniform,exponential,normal,gamma distributions and relations between them.

Semester II

SYBSc (Paper-I)	ST 221: Statistical Methods and Use of R-Software	• Understand multiple linear regression models with applications. • Formulate the null and alternative hypotheses and apply small, large sample tests in real life problems. • Understand the different ways of summarizing the Vital Statistics. • Formulate M/M/1 queue and find its parameter alsofind the average waiting time in queue.
SYBSc (Paper-II)	ST 222: Sampling Distributions and inference	• Derive probability distribution function of chi-square, t, F distribution • Explains interrelation between the above distributions and their properties. • Get familiar with statistical tests of hypothesis and are able to apply in real life situations in various fields.
SYBSc (Paper-III)	ST 223: Practicals	• Real life applications of various discrete and continuous distributions. • Perform various operations on data in R- Software and MS- Excel. • Do descriptive statistical analysis in R- Software and MS-Excel. • Perform different large and small sample test using R-Software and MS- Excel.

Semester I

TYBSc (Paper-I)	ST 331: Distribution Theory	• Prove students with a formal treatment of probability theory. • Equip students with essential tools for statistical analyses at the graduate level.

		• Foster understanding through real-world statistical applications. • Understand techniques for quantifying these uncertainties.
TYBSc (Paper-II)	ST 332:Theory of Estimation	• Understand meaning of Statistical Inference. • Know the methods of Estimation. • Study characteristics of good estimator.
TYBSc (Paper-III)	ST 333 Sampling Methods	• Understand the basic principles of sample survey. • Apply the different sampling methods for designing and selecting a sample from a population. • Implement Ratio and Regression estimation in real life problems. • To understand the role of sample survey in Research.
TYBSc (Paper-IV)	ST-334: Design of Experiments	• Understand the concept of ANOVA and basic principles of DOE. • Analyze the data using CRD, RBD, LSD and factorial experiments. • Understand the concept of ANOCOVA with real life situations. • Study the Application of confounding in real life problems.
TYBSc (Paper-V)	ST 335: C Programming (Turbo C)	• Learn the basics of Turbo C. • Use control structures such as if...else, for loop, while loop. • Write program using arrays. • Create recursive and non-recursive functions in C. • Write small as well as long programs in C.
TYBSc (Paper-VI)	ST 336: Introduction to Regression Analysis	• Apply simple linear regression model to real life examples. • Understand multiple linear regression models with applications. • Compute multiple and partial correlation and checking residual diagnostic to validate model. • Apply Logistic models and its implementation in real life situation.

Semester II

TYBSc (Paper-I)	ST 341 Actuarial Statistics	• Understand the utility theory, insurance products and life tables. • Understand the concept of interest • Understand the concept of life insurance and the existing insurance products of different insurance company. • Know life annuities, net premium.
TYBSc (Paper-II)	ST 342: Testing of Hypotheses	• Study MP test, UMP test, LR test, SPR test. • Understand the difference between MP, UMP,LR,and SPR tests. • Understand the difference between parametric and nonparametric tests. • Study various non-parametric tests.
TYBSc (Paper-III)	ST 343: Statistical	• Understand online and offline process controls. • Apply X-bar chart, R-chart, C-chart and P-chart in real life

	Quality Control	data. • Apply the acceptance sampling plans in production process. • Compute capability indices.
TYBSc (Paper-IV)	ST 344: Operation Research	• Understand the need of operation research for effective decision making. • Formulate the dual LP Problem and understand the relation between primal and dual LP problems. • Solve artificial variable technique, duality theory, revised simplex method, sensitivity analysis, transportation and assignment problems. • Solve real life problems using integer programming.
TYBSc (Paper-V)	ST 345 (A): Reliability and Survival Analysis	• Understand the elements of reliability, hazard function and its applications. • Understand the concept of censoring, life distributions and ageing classes. • Estimate nonparametric survival function of the data. • Explain test of exponentiality against nonparametric classes, two sample problems.
TYBSc (Paper-VI)	ST 346: Statistical Computing using R software	• Learn the basics of R with descriptive statistics (measures of central tendency and dispersion). Import, review, manipulate and summarize data-sets in R. • Visualization of the data through different diagrams (simple, multiple and sub-divided bar diagram) and graphs (histogram, frequency polygon, stem and leaf plot, boxplot). • Compute probabilities and fitting of probability distribution with R environment. • Perform correlation, regression analysis and appropriate statistical tests for real life situations using R. • Perform non-parametric tests for real life data sets.
TYBSc (Paper-VII)	Practical Paper I	• Apply and fit continuous distribution to real life situations. • Perform parametric and non-parametric tests. • Perform sampling methods analysis. • Calculate accumulated value, present value, effective rate of discount and benefit premiums. • Construct life tables.
TYBSc (Paper-VIII)	Practical Paper II	• Analyse data using various designs like RBD,LSD, Factorial. • Find efficiency of designs and its comparison. • Draw various charts, check the status of process and revising the limits to bring the process under control. • Study lot quality • Find optimal solution using various techniques like LPP, TP, AP. • Find optimum project completion path and probability of completion of project.
TYBSc	Practical	• Write short and long programs in C.

(Paper-IX)	Paper III	• Create recursive and non-recursive function in C. • Perform simple, multiple and logistic regression analysis using R-software. • Perform parametric and non-parametric test using R-software. • Analyse real life data sets using R-software.

Course Outcomes of M.A/M.Sc (Statistics): Semester I

Class	Course title	Outcome
M.Sc.I	ST-11: Basics of Real Analysis and Calculus	• Apply fundamental concepts of Real Analysis. • Define and recognize sequence, series of real numbers. • Understand and recognize various continuous and discontinuous functions. • Gain knowledge about differentiability of real functions and to apply related theorems to solve various examples. • To study Riemann and Riemann-Stieltjes Integral and it's applications in Statistics. • Solve integrals and evaluation of multiple integrals with numerical problems. • Use of integration to find the area under curve and the area between curves.
M.Sc.I	ST-12: Linear algebra and Numerical methods	• Use the basic concepts of vector and matrix algebra for analysis of matrices, Vector space and systems of linear equations. • Use the characteristic polynomial to compute the eigen values and eigenvectors of a square matrix and use them to diagonalizable matrices when this is possible. • Understand the concept of G- inverse and MP G- inverse apply in real life situations. • Compute the quadratic forms, maxima and minima ratio of quadratic forms. • To find local minima of a function using Gird search method , gradient search method and also using Newton's Raphson method.
M.Sc.I	ST-13: Probability Distribution	• Understand the most common discrete and continuous probability distributions and their real life applications. • Compute marginal and conditional distributions from joint distributions. • Get familiar with transformation of univariate and multivariate densities. • Understand the nature of data and to perform appropriate analysis • Understand continuous bivariate distributions. • Apply compound, truncated, mixture and non-central probability distributions to solve problems.
M.Sc.I	ST-14: Sampling Theory	• To apply unequal probability sampling designs viz.PPSWR, and determine the sample size for corresponding sampling technique.

		• Apply the stratified sampling methods for designing and selecting a sample from a population and concept of strata. • Implement Systematic sampling, Ratio and Regression estimation in real life problems. • Perform cluster sampling, two Stage sampling in real life situation.
M.Sc.I	ST-15: Practical-I	• Solve the system of linear equations using MATLAB/ R Software. • Verify Matrix algebra using MATLAB/ R Software. • Fit the distributions to a real life data using R-software. • Perform sampling methods analysis using Minitab-software. • To find critical points and use them to locate maxima and minima of a function using R Software /Matlab. • Use the Newton -Raphson method to solve a nonlinear equation using R-Software /Matlab. • To learn Monte carlo simulation technique for solving various types of problems using R-Software /Matlab.

Semester II

Class	Course title	Outcome
M.Sc.I	ST-21: Probability Theory	• Recognize common probability distributions for discrete and continuous variables. • Apply methods from algebra and calculus to derive the mean and variance for a range of probability distributions. • Calculate probabilities relevant to multivariate distributions, including marginal and conditional probabilities and the covariance of two random variables. • To study various inequalities. • Understand the concept of convergence, common methods for evaluating an inequalities performance and properties of desirable estimators. • Understand the central limit theorem and large-sample approximations for common statistics.
M.Sc.I	ST-22: Regression Analysis	• Apply simple and multiple linear regression model to real life examples. • Compute multiple and partial correlation and checking residual diagnostic to validate model. • Understand multiple linear regression models with applications and concept of lack of fit test, multicollinearity and autocorrelation. • Understand orthogonal polynomial and cubic spline regression model. • Understand logit transform, log link transform and different test for logistic and poisson regression. • Apply Non-linear regression models and its implementation in real life situation.
M.Sc.I	ST-23:	• Obtain the sufficient statistic, minimal sufficient statistic

	Statistical Inference I	for the parameter under study. • Obtain Fisher information matrix for special classes of distributions. • Understand the concept of MVBUE, UMVUE. • Understand and apply NP lemma and UMP test on real life data. • To apply MLR property and UMPU test with their applications. • Obtain confidence interval and apply the concept of Bayesian inference in real life situations.
M.Sc.I	ST-24: Multivariate Analysis	• Find the distribution of linear transformation of a random vector. • Apply cluster analysis on real life data. • Perform data reduction using principal component analysis on real life data. • Demonstrate knowledge and understanding the basic ideas behind factor analysis and canonical correlation with applications. • Understand multivariate normal distribution and their real life applications. • Understand Wishart distribution, Hotelling T2 and Mahalanobis D2 statistic. • Implement dimension reduction techniques using software on real life problems. • Understanding the basic ideas behind discriminant analysis technique with applications.
M.Sc.I	ST-28: Practical II	• Perform simple and multiple regression analysis using Minitab software on real life problems. • Apply non- linear and logistic Regression models to real life situations. • Apply the central limit theorem and weak law of large numbers. • Explore multivariate data and its analysis. • Understand PCA, factor analysis, cluster analysis and discriminant analysis using software on real life problems. • Draw model sample from multivariate normal distribution and understand the application of Hotelling T^2 statistics.

Course Outcomes of M.A/M.Sc (Statistics): Semester III

Class	Course title	Outcome
M.Sc. II	ST 31: Markov Chains	• Develop an ability to analyze and apply some basic stochastic processes for solving real life situations. • Understand the Markov chains and various types of states. • Learn use of absorbing state analysis for predicting future conditions. • Understand Gambler ruins problem and branching processes with applications.

M.Sc. II	ST 32: Design and Analysis of Experiments	• Understand the concept of BIBD, connectedness, balancedness and orthogonality of design. • Understand the difference between fixed and random effect models. • Compare the pairs of treatment means using different methods. Construct fractional factorial experiments and apply confounding in real life problems. • Construct the taguchi design. Apply the split plot design on real life examples.
M.Sc. II	ST 33: Asymptotic Inference	• Understand the concept of consistency and asymptotic normality. • Understand method of moments and percentiles, maximum likelihood to find consistent estimator and Cramer Huzurbazar theorem. • Apply likelihood ratio tests, Wald, Score and Bartlett's test in real life situations. • Compare various tests through relative asymptotic efficiency.
M.Sc. II	ST 34: Statistical Process Control	• Understand the concept of total quality management, six sigma approach • Understand basic of production process monitoring and apply the concept of control charts on it • Apply multivariate and non-parametric control chart to real life data sets • Compute capability indices • Apply the acceptance and continuous sampling plans in production process
M.Sc. II	ST 35: Practical IV	• Understand the concept of one-way and two-way classification using real life examples. • Analyse BIBD, covariance in one-way and two-way model. • Understand factorial design using real life problems. • Fit response surface models • Apply Taguchi methods to real life data sets
M.Sc. II	ST (E)36: Data Mining	• Organize and prepare the data needed for data mining using pre-processing techniques. • Understand unsupervised learning techniques for univariate and multivariate data. • Understand supervised learning techniques for moderate to high dimensional spaces. • Apply classification methods to real life problems in various fields.
M.Sc. II	ST (E)38: Optimization Technique	• Understand basics and formulation of linear programming problems. Apply simplex method to solve real life problems. • Solve the examples of sensitivity analysis, transportation, transshipment and assignment problems. • Understand the non-linear programming with their

		applications. • Understand the concept of PERT/ CPM with real life applications.

Course Outcomes of M.A/M.Sc (Statistics): Semester IV

Class	Course title	Outcome
M.Sc. II	ST 41: Stochastic Processes	• Understand the stochastic processes and to learn birth and death process and application of Poisson process in real life situations. • Formulate and solve problems which involve setting up stochastic models. • Understand renewal theory and branching processes with applications. • To understand various components of queuing system and description of each of them.
M.Sc. II	ST 42: Time Series Analysis	• Understand the concept of time series with its components and able to compute ACVF and ACF. • Remove trend and seasonality using different methods to convert the time series into stationary. • Apply auto regressive, moving average, ARMA, ARIMA models, Box-Jenkins approach to forecast time-series data empirically. • Check and validate models with its residual analysis and diagnostic checking
M.Sc. II	ST 43: Actuarial Statistics	• Understand the concept of survival function and future life time random variable with the application of life table • Calculate the premiums for continuous and discrete set up for different types of policies • Calculate reserves for continuous and discrete set up for different types of policies
M.Sc. II	ST 44: Survival Analysis	• Understand the basic principles of sample survey. • Understand the concept of hazard function and its applications. • Understand the concept of censoring, life distributions and ageing classes. • Estimate nonparametric survival function of the data. • Apply test of exponentiality against nonparametric classes, two sample problems.
M.Sc. II	ST-45: Practical V	• Analyse time series models. • Analyse different time series models such as ARIMA, SARIMA, etc. • Understand non-parametric models for forecasting. • Realization of markov chain • Realization of poisson process, birth and death process, etc. • Analysis of complete and censored data. • Calculate accumulated value, net premiums and reserves • Construct life tables

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Program Outcomes, Course specific Outcomes

Department of Computer Science

Program outcome : B.Sc. (Computer Science) and B.C.A.(Science)	
1.	Train students in algorithmic and programming skills
2.	Build the necessary skill set for developing computer based solutions for real life problems.
3.	Develop problem solving abilities using a computer
4.	Provide quality software development practices.
5.	Create awareness about process and product standards
6.	Train students in professional skills related to Software Industry.
7.	Prepare necessary knowledge base for research and development in Computer Science
8.	Help students build-up a successful career in Computer Science

Program outcome :M.Sc. (Computer Science) and M.Sc. (Computer Application)	
1.	Impart the necessary learning skills and independence for further studies
2.	Can initiate and lead projects within the scientific field and be responsible for the work of individuals and groups
3.	Can communicate scientific information, challenges and findings to scholars as well as to general audience
4.	Are capable of presenting and describing scientific issues and research findings
5.	Can make decisions in an independent, professional manner and support
6.	Can make decisions in an independent, professional manner and support
7.	Are capable of developing software projects
8.	Will get ability to adapt team work

Program Specific outcome : B.Sc. (Computer Science) and B.C.A. (Science)	
1.	Demonstrate understanding of the principles and working of the hardware and software aspects of computer systems
2.	Design, implements, test, and evaluate a computer system, component, or algorithm to meet desired needs and to solve a computational problem

Program Specific outcome : M.Sc. (Computer Science) and M.Sc. (Computer Application)	
1.	Design and develop computer programs/computer-based systems in the areas related to algorithms, networking, web design, cloud computing, IoT and data analytics of varying complexity
2.	Acquaint with the contemporary trends in industrial/research settings and thereby innovate novel solution to existing problems

Course Outcomes of B.Sc. (Computer Science)

Class	Course title	Outcome
FYBSc(CS)	CS 111 Problem Solving using computer and C programming	• Explore algorithmic approaches to problem solving. • Develop modular programs using control structures and arrays in 'C'
FYBSc(CS)	CS-112 Database Management Systems	• Solve real world problems using appropriate set, function, and relational models. • Design E-R Model for given requirements and convert the same into database tables. • Use SQL.
FYBSc(CS)	CS-113 Practical course based on CS111 and CS112	• Devise pseudocodes and flowchart for computational problems. • Write, debug and execute simple programs in 'C'. • Create database tables in postgreSQL. • Write and execute simple, nested queries.
FYBSc(CS)	CS-121 Advanced 'C' Programming	• Develop modular programs using control structures, pointers, arrays, strings and structures • Design and develop solutions to real world problems using C.
FYBSc(CS)	CS-122 Relational Database Management Systems	• Design E-R Model for given requirements and convert the same into database tables. • Use database techniques such as SQL & PL/SQL.
FYBSc(CS)	CS-123 Practical course based on CS121 and CS122	• Write, debug and execute programs using advanced features in 'C'. • To use SQL & PL/SQL. • To perform advanced database operations.

Course Outcomes of M.Sc. (Computer Science)

Class	Course title	Outcome
MSc (CS)	CSUT111 Principles of Programming Languages	Develop a greater understanding of the issues involved in programming language design and Implementation
MSc (CS)	CSUT112- Design and Analysis of Algorithm	Basic Algorithm Analysis techniques and understand the use o asymptotic notation
MSc (CS)	CSUT113- Database Technologies	Understand the concepts of NOSQL technologies
MSc (CS)	CSUT114A- Cloud Computing	Understand the principles and paradigm of Cloud Computing
MSc (CS) Sem-II		
MSc (CS)	CSUT121-	Teaches Advanced Operating Systems

	Advanced Operating Systems	Concepts using Unix/Linux and Windows as representative examples
MSc (CS)	CSUT122-Mobile Technologies	Impart basic understanding of the wireless communication systems.
MSc (CS)	CSUT123 Software Project Management	Covers skills that are required to ensure successful medium and large scale software projects.
MSc (CS)	CSUT124A-Project	The Project can be platform, Language and technology independent

Course Outcomes of BCA(Science)

Class	Course title	Outcome
FYBCA(Sci)-Sem I		
FYBCA(Sci)	BCA111 Fundamentals of Computers	• Troubleshoot the computer systems and use utility software. • Choose commands and features of operating systems and application software
FYBCA(Sci)	BCA112 Problem Solving and C Programming	• Define algorithms and explain their characteristics Formulate algorithm and draw flow chart to solve a given problem • Explain use of appropriate data types, control statements
FYBCA(Sci)	BCA115 Fundamentals of Computers Laboratory	• Relate and apply techniques for constructing mathematical proofs and make use of appropriate set operations, propositional logic to solve problems • Use function or relation models to interpret associated relationships • Apply basic counting techniques and use principles of probability
FYBCA(Sci)	BCA116 C Programming Laboratory	• Formulate an algorithm and draw flowchart for the given problem • Implement the given algorithm in C • Write programs using appropriate data types and control structures in C
FYBCA(Sci)-Sem II		
FYBCA(Sci)	BCA122 Advanced C Programming	• Write programs using pointers, structures and unions • Use Pre-processor directives • Manipulate strings using library functions • Write programs to perform operations on Files
FYBCA(Sci)	BCA123 Operating Systems Concepts	• Explain basic concepts of operating system • Use basic Linux commands and Linux documentation • Write shell scripts
FYBCA(Sci)	BCA124 Database	• Design E-R Model for given requirements and

	Management Systems – I	convert the same into database tables. • Formulate database queries using SQL • Design a database in appropriate normal form
FYBCA(Sci)	BCA126 Advanced C Programming Laboratory	• Write programs using pointers, structures and unions • Use Pre-processor directives • Manipulate strings using library functions • Write programs to perform operations on Files
FYBCA(Sci)	BCA127 Operating Systems Laboratory	• Install Linux and packages, configure environment • Use commands and editors and use documentation • Configure Security and network environment
FYBCA(Sci)	BCA128 Database Management Systems - I Laboratory	• Prepare E-R Diagram for the given problem statement • Formulate appropriate SQL DDL Queries • Formulate appropriate SQL DML Queries
SYBCA(Science)-SemI		
SYBCA(Sci)	BCA301 Data Structure	• Study the various structures or methods of organizing data in computer's memory • To efficient implement of various structures
SYBCA(Sci)	BCA302 Advanced RDBMS	• Study fundamental concepts of RDBMS (PL/Pgsql) • Study database management operations • Study data security and its importance • Study client server architecture
SYBCA(Sci)	BCA303 Software Engineering	• Understand system concepts • To know about software engineering and its application in Software development
SYBCA(Sci)	BCA304 Introduction to Computer Network	• Understanding of the fundamental concepts of computer networking. • To prepare students with basic networking concepts: data communication, protocols and standards, various topologies & applications of network.
SYBCA(Science)-SemII		
SYBCA(Sci)	BCA401 C++	• Understand object oriented programming: • Be able to explain the difference between object oriented programming and procedural programming • Be able to program using C++ features such as Class, objects, operator overloads, dynamic memory allocation, inheritance and polymorphism, file I/O, exception handling, etc. • Be able to build C++classes using appropriate encapsulation and design principles. • Improve problem solving skills • Be able to apply object oriented or non-object

		oriented techniques to solve bigger computing problems
SYBCA(Sci)	BCA402 Introduction Web Technology	• Understand client server architecture and able to develop a web applications • Gain the skills and project based experience needed for entry into web application and development careers
SYBCA(Sci)	BCA403 Advanced Networking and Network Security	• To defend and protect the network infrastructure, architecture, protocols and applications in order to deliver secured protocols, applications, services and data. • Evaluate and analyzed network security requirements to fulfill organizational objectives • Have a basic knowledge of the use of cryptography and network Security
SYBCA(Sci)	BCA404 OOSE	• Understand principles of Object Oriented Software Engineering from analysis to testing • Learn software development life cycle for object oriented solutions for real world problems • Learn various modeling techniques to model different perspectives of Object Oriented Software designs
SYBCA(Sci)	BCA407 Grid and Cloud Computing	• It focuses on High performance computing clusters and Web Services and their applications in economic and federated models of Grid and Cloud Computing • Analyze the problems & solutions to cloud application programs
TYBCA(Sci)Sem-I		
TYBCA(Sci)	BCA501 Java Programming	• Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class libraries, etc. • To handle abnormal termination of a program using exception handling
TYBCA(Sci)	BCA502 Advanced Web Technology	• Enhance and enrich skills in Web programming. • Understand concepts of internet programming. • Able to develop dynamic webpages by the use of the JAVA Script and HTML
TYBCA(Sci)	BCA503 Software Quality Assurance	• Understand the basic of quality software and quality factors. • Understand software quality architecture and component. • Understand software project life cycle, infrastructure and software quality standards.
TYBCA(Sci)	BCA504 Operating System	• Understand the objectives, structure and functions of operating system • Learn about concept of processes, threads and its scheduling algorithms

		• Understand design issues in process synchronization and deadlock management • Study various memory management schemes • Learn about concept file and I/O management in detail.
TYBCA(Sci)	BCA507 Soft Computing	• Learn the concept of soft computing. • Understand different soft computing techniques like Genetic Algorithms, Fuzzy Logic, Neural Networks and their combination
TYBCA(Sci)Sem-II		
TYBCA(Sci)	BCA601 Android Programming	• Understand the Android Operating System • Develop applications using Google's Android open-source platform
TYBCA(Sci)	BCA602 Python Programming	Introduce various concepts of programming using Python.
TYBCA(Sci)	BCA603 Recent Trends in IT (Internet of Things)	• The Internet of Things (IoT) is aimed at enabling the interconnection and integration of the physical world and the cyber space. • Learn about SoC architectures, programming Raspberry Pi and implementation of internet of things and protocols. • Understand System On Chip Architectures. Introduction and preparing Raspberry Pi with hardware and installation
TYBCA(Sci)	BCA604 Data Analytics	• Able to apply fundamental algorithmic ideas to process data. • Learn to apply hypotheses and data into actionable Predictions.
TYBCA(Sci)	BCA607 Introduction to Green Computing	• Building more energy-efficient computing systems as well as building computing technology that increases energy-efficiency of other physical systems. • Investigate recent advances in the broad realm of green technologies to save energy and reduce the carbon footprint of modern computing and engineered systems. • A holistic coverage is given ranging from single device issues to algorithms for reducing power consumption of data centers, transportation systems and smart buildings.

Course Outcomes of MSc (Computer Application)

Class	Course title	Outcome
MSc(CA)-Sem-I		
MSc(CA)-I	CACCTP-1 Web Technology Computer	• Understand basic concepts of Web technology. • Understand concepts of internet programming. • Able to develop dynamic webpages by the use

		of the JAVA Script and HTML
MSc(CA)-I	CACCTP-2 Advance Databases	• Understand basic concepts of Advanced database
MSc(CA)-I	CACCTP-3 Design and Analysis of Algorithm	• Basic Algorithm Analysis techniques and • understand the use o asymptotic notation
MSc(CA)-I	CACBOP-1 Object Oriented Programming with C++	• Understand object oriented programming: • Be able to explain the difference between object oriented programming and procedural programming • Be able to program using C++ features such as Class, objects, operator overloads, dynamic memory allocation, inheritance and polymorphism, file I/O, exception handling, etc.
MSc(CA)-Sem-II		
MSc(CA)-I	CACCTP-4 Data Mining and Ware Housing	• Understand Data Warehouse fundamentals, Data Mining Principles • Design data warehouse with dimensional modelling and apply OLAP operations. • Identify appropriate data mining algorithms to solve real world problems
MSc(CA)-I	CACCTP-5 Operating Systems	• Describe and explain the fundamental components of a computer operating system. • Design and construct the following OS components: System calls, Schedulers, Memory management systems, Virtual Memory and Paging systems
MSc(CA)-I	CACCTP-6 Computer Networks	• Understanding of the fundamental concepts of computer networking. • To prepare students with basic networking concepts: data communication, protocols and standards, various topologies & applications of network.
MSc(CA)-I	CACBOP-2 JAVA Programming	• Understand fundamentals of object-oriented programming in Java, including defining classes, invoking methods, using class • To handle abnormal termination of a program using exception handling

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Program Outcomes, Course specific Outcomes

Department of Geography

Program outcome: B.A./B.Sc./B.Com/B.Voc. (Geography)	
1.	Study the types of land and processes
2.	Understand the structure, composition of different spheres of the earth and its Atmosphere.
3.	Understand importance of oceans, rivers and water and find the ways of their conservation
4.	Understand the Function and types of Biogeography.
5.	Understand the science of Remote Sensing Make use of GIS & GPS software

Program outcome: M.A./M.Sc./M.Com. (Geography)	
1.	Study the types of land and processes
2.	Understand the structure, composition of different spheres of the earth and its Atmosphere.
3.	Understand importance of oceans, rivers and water and find the ways of their conservation
4.	Understand the Function and types of Biogeography.
5.	Understand the science of Remote Sensing Make use of GIS & GPS software

Program Specificoutcome: B.A./B.Sc (Geography)	
1.	Serve as a Geographer
2.	Work as a teacher in schools and high schools
3.	Serve as conservator in forest, Soil, Agri, Departments.
4.	Work in disaster and water resources management.
5.	Serve in forest department as forest conservator.
6.	Serve in cartographer in map making divisions of Government.
7.	Work in NGOs.
8.	Can Prepare for Competitive exams

Program Specificoutcome: M.A./M.Sc./M.Com. (Geography)	
1.	**Govt Department**:A geographer can avail job opportunities in government departments (like planning and developmental commissions, forestry, environmental, and disaster management departments etc), travel agencies, manufacturing firms, text book and map publishers, media agencies, etc.
2.	Cartographer: Many people choose to work as a cartographer who is a person with extensive knowledge about maps and is involved in making maps, charts, globes, and models of Earth and other planets.
3.	Surveyor: Many others with a degree in geography also opt to work as a surveyor.

4.	GPS Surveyors: In recent days even the fields of GIS as well as Remote Sensing are providing job opportunities to people with the educational background in geography and related specializations
5.	GIS and Remote Sensing Fields: Geography as a career provides multiple job options.
6.	Drafter: He/she associate closely with engineers and architectures. It involves planning, housing and development projects in terms of their location and utilization.
7.	Government employer: Central government agencies employ geographers for mapping, intelligence work and remote sensing interpretation. State and local governments employ geographers on planning and development commissions.
8.	Urban and regional planner: Concerned with planning, housing and Development projects with respect to their location and utilization of available land-space.
9.	GIS specialist: City governments, county agencies and other government agencies and private groups are often in need of experienced GIS professionals.
10.	Climatologist: Agencies viz. National Weather Service, news media, the Weather Channel and other government entities occasionally need climatologist.
11.	Transportation manager: The regional transit authorities or shipping, logistics and transportation companies requires in transportation geography.
12.	Researcher: Many Government and non-government institutes along with research centres offers several career options for qualified geographers with numerous specializations.
13.	Teacher/Professor: The college teachers, school teachers and university teacher. Depending upon the experience and degrees obtained
14.	Demographer: In government and research organizations.
15.	Government officer: Geographical Survey of India/State and Central government provides job opportunities
16.	It is learn that in the NET/SET, MPSC/UPSC and other competitive examinations.
17.	Digitizers in GIS Company

Course outcomes BA : Geography

Class	Course	Outcome
FYBA Semester-1	Physical Geography GG-110 (A)	• Students have aware about the nature and scope of physical geography. • Students have understood the earth's interior. • Students gain the knowledge about the earth system. • Acquired the knowledge of structure of atmosphere and heat balance of the earth. • Students aware about forms and types of precipitation • Students learnt about hydrological cycle and general structure of ocean floor. • Students acquired the skills of identify the landscapes that are located nearby their place
FYBA Semester-II	Human Geography GG-110 (B)	• Students have understood the basic information about Human Geography. It includes nature, scope and branches of Human Geography. • Students gained information about various characteristics of Indian population.

		• Students understood the theory of demographic transition. • Students gained knowledge about types and pattern of rural settlements. • Students understood the trends and patterns of Maharashtra's urbanization. • Students understood the various factors affecting on agriculture and problems related to agriculture.

Course outcomes BSc : Geography

Class	Course title	Outcome
FYBSC Semester-1	Introduction to Physical Geography–I (Geomorphology)	• The students understood the basic concepts in Geomorphology. • The students learnt about the earth systems and its dynamics. • The students acquainted with the utility and applications of Geomorphology in different areas and environment. • The students get awared about the need of protection and conservation of different landforms.
FYBSC Semester-1	Introduction to Physical Geography II	• Acquired the knowledge of structure of atmosphere and heat balance of the earth. • Students aware about forms and types of precipitation • Students learnt about hydrological cycle and general structure of ocean floor.
FYBSC Semester-II	Introduction to Human Geography	• Students understood the basic concepts in Human Geography which includes nature, scope and branches of Human Geography. • The students learnt about the human evolution and races. • Students gained information about various characteristics of world and Indian population. • Students understood the theory of demographic transition. • Students understood complex relationships between man and environment.
FYBSC Semester-II	Population and Settlement Geography	• Students gained knowledge about types and pattern of rural settlements. • The students learnt about the Population Dynamics. • Students understood the trends and patterns of urbanization in the world and in India. • Students gained knowledge about the problems and prospects of human population.

Class	Course title	Outcome
SYBA	GG 210- Elements of climatology and	• Understand the importance of Atmosphere and related concepts. • Understand heat balance and difference between heat and temperature.

	oceanography	• Understand the types of winds and local winds. • Understand the structure, composition of Atmosphere and vertical as well as horizontal variation. • Understand weather phenomena winds, humidity and precipitation. • Understand properties of ocean water and its characteristics. • Knowledge about effect of ocean Currents and its causes. • Study about types of tides. • Study of costal environment and Ocean Resources and its utilization.
SYBA	GG 220-Economic Geography	• Study the Human Economic Activities • Explain the Weber theory of Industrial Location 3. Understand the mineral and power resources • Study conventional and non-conventional energy resources Department of Geography • Study of the distribution of Iron and Steel, Automobile, Cotton Paper and Ship Building Industries in India • Get knowledge about types of agriculture, trade and transport. • Aware the student about need of conservation and Protection of natural resources. • Study of Transport and Trade • Understand the concept of Privatization, Globalization and Liberalisation
SYBA	GG 201-Fundaments of Geographical analysis	• Acquired the Plan Table and Prismatic Compass surviving techniques. • Known the components and function of GPS • Acquired Skills of handling GPS and Conducted GPS Survey • Measure Map Scales, conversion of scales • Understand types of projections • Preparation of various graphs and diagrams • Get knowledge about Statistical Methods. • Understand the different surviving techniques like, plane table, prismatic survey. • Acquire knowledge of preparation of drawing of profile with the help of Dumpy level. • Understand the socio economic condition of the villages.
TYBA	GG310-Regional geography of India	• Understand the about the physiographic division of India. • Understand the India Drainage system of India Rivers • Understand the climatic variation in India and climatic region of India. • Examine and understand the types of vegetation of India. • Understand the variation in industrial development in India. • Examine and understand the developed and underdeveloped states in India.
TYBA	GG320-Agricultural Geography	• Understand approaches of agricultural geography and its examples • Know the silent feature, problems and prospects of

		Agriculture. • Study about types of agriculture and its subtypes. • Understand methods of irrigation and modes of same. • Know the Importance of water Resources. • Study about water harvesting concept and methods. • Study allied areas in agriculture and agriculture development with examples. • Study the Problems and Prospect of Agriculture with reference to India • Understand sustainable agricultural development and initiatives.
TYBA	GG 301Techniques of spatial analysis	• know about Toposheets and its types • Understand the mechanism function of • Topographical maps. • Understand interpretation if weather images. • Understand the History of Remote Sensing • Know Arial Photographs and Satellite Imageries • Understand method of representation of relief. • Introduce the student of top sheet, weather map. • Understand the basic concept of RS GIS& GPS. • Mapping and interpretation of Arial Photograph.

Course outcomes MA: Geography

Class	Course title	Outcome
MA Semester-1	ALL	• The programme in geography is tailored to meet the students' specific educational, research and professional goals in mind. It focuses on spatial studies, qualitative as well as quantitative, and emphasizes on human-environment relationship. • Students are able to design and conduct independent research in their chosen field in the discipline • They can demonstrate knowledge of concepts, methods, and theories designed to enhance understanding of the natural world and human society. • Communicate the results and significance of their research in both written and oral form • Evaluate how historical events have been influenced by, and have influenced, physical and human geographic factors in local, regional, national, and global settings. • Examine social and environmental processes, with a particular focus on space and place, critical theory, practical application, analysis and intervention in chosen field within the discipline of Geography • Evaluate causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues. • Follow established ethical guidelines for research and teaching • Have an in-depth understanding of and mastery of the literature in Economic geography.

		• Classify processes of environmental change and evaluate the relationship between human beings and their surroundings, bringing to bear knowledge from many disciplines. • Students has better job opportunities in government departments, Cartographer, Researcher, Teacher/Professor, Competitive Examinations, Government employer, GIS specialist, Climatologist, Transportation Manager, Surveyor, GPS Surveyors.

Course Outcomes of M.A/M.Sc (Geography): Semester III

Paper	Course title	Outcome
GG 301	Geography of India with special reference to Maha.	• Understand the about the physiographic division of India and Maharashtra. • Understand the India Drainage system of India Rivers • Understand the climatic variation in India and climatic region of India and Maharashtra. • Examine and understand the types of vegetation of India and Maharashtra. • Understand the variation in industrial development in India and Maharashtra. • Examine and understand the developed and underdeveloped states in India.
GG 312	Trade and transport Geography	• Understand the history and development, nature, types, need and types of trade • Study the physical, economic, social and political factors influencing on international trade • Understand types, characteristics, merits and demerits of modes of transportation • Understand the role and significance various modes of transportation in local and international trade. • Understand the various problems of transportation in urban areas
GG 332	Practical in economic Geography	• Understand concepts of crop combination, Agricultural Efficiency and Agricultural Productivity. • Examine Location Quotient, Lorenz Curve, Gini‟s Coefficient and Von Thunean • Understand transport Network Analysis • Get information about gravity potential population surface model • Understand application Breaking Point theory (Trade Area)
GG303	Research methods in Geography	• Examining the introduction of research, motivation in research, types of research, significance of research, research process and criteria of good research. • To understand the research problems, selecting research problems, literature review and to study the hypothesis, its types, sources, formation of hypothesis and utility of hypothesis in scientific research. • To understand the research design, need, features basic

		principal and developing of research plan, and sampling design and its basic types, steps, characteristics of sampling design. • Study about type's data and methods of data collection and study the processing and analysis of data using different statistical methods. • Understand the interpretation and report writing, techniques, precaution of interpretation, layout of research report, types of reports and oral presentation mechanics of writing a research report.
GG 306	Geoinformatics-III	• Understand the modern techniques in geography under this course such as remote sensing and aerial photography. • Examining the history, basic theories of EMR, and other concepts. • Understand and get the knowledge about fundamental concept, types of aerial photography characteristics of aerial photographs and aerial camera. • Review on development of Indian remote sensing and functions of IRS. • To understand the types of remote sensing, and types of platforms in remote sensing. • To get an knowledge about satellite sensor and types of sensors, and their functions and characteristics Understand the data product, types of data product and its applications and uses in remote sensing
GG307	Practical in Geoinformatics	• Understand the modern techniques in geography under this course such as remote sensing and aerial photography. • Examining the history, basic theories of EMR, and other concepts. • Understand and get the knowledge about fundamental concept, types of aerial photography characteristics of aerial photographs and aerial camera. • Review on development of Indian remote sensing and functions of IRS. • To understand the types of remote sensing, and types of platforms in remote sensing. • To get an knowledge about satellite sensor and types of sensors, and their functions and characteristics • Understand the data product, types of data product and its applications and uses in remote sensing
GG 302	Interpretation of topographical map & village survey /project work	• Introduce the student of top sheet and SOI and OS. • Understand interpretation of Topographical maps

Course Outcomes of M.A/M.Sc (Geography): Semester IV

Paper	Course title	Outcome
GG401	Theoretical and applied geography	• Understand the historical development of geographical thought according to Greek, Roman, Indian, German, French, British and American school. • Understand the dualisms in geography such as determinism and possibilism, systematic Vs regional and physical Vs human geography. • Understand recent trends, scientific methods, quantitative revolution and computer application in geography. • Understand the definition, need, and signification of applied geography.
GG402	Principle of remote sensing and GIS	• Understand the all fundamental concept of GIS, potential of GIS, concept of space & time, objectives of GIS, elements of GIS, GIS tasks, history of GIS and GIS applications in different field. • To examine and understand the spatial and non spatial data models and all its functions components and applications in geography. • Extract the knowledge and information about geospatial analysis and database query and GIS data analysis the various concept and problems in analysed in GIS environment. • Understand the concept of map, projections, and coordinate systems and basic of the same for different purposes in geography. • GIS applied in the various kinds of fields, agriculture, populations, watershed planning and land use planning.
GG403	Practical in remote sensing and GIS	• Understand the modern techniques in geography under this course such as remote sensing and aerial photography. • Examining the history, basic theories of EMR, and other concepts. • Understand and get the knowledge about fundamental concept, types of aerial photography characteristics of aerial photographs and aerial camera. • Review on development of Indian remote sensing and functions of IRS. • To understand the types of remote sensing, and types of platforms in remote sensing. • To get an knowledge about satellite sensor and types of sensors, and their functions and characteristics • Understand the data product, types of data product and its applications and uses in remote sensing
GG423	Oceanography	• Understand the meaning, nature and scope, modern trends in Oceanography. • Understand the ocean floor and relief of the ocean bottom. • Understand the properties like temperature, density, salinity of ocean water. • Understand the characteristics and properties of factors

		affecting on formation of sea waves. • Understand the tides, tide generating forces, types of tides and tidal effects in coastal areas. • Get knowledge about distribution of lithogenous, biogenous, and hydrogenous sediments on ocean floor.
GG404	Geography of Food security of India	• Acquired detail comprehensive information of India's Food Security Bill 2013 • Understand merits and demerits of food Security in India • Understand current scenario of food security in India
GG 405	Geography of Health	• Understand fundamental concepts, approaches, development and challenges of health care in India. • Learn the geographical factors affecting on human health. • Get the knowledge of genetic, communicable, non-communicable and occupational diseases. • Understand diffusion of diseases and causes major diseases. • Understand rural environment and health and health problems of tribes in India. 6. Get the knowledge about urban environment and health; pollution.
GG 406	Practical in advance surveying	• Understand the modern techniques in geography under this course such as GPS • Understand and get the knowledge about fundamental concept, types of errors. • Understand how to conduct GPS Survey. • Understand importance of Total Station, Its Disadvantage and disadvantages. • Got knowledge about characteristics and functioning of Total Station. • Understand the data product, types of data product and its applications and uses in Total Station.

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Program Outcomes, Course specific Outcomes

Department of Geology

Program outcome : B.Sc. (Geology)	
6.	Demonstrate skills in identifying information needs, collection of relevant quantitative and/or qualitative data drawing on a wide range of sources.
7.	Analysis and interpretation of data using methodologies as appropriate to the subjects for formulating evidence-based solutions and arguments.
8.	Use knowledge, understanding and skills for critical assessment of a wide range of ideas and complex problems and issues relating to the chosen field of study.
9.	procedural knowledge that creates different types of professionals related to the disciplinary/subject area of study, including research and development, teaching and government and public service.
10.	skills in areas related to one‟s specialization and current developments in the academic field of study, including a critical understanding of the latest developments in the area of specialization, and an ability to use established techniques of analysis and enquiry within the area of specialisation.
11.	Communicate the results of studies undertaken in an academic field accurately in a range of different contexts using the main concepts, constructs and techniques of the subject.
12.	The qualification descriptors reflect both disciplinary knowledge and understanding as well as generic skills, including global competencies, that all students in different academic fields of study should acquire/attain and demonstrate.

Program Specific outcome : B.Sc. (Chemistry)	
9.	Gain the knowledge of Geology through theory and practical's.
10.	To explain mineral's Physical and optical properties and crystal system with the help of Petrological Microscope.
11.	Identify gemstones, and ore minerals.
12.	To Identify refractive index and optic sign with the help of Beckeline, Shadow, Accessory plates.
13.	Know atomic structure by using crystal model
14.	To identify fossils, Geomorphic feature
15.	Theoretically taught concepts are explained to the students in the field work practical.
16.	Make aware and handle the sophisticated instruments/equipments such as Brunton compass, Goniometer, Eye piece, clinometers and Petrological microscope.

Course Outcomes of BSc (Geology): Semester I

Class	Course title	Outcome
FYBSc (Paper-I)	GL-111 Fundamentals of Geology	• To inculcate sense of scientific, social responsibilities and environment awareness • To enrich student's knowledge and train them in the pure geological sciences
FYBSc-(Paper-II)	GL-112 Minerology and Crystallography	• To study basics of mineralogy and crystallography which helps in understanding and building the overall knowledge in Geology • Create a sense of preservation and conservation of natural resources are economic minerals
FYBSc-(Paper-III)	GL-113 Geology Practical	• Identification megascopic minerals in hand specimens with the help of physical properties • Study of optical properties of minerals using petrological microscope • Study of Crystal systems representing all fundamental crystal form • Reading of toposheet and study of landform models

Semester II

Class	Course title	Outcome
FYBSc (Paper-I)	GL-121 Stratigraphy and paleontology	• To study of stratigraphy and paleontology that encompasses the aspetcts of the age of the Earth, chronological arrangement of rocks and appearance and evolution of life through geological time • Field observation and the understanding of framework of stratigraphy of India
FYBSc-(Paper-II)	GL-122 Petrology	• To study process involved in the formation of igneous, sedimentary and metamorphic rocks • To identification of rock textures, structures, classification and their importance
FYBSc-(Paper-III)	GL-123 Geology Practical	• Identification of megascopic and microscopic rocks with respect to their texture, structure, mineral composition and classification • Study of Sedimentary rock structure in hand specimens with their environmental significance • Identification of fossils in hand specimens

S.Y.B.Sc. Semester I

SYBSc-(Paper-I)	GL-211 Minerology	• Study of the mineral groups with respect to Silicate Structure, Chemical Composition, Physical and Optical properties and Paragenesis • Study of the following gemstones with respect to their Physical Properties (Crystal System, Hardness and Sp Gravity), Optical Properties (Colour, Luster, Singly Refracting / Doubly Refracting and Refractive Index) and Indian geographical occurrences. • Study of crystals system with suitable examples
SYBSc (Paper-II)	GL-212 Structural	• Recognition of folds,fault,joints & fracture by direct observation, plotting attitude of beds on map, topographic

	Geology	studies, drilling and mining data. • To study structural classification of unconformities, Recognition of unconformity in the field.

S.Y.B.Sc. Semester II

SYBSc (Paper III)	GL-221 Petrology	• ***Petrology*** Knowledge ***Goals*** · predict what suites of igneous and metamorphic rocks should be found in different plate tectonic settings • explain magma differentiation and observations of layered mafic intrusions using a fractional crystallization model
SYBSc (Paper-IV)	GL-222 Stratighraphy & palaeontology	• To understand the principles of the preservation of chronological information in the stratigraphic record, and the recovery of that information from the rock record • To consider the factors that control the preservation of strata, and how those factors are expressed
SYBSc (Paper-V)	GL-223 Practical Course in Geology	• Describe the types and relative abundances of phases in a rock based on observations from hand specimens and thin sections • Integrate their research findings with those of peers in developing a consensus model that (a) explains mineral occurrences and interplay (micro- and macroscopic) in field samples, and (b) holds up to public scrutiny (as a consensus model and as individual components) at a departmental mini-poster symposium • To understand rocks in their natural environment and their natural relationship to one another

TYBSc Semester I

TYBSc (Paper-I)	Mineralogy	To study of minerals for observation of the rocks in the field
TYBSc (Paper-II)	Igneous Petrology	To understand Primary rocks from magma source and Active and extinct volcano
TYBSc (Paper-III)	Sedimentary Petrology	Study of Depositional environment and exploration of oil in sedimentary rocks only
TYBSc (Paper-IV)	Structural Geology	Mapping purposes and various structures are studied
TYBSc (Paper-V)	Precambrian Stratigraphy of India	Historical study and age of the rocks in india
TYBSc (Paper-VI)	Applied Geology	Satellite imageries used in agricultural and natural hazards, navigations, Explore the earth for economic sources

TYBSc Semester II

TYBSc (Paper-I)	Metamorphic Petrology	Study of rocks for changes in climatology
TYBSc (Paper-II)	Environmental Geology	It helps to discover the mitigation of natural disaster and hazards
TYBSc	Economic	Oil,petroleum,coal exploration in india

(Paper-III)	Geology	
TYBSc (Paper-IV)	Geotechtonics	Mineral resources and Petroleum exploration and study of earthquakes
TYBSc (Paper-V)	Phenerozoic Stratigraphy of India and Paleontology	It helps to study of Paleoclimatic condition
TYBSc (Paper-VI)	Apllied Geology II	Engineering project associated with human development and various types of structure, to find out groundwater through the scientifically
TYBSc (Paper-VII)	Mineralogy and Petrology	Study of minerals metallic and non metallic,Gemstones and rocks
TYBSc (Paper-VIII)	Structural geology, Economic geology , Paleontology	Economic minerals sources explore and study of discovered folded mountains and valleys and study of mega and micro fossils for the purpose of archeology
TYBSc (Paper-IX)	Applied Geology	Aerial photography for the weather forcasting Disater management, Agiricultural development, Extracting economic minerals through the satellite image

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Program Outcomes, Course specific Outcomes

Department of Biochemistry

Program Outcome : M.Sc. Biochemistry	
15.	Linking the all life sciences stream knowledge like biology, zoology, biotechnology , microbiology ,chemistry
16.	Examination of complex biomolecules like carbohydrates, proteins ,lipids DNA, RNA using various resources which include plant as well as animal origin .
17.	Understanding of cell function and disorders such as Diabetes mellitus, Alzimer. Realization of genetic disorders.
18.	Up skill using modern equipment's
19.	Reengineer using state of the art facilities such as central instrumentation Laboratory
20.	Implant scientific way to solve various problems and to participate in scientific conferences
21.	To study the human biochemistry in normal as well as disease condition

Program Specific outcome : M.Sc.Biochemistry	
1.	Students realize the chemistry in human system as well as in all living being and how it is corelated with the surroundings.
2.	student build on the skill and brush up while doing projects.
3.	Obtain the the knowledge of microbiology, biotechnology and analytical chem
4.	Practical work help to raise the knowledge of bioinformatics
5.	Understanding of new techniques.

Course Outcomes of M. Sc I (Biochemistry)
Semester I

Class	Course title	Outcome
MSc I	BCH111-Biomolecules	**Section I : Carbohydrates And Lipids** • CO1: Define The Basic Composition Of The Living Matter • CO2: Explain The Basic Properties Of Aqueous System • CO3:. Define The Terms Related To Carbohydrates,Its Classification And Properties. • CO4. Explain The Classification Of Lipids And Its Struture & Functions • CO5: Brife Knowledge Of Vitamines And Their Requirment **Section II : Proteins** • CO1: Structural And Functioal Properties Of Proteins • CO2:Define The Properties Of Amino Acids.

		• CO3: Decribe The Structural Levels Of Protein • CO4: Explain The Ramachndran Plot.
MSc I	BCH112 Physical Biochemistry	**Section I : Biophysical Technique** • CO1: Explain The Importance Of Chromatographic Techniques. • CO2: Explain The Membrane Filters For Molecular Seperation . • CO3. Explain The Principal Of Electophoresis And Its Applications. • CO4: Discribe The Working Principal Of Biosensor And Its Application **Section II: Techniques For Characterization Of Biomolecules** • CO1: Explain The Principal Of Spectroscopic Methods And Its Application . • CO2: Descibe The Differnt Ionization Methods For Mass Spectroscopy
MSc I	BCH 113- Cell Biology And Membrane Biochemistry .	**Section I : Cell Biology** • CO1:Describe Cell Variability, Size, Shape And Complexity, Function. • CO2: Explain The Differentiation Between Plant And Animal Cell. • CO3: Describe The Communication System In Cell Membrane • CO4: Brife About Cell Differentiation • CO5:Explain The Cell Cycle. **Section II : Membrane Biochemistry** • CO1: Explain The Composition Of Cell Membrane. • CO2: Describe The Membrane Transport System. • CO3: Describe The Group Translocation System.
MSc I	BCH 114 Enzymology	• CO1: Give The Importance Of Enzymes And Its Classification. • CO2: Describe The Different Techniques To Understand The Enzyme Kinetics. • CO3. Factors Affecting Enzyme Mechanism • CO4 Explain The Enzyme Activity With Respect To Differnt Models • CO5: Explain The Significance Of Enzyme Turnover.
MSc I	BCH 114 Enzymology Practical	• CO1: Explain The Isolation Procedure Of Enzyme . • CO2: Assess The Different Parameters Which Affect Enzyme Activity Like Ph, Temperature, Enzyme Conc., Inhibitor , Activator • CO3: Describe The Immobilization Methode Foe Enzyme
Msc I	BCH 115 Biochemistry Practical	**Section I : Analytical Biochemistry** • CO1: Estimate The Amino Acid By Ninhydrin Method • CO2: Describe The Estimation Methode For Proteins. • CO3 Describe The Estimation Methode For Sugar. • CO4: Describe The Estimation Methode For DNA & RNA

		• CO5: Explain The Vitamin C Estimation **Section II : Physical Biochemistry** • CO1: Describe The Buffer Preparation And Its Maintance. • CO2: Estimate The pI And pka Values Of Amino Acid • CO3: Describe The Measurement System For Viscosity • CO4: Dsecribe The Papaer Chromatography Techniques And Its Application. • CO5: Describe The Varification Of Lambert And Beer S Law.

Semester II

Class	Course Title	Outcome
Msc I	BCH211 Metabolism	• CO1. Explains Basic Laws Of Thermodynamic • CO2: Describe The Energetics, Regulation And Significance Of Glycolysis. • CO3. Explain Energetics, Regulation And Significance Of Citric Cycle • CO4: Describe Carbohydrate Metabolism Pathways. • CO5: • CO6:. Describe Degradation And Regulation Of Glycogen Metabolism • CO7: Describe Metabolism Systems Of Lipids, Amino Acids, Nucleotides • CO8: Describe Oxidative Transport Of Amino Acids
Msc I	BCH 212 Genetics	• CO1: Explain The Basics Of Heredity And Its Principals. • CO2: Describe The Laws Of Heredity. • CO3: Illustrate The Gene Interactions. • CO4: Explain The Epistasis And Its Types. • CO5: Describe The Terms Linkages And Crossing Over. • CO6: Describe The Characteristics Of Population Genetics. • CO7: Explain The Causes Of Genetic Disorders.
Msc I	BCH 213 Plant Biochemistry	• CO1: Describe The Biochemistry Of Plant Cell And Organelles. • CO2: Explain The Photosynthesis Process • CO3 : Illustrate The Plant Signalling And Its Behavior • CO4: Describe The Stress Physiology Of Plant • CO5: Expalin The Terms Seed Germination And Development Of Fruits • CO6: Explain The Types Of Plant Disease • CO7: Give The Important Pharmaceutical And Neutraceuticals Of Plants • CO8: Describe The Nitrogen Fixation Pathways . • CO9: Give The Importance Of Plant Growth Hormones . • Describe The Extraction Of Secondary Metabolites.
Msc I	BCH 214 Microbiology	**Section I : Theory** • CO1: Explain Characetrization And Classification Of Microorganism

		• CO2: Describe The Principal Of Microscope And Its Applications • CO3: Illustrate The Process Of Cultivation Of Bacterias. • CO4: Explain The Factors Affecting Microbial Growth. • CO5: Describe Host And Microbs Interactions • CO6: Explain The Classification Of Viruses. • CO7 : Dsecribe Nitrogen Cycle.
Msc I		**Section II : Practical** • CO1: Explain The Basics Of Microbiology Techniques. • CO2:Describe The Methods Of Sterilization • CO3: Explain The Preservation Of Bacterial Culture • CO4:Explain The Growth Curve Of Microbes • CO5:Determination Of Total Viable Count By Spread Plate And Pour Plant Method. • CO6:Illustrate The Qualitative Tests For Dairy Milk. • CO7: Explain The UV Survival Curve • CO8: Explain Plaque Assay Of Phage
Msc I	BCH 115 Biochemistry Practical	**Section I : Analytical Biochemistry** • CO1: Explain The Isolation Procedure Of Albumin And Globuline From Egg. • CO2: Describe Iph Precipitation Of Milk. • CO3: Explain The Isolation Procedure Of Cholesterol And Lactine From Egg • CO4: Estimate Lipid And Its Isolation • CO5: Explain The Isolation Procedure Of Amino Acid From Hair Hydrolyzate • CO6: Determine Saponification Value Of Fat. • CO7: Explain Alpha And Beta Amylolysis • Section II : Physical Biochemistry • CO1: Describe The Seperation Techniques Of Two Components • CO2: Give Qualitative Estimation By Spectroflurometry • CO3: Measure Refractive Index Of Given Component. • CO4: Describe The Dialysis Process For Given Biomolecule. • CO5: Explain Seperation Of Amono Acids By Ion Exchange Chromatography.

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Program Outcomes, Course specific Outcomes

Department of English

Program outcome: B.A. (English)	
1.	Communicate in English language fluently and effectively.
2.	Demonstrate the knowledge and understanding of English language and texts in English.
3.	Understand literary texts in English
4.	Understand and apply critical theories and texts in English.
5.	Understand phonology, morphology, syntax, semantics and pragmatics

Program outcome : M.A. (English)	
1.	Communicate in English language fluently and effectively.
2.	Demonstrate the knowledge and understanding of English language and texts in English.
3.	Understand literary texts in English
4.	Understand and apply critical theories and texts in English.
5.	Understand phonology, morphology, syntax, semantics and pragmatics
6.	Understand the advanced discourses in English.
7.	Understand the advanced linguistic and stylistic theories.

Program Specific outcome : F.Y.B.A. (English)	
1.	Communicate in English language fluently and effectively.
2.	Demonstrate the knowledge and understanding of English language and texts in English.
3.	Understand literary texts in English

Program Specific outcome : M.A. (English)	
1.	Communicate in English language fluently and effectively.
2.	Demonstrate the knowledge and understanding of English language and texts in English.
3.	Understand literary texts in English
4.	Understand and apply critical theories and texts in English.
5.	Understand phonology, morphology, syntax, semantics and pragmatics
6.	Understand the advanced linguistic and stylistic theories.

Course Outcomes of FYBA (English) (Credit System 2019 Pattern)

Class	**Course title**	**Outcome**
FYBA	Compulsory	• Students have acquainted with prose and poem

	English Semester I & Semester II	• Students have been exposed to different cultural experiences and developed humane values • Students have improved their linguistic skills in English • Students have learnt various communication skills
FYBA	Optional English-I Semester I & Semester II	• Students have understood literary devices employed in short story • Students have learnt the components of a literary piece and approaches of literature • Students have been familiarized with different genres of short story • They have followed technical aspects of short story writing

Course Outcomes of BA (Subject):

Class	Course title	Outcome
SYBA	Compulsory English	• Students have developed competence for self-learning • Students have familiarized with prose and poetry in English • Students have developed interest in literary pieces • Students have developed humane values • Students have learnt advanced Grammatical Concepts • Students have also mastered important written skills such as paragraph writing, report writing & letter writing
SYBA	Optional English-I	• Students have understood literary devices employed in short story • Students have learnt the components of a literary piece and approaches of literature • Students have been familiarized with different genres of short story • They have followed technical aspects of short story writing • Students have learnt advanced concepts in linguistics
SYBA	Special English-I	• Students have been acquainted with Shakespearean plays esp.tragi-comedy with reference to The Merchant of Venice • Students have understood features of Naturalistic and Realistic Theatre with reference to ADoll's House • Students have learnt about Indian Dramas in English
SYBA	Special English-II	• Students have learnt new terminology in poetry criticism • Students have learnt to appreciate poems • Students' aesthetic sense have improved • Students are able to read, appreciate and critically evaluate the poetry independently
TYBA	Compulsory English	• Students have understood the difference in language of prose and poem • Students have been mesmerized by the communicative power of literature • Different stories from varied cultures have created awareness about variegated cultural experiences through literature • Students have learnt how to understand poetry • Soft skills of students have improved their communicative

		skills, presentation Skills have also improved
TYBA	Optional English-I	• Students have understood the difference in language of prose and poem • Students have been mesmerized by the communicative power of literature • Different stories from varied cultures have created awareness about variegated cultural experiences through literature • Students have learnt how to understand poetry • Soft skills of students have improved • Their communicative skills, presentation Skills have also improved
TYBA	Special English III	• Students have understood the elements of novel • Students have acquainted with different genres of short stories • Students have understood various revolutionary movements and philosophy of life • Students have learnt what is novel through examples of novels viz. The Old Man and the Sea and The Guide
TYBA	Special English-IV	• Students have understood the basic principles,nature and function of criticism • Students have learnt the development of criticism through ages • Students have acquired critically analyzing skills of poetry • Students have learnt new terms in literature
FYBCom	Compulsory English	• Students have acquainted with prose and poem • Students have been exposed to different cultural experiences and developed humane values • Students have improved their linguistic skills in English • Students have learnt various communication skills
FYBCom	Additional English	• Students have acquainted with prose and poem • Students have been exposed to different cultural experiences and developed humane values • Students have improved their linguistic skills in English Literary sensibilities
SYBSc-(Paper-I)	Additional English	• Students have acquainted with prose and poem • Students have been exposed to different cultural experiences and developed humane values • Students have improved their linguistic skills in English • Students have learnt various communication skills
SYBSc (Computer Science)	Compulsory English	• Students have acquainted with prose and poem • Students have been exposed to different cultural experiences and developed humane values • Students have improved their linguistic skills in English • Students have learnt various communication skills

Course Outcomes of M.A/M.Sc (Subject): Semester I

Class	Course title	Outcome
M.A.	English Literature from 1550-1798	• Students have understood major movements and literary figures • Students have developed literary responsibility and sense of appreciation • Students have become adept to employ innovative methods in writing
M.A.	English Literature from 1798-the Present	• Students have understood major movements and literary figures • Students have developed sense of appreciation
M.A.	Contemporary Studies in English Language	• Students have understood the basic tools of language • Students have understood the different concepts of language • They have understood different perspectives of language and its application in real life
M.A.	Literary Criticism and Theory	• Students have understood the basic functions of criticism • Students have been introduced to various critical approaches • Students have developed logical thinking

Course Outcomes of M.A/M.Sc (English): Semester II

Class	Course title	Outcome
M.A.	English Literature from 1550-1798	• Students have understood major movements and literary figures • Students have developed literary responsibility and sense of appreciation • Students have become adept to employ innovative methods in writing
M.A.	English Literature from 1798-the Present	• Students have understood major movements and literary figures • Students have developed sense of appreciation
M.A.	Contemporary Studies in English Language	• Students have understood the basic tools of language • Students have understood the different concepts of language • They have understood different perspectives of language and its application in real life
M.A.	Literary Criticism and Theory	• Students have understood the basic functions of criticism • Students have been introduced to various critical approaches • Students have developed logical thinking

Course Outcomes of M.A/M.Sc (Subject): Semester III

Class	Course title	Outcome
M.A.	Indian Writing in English	• Students have understood major movements and literary figures • Students have developed literary sensibility • Students have learnt to use language in an innovative manner

		• Students have developed humane values • Literary tastes of students have improved
M.A.	ELLT	• Can teach English at primary, secondary, and Higher secondary level • Understand various theories of language acquisition • Learned how to teach English • Acquired skills for teaching English at various levels
M.A.	Drama	• Students have been exposed to Elizabethan dramas • Students have developed literary sensibility • Students have developed human concern • Literary tastes of students have improved
M.A.	American Literature	• Students have learnt about selected texts in American literature • Students have understood the difference between old world and new world literature • Students have developed human concern for fellow beings • They have developed aesthetic sense for literature

Course Outcomes of M.A/M.Sc (Subject): Semester IV

Class	Course title	Outcome
M.A.	Indian Writing in English	• Students have understood major movements and literary figures • Students have developed literary sensibility • Students have learnt to use language in an innovative manner • Students have developed humane values • Literary tastes of students have improved
M.A.	ELLT	• Can teach English at primary, secondary, and Higher secondary level • Understand various theories of language acquisition • Learned how to teach English • Acquired skills for teaching English at various levels
M.A.	Drama	• Students have been exposed to Elizabethan dramas • Students have developed literary sensibility • Students have developed human concern • Literary tastes of students have improved
M.A.	American Literature	• Students have learnt about selected texts in American literature • Students have understood the difference between old world and new world literature • Students have developed human concern for fellow beings • They have developed aesthetic sense for literature

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Program Outcomes, Course specific Outcomes

Department of Hindi

Program outcome : BA
1. छात्रों को हिंदी काव्य और कहानी साहित्य से अवगत कराना |
2. छात्रों में हिंदी भाषा द्वारा संवाद, लेखन, और अनुवाद कौशल विकसित करना |
3. छात्रों में विज्ञापन लेखन, निबंध लेखन, और मौलिक लेखन कौशल विकसित करना |
4. छात्रों को हिंदी कंप्यूटिंग और पारिभाषिक शब्दावली से अवगत कराना |

Program outcome : MA
1. छात्रों को हिंदी की मध्ययुगीन काव्य प्रवृत्तियां, पृष्ठभूमि, काव्य भाषा आदि का परिचय देना और काव्य मूल्यांकन की क्षमता को विकसित करना |
2. छात्रों में सर्जनात्मक कौशल और आलोचनात्मक दृष्टि का विकास करना |
3. छात्रों को भारतीय काव्यशास्त्र, संप्रदाय, रचनावैशिठ्य और मूल्य बोध से अवगत कराना |
4. छात्रों में पत्रकारिता का कौशल विकसित कर उनमें रोजगार परक दृष्टि विकसित करना |
5. छात्रों मैं नाट्यस्वादन, मूल्यांकन, अभिनय कौशल और आलोचना की दृष्टि को विकसित करना |
6. छात्रों को शोध प्रविधि, शोध प्रक्रिया, शोध प्रबंध लेखन कौशल से अवगत कराना |
7. छात्रों में मौलिक लेखन कौशल विकसित करना |
8. छात्रों को पाश्चात्य काव्यशास्त्र, चिंतन सिद्धांत और प्रमुख आंदोलनों से अवगत कराना |
9. छात्रों में सौंदर्यदृष्टि एवं शैलीविज्ञान का विकास करना |
10. छात्रों में सामाजिक, साहित्यिक, नैतिक और राष्ट्रीय मूल्यों के प्रति आस्था निर्माण करना |
11. छात्रों की विचार क्षमता तथा कल्पना शक्ति को बढ़ाना |

Program Specific outcome : BA	
FYBA	**F.Y.B.A. सामान्य हिंदी (प्रथम अयन)** **पेपर : वैकल्पिक हिंदी प्रश्नपत्र १ A** 1. छात्रों को हिंदी काव्य साहित्य का परिचय देना | 2. हिंदी कहानी साहित्य से अवगत कराना |

	3. हिंदी भाषाद्वारा संवाद कौशल विकसित करना | 4. मौलिक लेखन की ओर रुझान बढ़ाना | 5. अनुवाद संबंधी जानकारी देना | 6. विज्ञापन संबंधी लेखन कौशल विकसित करना | 7. हिंदी कंप्यूटिंग का परिचय देना | **F.Y.B.A. सामान्य हिंदी (द्वितीय अयन)** **पेपर : वैकल्पिक हिंदी प्रश्नपत्र १ B** 1. छात्रों को हिंदी काव्य साहित्य का परिचय देना | 2. छात्रों हिंदी कहानी साहित्य से अवगत कराना | 3. निबंध लेखन कौशल को विकसित करना | 4. छात्रों को विज्ञापन लेखन से अवगत करना | **F.Y.B.A. सामान्य हिंदी (प्रथम अयन)** **पेपर : प्रयोजनमूलक हिंदी १A** 1. छात्रों को हिंदी काव्य साहित्य से परिचित कराना | 2. हिंदी कहानी साहित्य का परिचय देना | 3. हिंदी भाषा में संप्रेषण कौशल विकसित करना | 4. हिंदी भाषा द्वारा संवाद कौशल का विकास करना | 5. मौलिक लेखन की ओर रुझान बढ़ाना | 6. विज्ञापन लेखन की कला से अवगत कराना | 7. हिंदी भाषा विशुद्ध लेखन कौशल विकसित करना | 8. हिंदी कंप्यूटिंग का सामान्य परिचय देना | **F.Y.B.A. सामान्य हिंदी (द्वितीय अयन)** **पेपर : प्रयोजनमूलक हिंदी १ B** 1. छात्रों को विज्ञापन लेखन से परिचित कराना | 2. दृश्य-श्रव्य की संकल्पना से अवगत कराना | 3. हिंदी भाषा में संप्रेषण कौशल विकसित करना | 4. हिंदी कंप्यूटिंग से अवगत कराना |
FYBCOM	**F.Y.B.COM सामान्य हिंदी (प्रथम अयन)** **पेपर : वैकल्पिक हिंदी प्रश्नपत्र १A** 1. छात्रों को हिंदी काव्य साहित्य का परिचय देना | 2. हिंदी कहानी साहित्य से अवगत कराना |

	3. हिंदी भाषाद्वारा संवाद कौशल विकसित करना | 4. मौलिक लेखन की ओर रुझान बढ़ाना | 5. विज्ञापन लेखन कौशल विकसित करना | 6. हिंदी कंप्यूटिंग का परिचय देना | **F.Y.B.COM सामान्य हिंदी (द्वितीय अयन)** **पेपर : वैकल्पिक हिंदी प्रश्नपत्र १B** 1. छात्रों को हिंदी काव्य साहित्य का परिचय देना | 2. हिंदी भाषा द्वारा संवाद कौशल विकसित करना | 3. विज्ञापन लेखन के प्रकारों को अवगत कराना | 4. अनुवाद के स्वरूप से अवगत कराना | 5. पारिभाषिक शब्दावली से अवगत कराना |

Program Specific outcome : MA	
M.A. -I	**M.A. हिंदी साहित्य (प्रथम अयन)** **पेपर : १ मध्ययुगीन काव्य** 1. हिंदी की मध्ययुगीन काव्य प्रवृत्तियों का परिचय देना | 2. मध्ययुगीन काव्य प्रवृत्तियों की पृष्ठभूमि पर कवि विशेष की रचनाओं का परिचय कराना | 3. तत्कालीन काव्य भाषा की प्रवृत्तियों का परिचय देना | 4. पाठ्य कृतियों के आधार पर काव्य मूल्यांकन की क्षमता का विकास करना 5. सर्जनात्मक कौशल का विकास करना | **पेपर : २ कथा साहित्य** 1. छात्रों को उपन्यास विधा से अवगत कराना | 2. कहानी विधा से अवगत कराना | 3. पाठ्यरचनाओं में अभिव्यक्त मूल्यों का संप्रेषण करना | 4. आलोचनात्मक दृष्टि का विकास करना | 5. सर्जनात्मक कौशल का विकास करना | **पेपर : ३ भारतीय काव्यशास्त्र** 1. भारतीय काव्यशास्त्र के विकासक्रम का परिचय देना | 2. भारतीय काव्यशास्त्र के प्रमुख संप्रदायों से अवगत कराना | 3. रचना वैशिष्ट्य और मूल्य बोध को परखने की क्षमता को विकसित करना | 4. आलोचनात्मक दृष्टि को विकसित करना | **पेपर : ४ क हिंदी पत्रकारिता**

	1. पत्रकारिता की भाषा प्रयुक्ति का परिचय देना | 2. हिंदी भाषा और साहित्य के विकास में हिंदी पत्र-पत्रिकाओं के योगदान से परिचित कराना | 3. पत्रकारिता का कौशल विकसित करना | 4. रोजगार परक दृष्टि का विकास करना | **पेपर : ४ ख नाटककार मोहन राकेश** 1. नाटक के स्वरूप एवं संरचना से परिचय कराना | 2. नाटक के रचनाकार और रंगमंच से परिचय कराना | 3. हिंदी नाटक और रंगमंच के विकास का परिचय देना | 4. मोहन राकेश के नाटकों के द्वारा नाट्यस्वादन और मूल्यांकन की दृष्टि विकसित करना | 5. नाट्य अभिनय कौशल को विकसित करना | **M.A. हिंदी साहित्य (द्वितीय अयन)** **पेपर : ५ कथेतर गद्य साहित्य** 1. व्यंग, निबंध, रेखाचित्र और संस्मरण विधा से अवगत करना | 2. पाठ्यविधाओं का भाषिक अध्ययन करवाना | 3. मौलिक लेखन कौशल विकसित करना | **पेपर : ६ शोध प्रविधि** 1. छात्रों को शोध प्रविधि से अवगत कराना | 2. शोध दृष्टि का विकास करना | 3. नई शोध प्रभावों से परिचय कराना | 4. शोध प्रक्रिया एवं शोध प्रबंध लेखन कौशल विकसित करना | **पेपर : ७ पाश्चात्य काव्यशास्त्र** 1. पाश्चात्य काव्यशास्त्र के विकासक्रम का परिचय देना | 2. पाश्चात्य चिंतकों के चिंतन सिद्धांत और प्रमुख आंदोलनों से अवगत करना 3. छात्रों को सृजन आस्वादन एवं आलोचना दृष्टि देना | **पेपर : ८ ग शैलीविज्ञान एवं सौंदर्यशास्त्र** 1. शैलीविज्ञान एवं सौंदर्यशास्त्र के स्वरूप, क्षेत्र और विकास का परिचय देना | 2. शैलीविज्ञान एवं सौंदर्यशास्त्र के तत्वों का परिचय देना | 3. पाश्चात्य एवं भारतीय चिंतकों के चिंतनधारा का परिचय देना | 4. छात्रों में सौंदर्यदृष्टि का विकास करना | **पेपर : ८ घ हिंदी उपन्यास साहित्य** 1. हिंदी उपन्यास साहित्य के विकासक्रम एवं प्रवृत्तियों से परिचित कराना | 2. उपन्यासों के आस्वादन, अध्ययन की क्षमता विकसित करना |

	3. पाठ्यरचनाओं में प्रस्तुत साहित्यिक मूल्यों का संप्रेषण करना | 4. मूल्यांकन की दृष्टि का विकास करना	

Course Outcomes of BA
Semester I & II

Class	Course title	Outcome
FY (Paper-I)	**F.Y.B.A. सामान्य हिंदी पेपर : वैकल्पिक हिंदी प्रश्नपत्र 1 A & B**	• छात्रों को हिंदी काव्य साहित्य का परिचय देना | • हिंदी कहानी साहित्य से अवगत कराना | • हिंदी भाषाद्वारा संवाद कौशल विकसित करना | • मौलिक लेखन की ओर रुझान बढ़ाना | • अनुवाद संबंधी जानकारी देना | • विज्ञापन संबंधी लेखन कौशल विकसित करना | • हिंदी कंप्यूटिंग का परिचय देना | • निबंध लेखन कौशल को विकसित करना |
FY (Paper-II)	**F.Y.B.COM सामान्य हिंदी पेपर : वैकल्पिक हिंदी प्रश्नपत्र 1 A & B**	• छात्रों को हिंदी काव्य साहित्य का परिचय देना | • हिंदी कहानी साहित्य से अवगत कराना | • हिंदी भाषाद्वारा संवाद कौशल विकसित करना | • मौलिक लेखन की ओर रुझान बढ़ाना | • विज्ञापन लेखन कौशल विकसित करना | • हिंदी कंप्यूटिंग का परिचय देना | • अनुवाद के स्वरूप से अवगत कराना | • पारिभाषिक शब्दावली से अवगत कराना |
FY (Paper-III)	**F.Y.B.A. सामान्य हिंदी पेपर : प्रयोजनमूलक हिंदी 1 A & B**	• छात्रों को हिंदी काव्य साहित्य से परिचित कराना | • हिंदी कहानी साहित्य का परिचय देना | • हिंदी भाषा में संप्रेषण कौशल विकसित करना | • हिंदी भाषा द्वारा संवाद कौशल का विकास करना | • मौलिक लेखन की ओर रुझान बढ़ाना | • विज्ञापन लेखन की कला से अवगत कराना | • हिंदी भाषा विशुद्ध लेखन कौशल विकसित करना | • हिंदी कंप्यूटिंग का सामान्य परिचय देना | • दृश्य-श्रव्य की संकल्पना से अवगत कराना |

Class	Outcome
S.Y.B.Sc Semester I & II	**1 पठित कहानियों एवं पाठों के आधार पर छात्रों को शैलीगत एवं विधागत अध्ययन का परिचय कराना।** **2. पठित काव्य रचनाओं के माध्यम से छात्रों को हिंदी काव्य की प्रमुख प्रवृत्तियों एवं प्रदेय की जानकारी देना।** **3. छात्रों को काव्य के भाव एवं शिल्पगत सौंदर्य का आस्वादन कराना।**

	4. छात्रों को शुद्ध हिंदी लेखन की नियमावली का ज्ञान देकर अशुद्धयों के प्रति सचेत कराना। **5. छात्रों को पारिभाषिक शब्दावली, सारलेखन तथा अनुवाद के अभ्यास द्वारा व्यावहारिक हिंदी की जानकारी देना।**

Course Outcomes of M.A

Class	Outcome
M.A.-II	**1.हिंदी साहित्य की आदिकालीन तथा भक्तिकालीन काव्य प्रवृत्तियों की जानकारी देना ।** **2. छात्रों को प्राचीन तथा मध्ययुगीन काव्य-कृतियों का परिचय कराना।** **3. प्राचीन तथा मध्ययुगीन कवियो की काव्य कला से छात्रों को अवगत कराना।** **4. छात्रों को हिंदी की प्राचीन तथा मध्ययुगीन काव्य परंपरा से परिचित कराना।** **5. छात्रों को प्राचीन तथा मध्ययुगीन हिंदी भाषा से अवगत कराना।** **6. छात्रों को भारतीय साहित्यशास्त्र के विकासक्रम से परिचित कराना।** **7. छात्रों को भारतीय साहित्यशास्त्र के सिद्धांतां का ज्ञान कराना।** **8. साहित्य और साहित के सहसंबंधो से छात्रों को अवगत कराना।** **9. छात्रों को साहित्यशास्त्रीय चिंतन से परिचित कराना।** **1०. छात्रों को भारतीय साहित्यशास्त्र के सिद्धांतों में साम्य-वैषम्य एवं उसके कारणों का ज्ञान कराना।** **11. छात्रो को साहित्यशास्त्रीय समीक्षा का महत्व अवगत कराना।** **12. साहित्यशास्त्रीय अध्ययन के माध्यम से छात्रों में समीक्षात्मक दृष्टि विकसित करना।**
M. Phil.	**1. छात्रों में शोध कार्य की जिज्ञासा बढाना।** **2. छात्रों को शोध प्रविधि से अवगत कराना ।** **3. शोध दृष्टि को विकसित करना।** **4. नये शोध प्रवाहों से परिचित कराना।** **5. शोध प्रक्रिया और शोध प्रबंध लेखन कौशल विकसित करना ।**
Ph. D.	**1. अनुसंधान प्रक्रिया का स्वरूप एवं उपयोजन की जानकारी देना।** **2. अनुसंधान प्रक्रिया के विविध आयामों से परिचित कराना।** **3. अनुसंधान प्रक्रिया के स्वरूप एवं उपयोजन की जानकारी देना।** **4. अनुसंधान प्रक्रिया के संदर्भ में आवश्यक तथ्यो से अवगत कराना।** **5. अनुसंधान विषय-चयन, सामग्री संकलन, हस्तलेखन-संकलन एवं सामग्री विश्लेषण की जानकारी देना।** **6. अनुसंधान की प्रविधि से परिचित कराना।**

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik
AQAR 2019-2020
Program Outcomes, Course specific Outcomes

Department of Economics

Program outcome : B.A (Economics)	
9.	Develop an understanding of the economic environment and the factors affecting economic environment.
10.	Develop awareness on the various new developments in the different sectors of an economy – agriculture, industry, services, banking, etc.
11.	Ability to compare and contrast Indian Economy with other world economies.
12.	At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment.
13.	Develop an understanding of the economic environment and the factors affecting economic environment.
14.	Students will get a primary introduction of different sector of Indian economy such as agri, industry and service.
15.	Awareness about digital economy will be generated and they will be ready for the digital India

Program outcome : MA (Economics)	
8.	Analyze and demonstrate knowledge of the basic theories / laws in Macroeconomics.
9.	At the end of the course, the student should be able to evaluate Economic concepts, models and its use in real life situations
10.	Apply the concepts of economic growth and compare international comparison of economic development, etc
11.	Ability to analyze and demonstrate knowledge of the economic growth and development theories of economic growth and development
12.	Develop, demonstrate and examine topics under Economics to pursue research
13.	The students will be acquaint with unique opportunity of obtaining a professional qualification in Economics
14.	The students are able to analyze the economic behavior in Practice

Program Specific outcome : BA (Economics)	
8.	Help the students to prepare for varied competitive examinations

9.	Enable students to understand and comprehend the current business scenario, agricultural scenario and other sectorial growth in the Indian context. To make the student aware of the developments such as MSMEs, Digital Economy, E-Banking, BPO & KPO, etc.
10.	Familiarize the students with the recent developments in the Indian Economy
11.	Provide the students with the background of the Indian Economy with focus on contemporary issues like economic environment.
12.	At the end of the course, the student should be able discuss and debate on the various issues and challenges facing the Indian Economic Environment

Program Specific outcome : MA (Economics)	
1	Enable learning and understanding of the basic concepts and process to measure the growth and economic development etc
2	Analyze and evaluate the obstacles in the process of economic growth and development
3	Discuss the modern developments in macroeconomics
4	Ability to develop, demonstrate and examine various topics under Finance with the help of Economics
5	Evaluate and examine subject areas in economics bringing out the relation to finance
6	Evaluate and examine subject areas in economics bringing out the relation to population studies and demography
7	Develop, demonstrate and examine various topics under Demography

Course Outcomes of BA and B com. : Semester I & II

Class	Course title	Outcome
FYBA (Paper-I)	Indian Economic Environment (G-1)	• The students able to compare the India economic environment with international economic environment will be generated • Students will be aware about the banking system • Students will get a primary introduction of different sector of Indian economy such as agro, industry and service. • Introduction of the concept like indicators of growth & development • Students will study different development theories • Students will study different growth modeless • Importance of economic Planning, & importance of foreign capital will be studied by students.
FYBCOM (Paper-I)	Banking & Finance (115 - B)	• The students will Understand primary and secondary functions of a bank • The students will able to do analysis of concepts related to lending and ratios. • Analyze the process of opening and operating procedure of bank accounts.

FYBCOM (Paper-II)	Banking & Finance (125 - B)	• Understanding various types of bank accounts holders. • Able to Understanding various methods of remittance • Understanding the concepts related to lending and ratios.
FYBCOM (Paper-I)	Business Economics (Micro) – I (113)	• The students will impart knowledge of business economics • Enhanced the knowledge of fundamentals of Banking • The students will clarify micro economic concepts • The students will analyze and interpret charts and graphs • Understand basic theories, concepts of micro economics and their application • Develop employability skills among the students
FYBCOM (Paper-II)	Business Economics (Micro) – II (123)	• Students get Knowledge the tools and theories of economics for solving the problem of decision making by consumers and producers. • To impart knowledge of business economics • Students understand the problem of scarcity and choices.
FYBCOM (Paper-I)	Cooperation (115 – E)	• The students will be understand the Co-operative legislation in India will by students. • Able to analyze the Co-operative Societies Act-1904, 1912, & 1925 their objectives & features will be improve student's information about the cooperative movement. • The students will able to do study on multi state co-operative societies Act
FYBCOM (Paper-II)	Cooperation (125 – E)	• Apply the knowledge of Maharashtra state co-operative societies Act-1960 • The students will understand the Functions progress and problems of Co-operatives. • Able to analyze and Understand the globalization and rural development

Class	Course	Course Outcomes
SYBA	Modern Banking, G-2	• awareness among students about evolving and modern nature of banking system will b created • Students will be introduced with role of RBI in the Indian economy. • Nature and function of cooperative and rural banking will be understood by students. • Clear understanding of financial market with respects to Indian and international context.
SYBA	Micro Economics, S-1	• Students will be able to understand the behavior of different economic agents, markets, consumers and price fluctuations. • Understanding of different cost and revenue concepts will be given to students. • To understand linearity and non linearity of micro economic variables. • Knowledge of different welfare concepts and there importance into social context will be imparted into

		students through this course. •
SYBA	Macro Economics, S-2	• Understanding of macro economics and its different components. • Critical analysis of study different ideological schools and their theories of macro economical development. • Understanding of Saving and investment functions will be injected into their knowledge • Different theories related to money will be studied by students. • Understanding different policies in macro terms
T.Y.B.A.	Economic Development & Planning (G3)	• Introduction of the concept like indicators of growth & development • Students will study different development theories • Students will study study different growth modeless • Importance of economic Planning,& importance of foreign capital will be studied by students.
	International Economics (S3)	• Understanding nature scope & Importance of international Economics • Understanding of theories of international trade • Understanding the role of international financial Institutions • Importance of foreign capital into the economy will be studied by students
	Public Finance (S4)	• Understanding of the role of government in economy • Various expenditure & revenue process in the public finance will be analyzed • Information of fiscal policy in public finance and its importance will enhance students macro level thinking Study of the theories of social welfare
S.Y.B.com		**Business Economics(Macro)** • Information over Meaning nature & scope of macro economics. • Students will learn to calculate National income & its importance. • Use of money its functions and value of its value • Analysis of trade cycles and their occurrence after certain specified period will be studied by students. • Learning the evolution of different Employment theories. • Information Public finance and its policy approached will be given to students
S.Y.B.com	Banking & Finance (Indian banking system)	• Students will get the structure of Indian banking system. • Private banks- Indian & Foreign and their working system will be studied by students • To study of Indian large public sector commercial bank-state bank of India. • Reserve bank of India & its Role will be analyzed by students.

		• By the end of this course students will get adequate information about Indian Co-Operative credit system.
S.Y.B.com	Co-Operation & Rural Development-I	• Co-operative legislation in India will be studied by students. • Study of co-operative societies Act-1904,1912,& 1925 their objectives & features will be improve students information about the cooperative movement. • Study of multi state co-operative societies Act • To study of Maharashtra state co-operative societies Act-1960 • Functions progress and problems of Co-operatives. • Understating globalization and rural development
S.Y.B.com	Agriculture and Industrial Economics:	• The students are able to understand the Indian agricultural Problems and Prospects • The students are understand the Current Issues of Indian Agriculture • The students acquaint the role of NABARD and other financial institutions • The students are able to familiarize with Land reforms
T.Y.B.Com	Indian & Global Economic Development	• Basic characteristics of Indian economy as an emerging economy will be discussed by students in the class • Place and role of Agriculture & Industries sector in Indian economy will improve their knowledge about the Indian economy • Critical analysis of the reforms like liberalization ,privatization globalization & there challenges • Study of foreign capital & balance of Payment will enlace students' knowledge about the international economics.
T.Y.B.Com	Banking & Finance-II	• Students will understand the nature of financial system of India • Students will be able to understand the types of money and capital market • Students will be able to understand the nature and scope of NBFC and other institutions
T.Y.B.Com	Banking & Finance-III (Banking law & Practices)	• Study of banking regulations Act-1949 • Study of negotiable instrument Act-1881 • Analysis of the relationship between customer and banker • Information of project appraisal will be given.
	Co-operation and rural development-II	• Understanding the meaning, nature, scope and principle of cooperative management. • Information of human resource management in co operative sector • Co-operative administration and cooperative management as well as financial management will be understood by students. • Understanding of power and duties of auditor.

	Co-operation and rural development-III	• To understanding the structure of market as well as consumer cooperative societies. • Study of the price support system provided by the government such as MSP • marketing strategy and research system • To understand the structure of different marketing agencies funded by government ex. NAFED, APMC • Deep understand of agricultural produce market committee act of 1963
	Agriculture and Industrial Economics: II & III	• The students are able to understand the Indian agricultural Problems and Prospects • The students are understand the Current Issues of Indian Agriculture • The students acquaint the role of NABARD and other financial institutions • The students are able to familiarize with Land reforms

Course Outcomes of M.A (Economics) 2019-20

Class	Course title	Outcome
M.A (Sem – I)	Micro Economic Analysis I (EC-1001)	• Ability to apply the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc. • Ability to analyze and demonstrate knowledge of the basic theories/laws in economics- law of demand, law of supply, production function, etc. • At the end of the course, the student should be able to evaluate microeconomic concepts, models and its use in real life situations.
M.A (Sem – II)	Micro Economic Analysis I (EC-2001)	• Ability to apply the concepts of micro economics such as demand, supply, revenue, cost, elasticity, etc. • Ability to compare and contrast various market structures and understand concept of equilibrium, price determination At the end of the course, the student should be able to evaluate microeconomic concepts, models and its use in real life situations.
M.A (Sem – I)	International Trade (EC-1003)	On Successful Completion of the course • Ability to understand the concepts of international economics such as comparative cost, terms of trade, trade policies and trade agreements • Ability to interpret and apply theory relating to understand international trade • Ability to discuss and debate the effects of trade policy, trade agreements, exchange rate policies on the world economy/trade
M.A (Sem – II)	International Finance (EC - 2003)	• To develop an understanding of the theoretical concept in international trade. • To analyze international economics with reference to terms of trade, trade policy, trade agreements etc.

		• To provide knowledge to students regarding recent developments and changes in international banking, international banking agreements etc
M.A (Sem – I)	Public Economics – I (EC - 1002)	• Ability to recognize, apply and analyze concepts and theories in public economics. • Ability to appraise and assess the theory of public economics in real life situations.
M.A (Sem – II)	Public Economics – II (EC-2002)	• Ability to recognize, apply and analyze concepts and theories in public economics. • Ability to appraise and assess the theory of public economics in real life situations.
M.A (Sem – I)	Agricultural Economics (EC – 1004)	• Ability to analyze and evaluate the subject with reference to various aspects of agrarian economies. • Ability to develop an understanding of agriculture with its intricacies and imperfections • Able to construct intellectual dialogue on the challenges of agriculture
M.A (Sem – II)	Labour Economics (EC - 2004)	• Ability to analyze and evaluate the subject with reference to various aspects of Labour economics. • Ability to develop an understanding of the labour with its intricacies and imperfections and to be able to construct intellectual dialogue on the challenges of labour w.r.t. the Indian Economy.

Course Outcomes of M.Com (Economics) 2019-20

Class	Course title	Outcome
M.com (Paper-I) (Sem – I)	Industrial Economics (102-A)	• The students will be Understand the basic issues and concepts of industrial economics. • The students are familiarizing with new economic Policy and its impact. • The students will understand about industrial finance and Industrial growth of India
M.com (Paper-II) (Sem – II)	Industrial Economics (202-A)	• Enhanced the knowledge of fundamentals of Industrial Economics • The students will clarify Industrial Economics concepts • The students will analyze and interpret charts and graphs • Understand basic theories, concepts of Industrial Economics and their application

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Program Outcomes, Course specific Outcomes

Department of Sociology and Anthropology

Program Outcome : BA/BCom/BSc (Sociology and Anthropology)	
16.	Learns about understanding the essentials of Sociology and Anthropology from Concepts, theories, methodology to social reality around
17.	This enriches the knowledge of students about basic concepts in Sociology, Anthropology, thinkers of sociology, methodology, Sociological Thoughts, Development of Sociology in India, Understanding Issues in India, Welfare, Justice and Citizenship, Gender spectrum and Media and so on.
18.	Efforts are being made to appraise the knowledge and skills in understanding the issues and social reality around the concepts
19.	To develop and be able to demonstrate skills in conducting as well as presenting research in Sociology.
20.	To analyze sociological issues and apply the knowledge for resolving the issues.
21.	Students enable to discuss the major social theories and concepts of sociology and Anthropology and its subfields. Students will also able to deliver thoughtful and critical reflections on social issues.

Program Outcome : MA/MCom/MSc (Sociology)	
15.	Post Graduate Course in Sociology seeks to offer students advance knowledge of Sociological concepts, theories and methodological practices in a manner that enables students to relate them to the contemporary local, national and international sociological concerns.
16.	It seeks to emphasize both the knowledge and skill element by exposing students to new ideas not only by classroom teaching, but by also engaging in continuous experiential learning through field visits, seminars, discussions etc.
17.	Post Graduate Course in Sociology intends to develop advanced level understanding of the society in India, and outside, its processes, change and the implications of the change critically to sense the dynamics of social reality being constructed in India and the countries around the world.
18.	The newly revised MA course will enhance the up to date knowledge of main currents in Sociological knowledge.
19.	Knowledge of key theories, thinkers, issues, dynamics and concepts,.
20.	The course will enhance critical understanding of structures, agencies, processes, and policies of different sections of the societies and the ability to compare the conditions or impact of on the day to day life world of people in society.
21.	Knowledge of some of the philosophical underpinnings of modern politics and Government and the legal principles by which political disputes are often settled.
22.	It will empower students with methodological tools, techniques and processes that

	will enable students to study society with qualitative and quantitative perspectives. Research projects, research papers, debating skills, observing society critically will be possible after the course.

Program Specific Outcome : BA (Sociology and Anthropology)	
13.	Students enable to understand the main concepts in Sociology and Anthropology.
14.	Students enable to identify the causes, and consequences of social facts.
15.	Students enable to develop Sociological and Anthropological Imagination.
16.	Students enable to create research value and critical, scientific temper among students.
17.	Students enable to understand the various social issues and its concerns.
18.	Students enable to know the salient features of Sociology in India.
19.	Students will be enabled with a sense of wiser meanings of terms and their current connotations like development, globalization, neoliberalisation, etc.
20.	The students will be acquainted with the perspectives of understanding Indian society.
21.	Understand the continuities and contradictions in Indian society and in the global society.

Program Specific Outcome : MA (Sociology)	
1.	Become aware of the sociological theories, issues and process.
2.	I will enhance critical understanding of classical theories and thoughts in Sociology.
3.	The students will be empowered with capacities to understand, analyse and criticize various socio- political, and economic conditions, issues and processes in India and outside.
4.	Students will be enabled with a sense of wiser meanings of terms and their current connotations like development, globalization, neoliberalisation, etc.
5.	They will be introduced with the recent issues in Indian society and the debates around those issues.
6.	The course will enhance the ability of students to formulate and construct logical arguments on social conditions, issues and change there in.
7.	The course will enhance the ability of the students to apply the research methods to practical issues and to do research independently.
8.	The students will be made aware of contemporary issues of agrarian society in India, gender, development, globalization, crime, environment, media, education, labour and other issues in globalised context.

Course outcomes BA (Sociology and Anthropology)

Class	Course title	Outcome
FYBA	Sociology G-I Sem -I Introduction to Sociology Sem -II	• provides social context to the emergence of sociology as a discipline • provides understanding of basic concepts and perspectives in sociology • familizes students with the scope and prospects in sociology and sociological studies

	Social Institutions and Change	• introduces students to basic institutions of society and the changes therein • provides students with conceptual knowledge about the dynamics of social institutions • develops an understanding of social processes and change in the functioning of social institutions
FYBA	Anthropology G-I Sem -I Introduction to socio-cultural Anthropology Sem -II Introduction to cultural and social anthropology	• enables students to understand the foundation of anthropology along with the history of the discipline • creates in depth understanding of primitive tribal societies • enables students to learn about various methods in Anthropological study • Will empower students with the cultural dimensions of society.
SYBA	Sem III Sociology G-II Welfare Justice and Citizenship SEC1A Credits3 Sem IV Welfare Justice and Citizenship SEC1B (Credits 3)	• Enables students to understand the concept of welfare state using different perspectives of welfare and justice • Engages students to critically think and participate in philosophies pertaining to welfare, justice and citizenship • Enables students to link social processes and political theories of welfare • It creates greater understanding of socio-political current affairs by building theoretical knowledge about welfare and justice • Ensures general awareness about legislations and schemes pertaining to the marginalized communities in India.
SYBA	Sem-III Foundations of Sociological Thoughts (S-1) DSE 1 A Credits3 Sem-IV Development of Sociology in India DSE1B Credits3	• Provides the foundational knowledge about classical sociological thoughts • Students will gain an understanding into emergence of sociology and predominant classical thoughts in sociology • Enables students to learn about different schools of thoughts in sociology • Engages students to understand societies and social processes by contextually applying and developing theories • It will contextualize the emergence of sociology in India and the dominant thoughts in sociology in India • Provides greater understanding on major perspectives in Indian sociology • Critically engages students to reflect on Indian society from the viewpoint of soc

SYBA	Sem III Society in India: Understanding Issues DSE 1 A Credits3 (S-2) Sem IV Indian Society: Understanding Issues DSE 2 B Credits3	• Provides basic awareness about problems in Indian society • contextualizes social issues in India using different sociological perspectives • engages students to critically think about the social issues prevalent in India • provides understanding about developmental issues pertaining to the marginalized and the vulnerable sections in India
SYBA	Sem III Anthropology (G-2) Indian Tribes Sem IV Tribal Development	• The course will enhance the understanding of tribes in India • Students will be able to study critically the social, anthropological dimensions of tribal life, and the current issues • The part of the course will create a focus on issues of tribal development, development induced displacement and other • Students will be aware of prevailing and alternative strategies of development of tribes in India.
SYBA	Credit Course-Gender Spectrum and Media Credit course-Research Project: steps and protocols	• It will provide students with the idea of modern medias and major issues emerging in media • It will develop awareness about the engagement of media and representations of gender and sexualities in various medias • It will provide students with the basics of research methodology • It will enable students to understand briefly research methodology in context of social research
TYBA	Crime and Society (G-3)	• The course will enable student to understand sociological dimensions of crime • Students will be capable of studying causes and consequences of crime and measures to control them
TYBA	Social Research Methods (S-3)	• It will build an understanding on basics of social research methodology • It will engage students to cultivate research skills as essential in sociology • It will cultivate understanding and skills of social research step by step • provides deeper knowledge of research and various perspectives and approaches in social research • It will prepare students to think about sociological study in a

		practical manner.
TYBA	Contemporary Indian Society (S-4)	• Students enable to understand the evolution, scope and significance of international relations • Students enable to demonstrate an understanding of: the key historical events and also they enable to understand contemporary international system; and the key actors which shaped the international Politics. • Students enable to discuss the main international relations theories. • Students enable to analyze importance of International relation in process of nation progress. • Students enable to appreciate the foreign policy their determinants features and its relevance.
TYBA	Anthropology (G-3) Maharashtra: A Culture Region	• The course will introduce to understand the regional dimensions of culture of Maharashtra, its region specific arenas, traditions and their relevance in contemporary society.

Course outcomes MA (Sociology)

Class	Course title	Outcome
MA (Sem-I) (Paper-I)	SC 01: Classical Sociological Tradition	• Students will be introduced to the classical tradition of sociological thought • The course will highlight the relevance of classical theory in contemporary scenario • The course will enhance the critical understanding of classical theories and also create ability to use theories in their debates and writings.
MA (Sem-I) (Paper-II)	SC 02 : Sociology of India	• Student enable to understand important concepts, thinkers, approaches and conditions concerned with Sociology of India • The students will thoroughly understand the background and development of Indian Sociology. • It will equip students with understanding of the latest issues, crisis, debates and developments in the field Indian Sociology. • Students will be enabled to understand contemporary Indian society critically and its issues.
MA (Sem-I) (Paper-III)	SC-03 : Application of Sociological Research Methods	• Students will be acquainted to theoretical perspectives and ground level research skills • The course will prepare students for applying sociological research methodology or to practice sociological research • It will enhance the ability of the students to apply the research methods to practical issues • This course will be a foundation for post-PG research works
MA (Sem-I) (Paper-IV)	SO – 03 (Optional Paper) : Sociology of Maharashtra: Culture and	• The course will enhance sociological knowledge about the local and regional context of Maharashtra. • The course will acquaint students with the changing trends in Maharashtra with special reference to • The course will acquaint students with important dimensions like Globalization, Development processes and caste, gender

	Society	politics and other of Maharashtrian Society.
MA (Sem-II) (Paper-I)	SC 04: Introduction to Sociological Theories	• The course will develop the understanding of major sociological perspectives • It will develop the analytical abilities of the students • It will develop research orientation of the students with the understanding of major theoretical Perspectives
MA (Sem-II) (Paper-II)	SC 05 : Methodology of Social Research	• The course will introduce the philosophical foundation of social research and related debates to the students. • With this paper students will get acquainted to the Quantitative and Qualitative research strategies and debates. • Students will understand the diversity of method and critical thinking behind every method.
MA (Sem-II) (Paper-III)	SO-05(Optional Paper): Sociology of Media	• The course will introduce students to the nature of sociology of Media and its different perspectives • It will encourage critical evaluation of the impact of mass media on India society and culture • It will introduce new methodologies for studying media • It will discuss changing media scenario in the context of globalization and thus empower students to critically reflect on recent media issues. • This course will open new avenues in media studies and jobs.
MA (Sem-II) (Paper-IV)	SO-06(Optional Paper) Globalization and Labour in India	• This course will make students able to understand the changing nature of work, labour and work organizations • It will understand impact of globalization on India's primary, secondary and tertiary sector • It will acquaint to important concepts and processes in relation to labour studies in India.

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Program Outcomes, Course specific Outcomes

Department of History

Program outcome : BA (History)	
22.	Students are able to evaluate, analyze and synthesize historical materials (primary and secondary sources).
23.	Students are able to recognize and explain the historical development of cultures.
24.	Students understand to evaluate and recognize different Empires in Indian history.
25.	Student identify the role of theory and methodology in the production of historical knowledge.
26.	Student identify and critique basic historical concepts.

Program outcome: MA (History)	
23.	Students are able to understand conceptual base of history and its forces.
24.	Students are able to do research in terms of form formulating hypotheses and develop broad frames of interaction with other social sciences and attain certain level of interdisciplinary approach.
25.	Students understand the social, economic and institutional bases of Ancient India.
26.	Students are able to understand the Ancient Indian history.
27.	Students are able to understand historical materials efficiently and effectively integrate and use of historical information to accomplish a specific purpose.
28.	Students understand cultural, ethical, social, legal, and economic issues in history.

Program Specific outcome : BA (History)	
22.	A history graduate can find employment with Archaeological Survey of India or with private firms related to archaeology
23.	For History graduates, the option of public service is always open.
24.	History students can work as a teacher in schools and high schools
25.	Students can serve as conservator and tourist guide at historical monuments.
26.	NGOs and Social Welfare Organizations also employ BA History graduate

Program Specific outcome: MA (History)	
9.	Jobs in Government: policy analysts, government historians, intelligence analysts, museum curators, administrative and programs specialists, communication specialists, and corporate communication managers.
10.	Travel and Tourism Expert: Work as a tourist guide at historical and religious

	places
11.	School Teacher: Work as a teacher in schools and high schools
12.	College Teacher: Work as a assistant professor in colleges
13.	Archivist: A history graduate can find employment with Archaeological Survey of India or with private firms related to archaeology.
14.	Researcher: Many Government and non-government institutes along with research center offer several career options for qualified geographers with numerous specializations
15.	Competitive Examinations: For History graduates, the option of public service and NET/SET is always open
16.	Social Work: NGOs and Social Welfare Organizations also employ BA History graduates
17.	Exhibit Designer / Content Creator
18.	Writer/Subject Matter Expert
19.	Journalist: Journalism is a common career for History graduates.

Course Outcomes of BA (History)
Semester I & II

Class	Course title	Outcome
FYBA	Early India: From Prehistory to the Age of the Mauryas	• Students understood important of resource of history. They understand importance of heritage sites and ancient monuments.
FYBA	Early India: Post Mauryan Age to the Rashtrakutas	• They understood diverse philosophies of ancient faiths. • They understood the importance of archaeology in history.

Class	Course title	Outcome
SYBA	(2177) Modern India (1857-1950)	• "History of Modern India" topic as a part of History is a very important section as far as the Syllabus of any competitive examination is possible, especially Civil Services exams. • Students understand of the stages of development in Modern India, why certain events happened and analysis of the consequences of such developments that paves an impact on our society, economy and our political system. • Modern Indian history Importance For competitive examination.
SYBA	(2178)- Ancient India (3000B.C. to 1260AD.)	• Ancient Indian history is very importance for UPSC Examination. • When students doing study of ancient Indian history that time they know about original culture religion and society. • Increasing student‟s wideness. • Student capable for discuss any Social issue
SYBA	(2179) - History of Modern Maharashtra	• Students got knowledge of concept History of modern Maharashtra.

	(1818-1960)	• Modern Maharashtra history is useful to student for MPSC examination. • National and social movement in Maharashtra Introduced to students. • Student got knowledge of Maharashtra Philosophers and their philosophy
TYBA	(3177)-History of the World in 20th century	• Students got knowledge of concept in world history. • Students got global event knowledge it is use for increased intellectual level World trend of thinking, Marxist, Communalism, Dictatorship, Empearalism, Nazizum, fascism, Terrorism, Feminism, Globalization, etc introduced to Students
TYBA	(3178)-Introduction to History	• Students known source of history, • Practically student known to how much write history. • Increased the knowledge of research in history • Students know external and internal Criticism. • Students know historian works.
TYBA	(3179) History of Asia in 20th Century	• Students know history of America. • Concept of American history introduced to Students • Students know causes of Great Depression and policy of New Deal and Fear Deal. • Students know American politics in world. • Students got knowledge of international relation with America.

Course Outcomes of MA: History

Semester I

Class	Course title	Outcome
MA I	History: Theory and Method	• Students got knowledge of theories of history writing. • Students knew various history school in the world. • Students can formulate hypotheses and develop broad frames of interaction with other social sciences and attain certain level of interdisciplinary approach
MA I	Evolution of Ideas and Institutions in Early India	• Students understand the social, economic and institutional bases of Ancient India. • Students understand Indian history as a whole
MA I	Maratha Polity	• Students understood administrative system of the Marathas. • Students understood basic components of the Maratha administrative structure. The also understand the basic concepts of the Maratha polity.
MA I	Art and Architecture in Ancient India	• Students can understand various types of caves and temple architecture of India. • Students can identify the style architecture of local monuments.

Course Outcomes of MA: History : Semester II

Class	Course title	Outcome
MA I	Approaches to History	• students interrogate existing paradigms and challenge. • Students can do research in terms of formulating hypotheses and developed broad frames of interaction with other social sciences and attain certain level of Interdisciplinary approach.
MA I	Ideas and Institutions in Medieval India	• Student understood nature of medieval Indian society, economy, state formations, and the main religious currents of the time. • Students understood theories of medieval states.
MA I	Socio-Economic History of the Marathas	• Students understood the relationship between religion, caste, customs, traditions, class in 17th and 18th century Maratha Society. • Students understood aspects of economic life, by that they can trace the determinants of changes in social and economic life
MA I	Art and Architecture in Medieval India	• Students can understand various types of temples and forts. • Students can identify Indo-Islamic fusion of architectural marvels in India.

Course Outcomes of M.A (HISTORY): Semester III

Class	Course title	Outcome
MA II	HS –Core Course- 7 Ancient and Medieval Civilization of the World	• Ancient and Medieval cultures with a view to understand the students, • Students were known reinterpret and present them in historical perspective. • Student to understand intellectual trends in the modern world to enable the student to have a better understand of Indian History in the World context.
MA II	HS- Core Course- 8 Debates in Indian History	• Students introduced the student to some of the issues that that have been debated by historians and to introduce some perspectives with reference to Indian History.
MA II	HS- Core Course – 9 Economic History of Modern India	• Student understands to structural and conceptual changes in Indian economy after coming of the British. • Students were awareness of the exploitative nature of the British rule, • Students understand the process of internalization by Indians of new economic ideas, principles and practices.
MA II	HS-Core Optional Course- 13 Maharashtra in the 19th Century	• Student knows the history of modern Maharashtra from an analytical perspective; to point out to them the dialectical relationship between continuity and change in Maharashtra. • Students understand the ideas, institutions, forces and

		movements that contributed to the structural changes in Maharashtra. • Students understand various interpretative perspectives. To helped them in articulating their own ideas and views leading to orientation for research. • To introduced the student to regional history within a broad national framework

Course Outcomes of M.A (HISTORY): Semester IV

Class	Course title	Outcome
MA II	HS –Core Course- 10 History of Modern India (1857 -1971)	• Students understood the history of „Modern" India in an analytical perspective. • To made them awareness of the multi-dimensionality of Modern Indian History. • Students were the dialectical relationship between continuity and change in India; to highlight the ideas, institutions, forces and movements that contributed to the shaping of the Indian modernity; to acquaint the student with various interpretative perspectives; to help them in articulating their own ideas and views leading to the research-orientation.
MA II	HS – Core Course-11 Intellectual History of the Modern West	• Students were understand the concepts that are used in history, both of west Europe and India; to acquainted the student with the intellectual activity that played an important role in shaping events; the transition from medieval to modern times.
MA II	HS Core Course-12 World after World War II (1945 – 2000)	• To acquainted the student with the post-World War II scenario and to enable them to understand contemporary world from the historical perspective.
MA II	HS Core Optional Course- 19 Maharashtra in the 20th Century	• To enabled the student to study the history of modern Maharashtra in an analytical perspective; to point out to them the dialectical relationship between continuity and change in Maharashtra. • Students were understood ideas, institutions, forces and movements that contributed to the transformation in 19th century Maharashtra. • To acquainted the student with various interpretative perspectives. • To helped them in articulating their own ideas and views leading to research orientation. • To introduced the student to the regional history within a broad national framework.

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Program Outcomes, Course specific Outcomes

Department of Psychology

Program outcome : B.A. (Psychology)	
13.	PO-1. Develop an understanding of the basic concepts in Psychology.
14.	PO-2. Understand various psychological disorders, classify them and know the treatment.
15.	PO-3. Know characteristic features of the human developmental stages.
16.	PO-4. To develop a sense of responsibility of one's own actions as a part of society at large.
17.	PO-5. Help the youth to make better adjustment in life and inculcating the same in the members of society.
18.	PO-6. Develop listening skills and empathy with others.

Program outcome : M.A. (Psychology)	
7.	PO-1. Develop self-awareness among them to discover themselves that further evolves in higher human consciousness.
8.	PO-2. Form healthy interaction between society, culture and higher education in the context of psychological well-being.
9.	PO-3. Develop listening skills and empathy with others.
10.	PO-4. Develop professional skills that empower the students to gain employment.
11.	PO-5. Contribute towards the well-being of other individuals and small groups, and promote harmony in the society.
12.	PO-6. Inculcate and demonstrate skills of a counsellor that help sort issues among members of the society.
13.	PO-7. Create awareness in the society towards psychological well-being

Program Specific outcome : B.A. (Psychology)	
7.	PSO-1. Gain the knowledge of psychological concepts through theory and practical.
8.	PSO-2. To explain the developmental milestones of humans.
9.	PSO-3. Identify and classify the psychological disorders.
10.	PSO-4. Determine the level of mental disorder and suggest treatment.
11.	PSO-5. Develop healthy relations with the people in the society.
12.	PSO-6. Develop a sense of scientific inquiry in the psychological problem and develop research design.
13.	PSO-7. Administer psychological tests and interpret results.
14.	PSO-8. Conduct experiments under controlled conditions to test a psychological phenomenon or theory.

Program Specific outcome : M.A. (Psychology)	
17.	PSO-1. Understand the functioning of the brain and its role in maintaining good mental health.
18.	PSO-2. Administer psychological tests and measure the abilities, aptitude, mental state of the individual and interpret the results.
19.	PSO-3. Apply basic statistical techniques to analyse data in research.
20.	PSO-4. Know the procedure of test construction and standardization.
21.	PSO-5. Apply principles of learning and memory for better understanding of study material.
22.	PSO-6. Know the applications of psychological tests in various fields such as clinical, industrial and counselling.
23.	PSO-7. Formulate problem, hypothesis and determine adequate research design.
24.	PSO-8 Conduct and design experiments to test psychological phenomenon and theories.
25.	PSO-9. Assess one's own personality and work towards personality development.
26.	PSO-10. Diagnose psychological disorders, classify and suggest treatment.
27.	PSO-11. Determine the therapy required to treat a disorder.
28.	PSO-12. Conduct independent small-scale research on psychological issues pertaining to the individual and society at large.
29.	PSO-13. Assess human motivation and emotion.
30.	PSO-14. Undertake case studies related to psychological disturbances and suggest therapies for the same.

Course Outcomes of BA (Psychology):

Class	Course title	Outcome
FYBA (Sem.I)	Foundations of Psychology	CO-1. Describes the basic principles of psychology. CO-2. Differentiates the historical trends in psychology and the theoretical perspectives. CO-3. Solves personal day to day problems related to him on his own. CO-4. Applies the principles learnt in perception, learning and memory.
FYBA (Sem.II)	Social Psychology	CO-1. Understands the basic concepts, theories and applications of Social Psychology. CO-2. Mingles in a healthy manner in groups. CO-3. Develops healthy close relationships with peers and others in the society. CO-4. Displays pro social behavior in society.
SYBA	Social Psychology	CO-1. Understands the basic concepts, theories and applications of Social Psychology. CO-2. Mingles in a healthy manner in groups. CO-3. Develops healthy close relationships with peers and others in the society. CO-4. Displays pro social behavior in society.
SYBA	Abnormal Psychology	CO-1. Classifies the disorders as per the recent classification of abnormality.

		CO-2. Describes the causes, symptoms and treatments of various types of psychological disorders. CO-3. Differentiates the psychological disorders.
SYBA	Developmental Psychology	CO-1. Knows the basic concepts of human development processes. CO-2. Understands the influences of various factors on development. CO-3. Creates awareness among people about role of both parents in genetic make-up of the offspring. CO-4. Spreads the importance of factors responsible for normal healthy development of a child.
TYBA	Industrial and Organizational Psychology	CO-1. Describes the emergence of Industrial and Organizational Psychology. CO-2. Understands the work done in Industrial and Organizational Sector. CO-3. Becomes aware of the significance of training, performance appraisal, and leadership models. CO- 4. Creates awareness of the importance of Engineering Psychology.
TYBA	Scientific research and experimental Psychology	CO-1. Understands the basic concepts of experimental psychology and research methodology. CO-2. Asks questions related to human behavior. CO-3. Formulates research hypotheses and identifies variables related to the research. CO-4. Applies the basic steps in scientific research. CO-5. Knows the basic information about test-administration and scoring, and interpretation of the obtained results.
TYBA	Psychology practical: test and experiments	CO-1. Applies elementary statistical techniques to analyze data. CO-2. Administers psychological tests, scores and interprets the results. CO-3. Conducts basic psychological experiments, CO-4. Undertakes an independent small-scale research project.

Course Outcomes of M.A. (Psychology): Semester I

Class	Course title	Outcome
M.A. I (SEMESTER-I)	Ep-101: Cognitive Psychology: Understanding	CO – 1.To understand the origin of cognitive psychology. CO-2. To explore the knowledge of cognitive psychology. CO-3.To makes students aware with the recent trends in cognitive psychology. CO-4.To help students in relating subject matter of cognitive psychology to daily life.
	Ep-102: Psychometrics: The Science Of Psychological Assessment	CO – 1.To create critical understanding of measurement issues and techniques in psychological inquiry. CO-2. To enable students to develop skills and competencies in test construction and standardization. CO-3.To understand the various biases in psychological testing and assessment.
	Ep-103:	CO-1. To inform students about the basics of scientific

	Research Methodology-I	research in applied psychology. CO-2.To makes them learn the statistical rigours in designing research and processing data. CO-3Analyze the data of practical and projectwork.
	Ep-104: Psychology Practical: Testing	CO-1. The administration of the standardized psychological tests, rapport establishment, interpretation of scores and report writing. CO-2. Evaluate psychological tests. CO-3. Acquire certain skills of psychological counseling on the basis of psychological test results.

Course Outcomes of M.A. (Psychology) Semester II

Class	Course title	Outcome
M.A. I	Ep-201: Cognitive Psychology: Advances And Application	CO-1. To understand the advances in cognitive psychology. CO2. To study the application of cognitive psychology in different fields.
	Semester-Ii Ep-202: Psychometrics: Applications	CO-1. To understand how psychological tests are used for the purpose of assessment, guidance and enhancing the effectiveness of teaching-learning process. CO-2. To understand the use and interpretation of various psychological tests used in educational field. CO-3: To understand the use of psychological tests are used for better health, adjustment and related counselling. CO-4. To understand the use of psychological tests in clinical and organizational settings
	Ep-203: Research Methodology - Ii (Qualitative Methods And Multivariate Analysis)	CO-1. To learn about the philosophical foundations, goals and scope of qualitative methodology. CO - 2. To develop an understanding about the relationship between paradigms of science and methods of qualitative inquiry. CO-3. To understand basic procedures of using qualitative methodology. CO-4. To learn about scientific rigour in the use of qualitative methodology. CO-5 To make them learn the statistical rigours in multivariate analysis.
	Ep-204: Psychology Practical: Experiments	CO-1. The various areas of experimentation in psychology CO2. Skills required in conducting experiments in psychology CO 3. Applications of experimental design and report writing style

Course Outcomes of M.A.(Psychology): Semester III

Class	Course title	Outcome
M.A.II	Personality	CO-1. Know comprehensive, rigorous and systematic treatment of centrally important theories of personality. CO-2. Observe and interpret individual differences in behaviour in the light of sound theoretical systems of

		personality. CO-3. Apply personality theories in different walks of life.
	Psychopathology-I	CO-1. Follow latest DSM-5 classification system of Mental Disorders. CO-2. Understand various paradigms of Psychopathology CO-3. Understand the symptoms and prognosis of different Mental Disorders
	Psycho-diagnostics Procedure and Techniques	CO-1. Aware of various Psychodiagnostics, procedure & techniques. CO-2. Know and apply Psychodiagnostic tools to be used & skills to be acquired
	Project	CO-1. Understand proper scientific procedure for research. CO-2. Conduct an independent small-scale research,

Course Outcomes of M.A. (Psychology) Semester IV

Class	Course title	Outcome
M.A.II	Motivation and Emotion	CO-1. Has a comprehensive overview of the major theories of motivation and emotion, CO-2. Aware of the role of biological factors in motivation and emotion. CO-3. Know the importance of positive and negative emotions in human life
	Psychopathology-II	CO-1. Aware of various Psychodiagnostics, procedure & techniques. CO-2. Acquire ware and follow different Psychodiagnostictools & skills.
	Psychotherapies	CO-1. Know various Psychotherapies and its basic procedure. CO-2. Aware of effectiveness of specific psychotherapy in solution of particular problem. CO-3. Acquire different psychotherapeutic skills.
	Practicum	CO-1. Conduct scientific case studies. CO-2. Classify disorders. CO-3. Know Prognosis. CO-4. Conduct sessions of therapy. CO-5. Write session report of each case. CO-6. Present the case in the classroom.

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Program Outcomes, Course specific Outcomes

Department of Commerce

Program outcome: FYBCOM B.Com 2019-20	
27.	Practical Exposure that would equip the students to face the challenges in modern era in commerce and business.
28.	The course offers a number of values based and job-oriented skills to ensure that students become enables to feet for every challenging situation.
29.	Proficiency for completing various professional courses like Management, CA.,CMA.,CS.,MBA and Law
30.	Ability to recognise the role of businessman, entrepreneurs, consultants etc.
31.	Thorough knowledge of fundamentals of Commerce, Trade, Economics, Management etc.
32.	Expertise in way to contribute towards the development of new practices and procedure of Administration, Banking and finance, Entrepreneurship, Marketing, Insurance, Computers, Laws, Accountancy etc.
33.	Students become competent to demonstrate the role of Accountant, Manager, Advisor, Analyser etc. in society and business.
34.	Learners will be able to do higher education and advance research in the field of commerce and finance.

Program outcome: M. Com Part I	
29.	Enriched knowledge with new ideas and techniques essential for business and management
30.	Mastery over specific skills in business.
31.	Capability to acquire and handle any position in business.
32.	Capability to acquire and handle any position in business.
33.	Acquaintance with recent trends in commerce and management.

Course Outcomes of FYBCom : Semester I

Class	**Course title**	**Outcome**
FY (Paper-I)	Financial Accounting – I (112)	• Students become knowledgeable about accounting procedures, methods and techniques. • Acquaint them with practical approach to accounts writing by using software package e.g. Tally ERP-9, SAP etc.
FY (Paper-II)	Business Mathematics & Statistics- I (114 -	• Students are prepared for competitive examinations by inculcating them with the concept of Simple interest, compound interest and the concept of EMI.

	A)	• Imparted the concept of shares and to calculate Dividend, concept of population and sample. • They knew how to calculate various types of averages and variations along with the application of profit and loss in business.
FY (Paper-III)	Computer Concepts and Application - I (114 - B)	• Students get knowledge about the Computer environment and the basics of Operating System, basics of Network, Internet and related concepts. • Students become aware about applications of Internet in Commerce. • Enable students to develop their own web site.
FY (Paper-IV)	Organizational Skills Development- I (115 - A)	• On successful completion of this subject the students acquires the Knowledge about the various types of business organizations, office management and related practices.
FY (Paper-V)	Essentials of E-Commerce - I (116 - A)	• Technical knowledge on registration of a domain • Practical Knowledge on role of Internet in ecommerce • Analytical skills and Creative skills for web page designing
FY (Paper-VI)	Insurance and Transport- I (Insurance) (116 - B	• Students become knowledgeable on various insurance aspects and the importance of transport facility to a business.
FY (Paper-VII)	Marketing and Salesmanship- I (Fundamentals of Marketing) (116 -C)	• On successful completion of this course the students should get the practical knowledge and the tactics in the marketing.
FY (Paper-VIII)	Consumer Protection and Business Ethics - I (116 - D)	• The students have understood consumer motivation and perception, Learnt consumer protection act 1986.
FY (Paper-IX)	Business Environment & Entrepreneurship - I (116 -E)	• With this subject students are motivated to make their mind set for taking up entrepreneurship as a career.

Course Outcomes of FYBCom 2019-20 Semester II

Class	Course title	Outcome
FY (Paper-I)	Financial Accounting – II (122)	• Students become knowledgeable about accounting procedures, methods and techniques. • Acquaint them with practical approach to accounts writing by using software package e.g. Tally ERP-9, SAP etc.

FY (Paper-II)	Business Mathematics & Statistics- II (124 - A)	• Students are prepared for competitive examinations by inculcating them with the concept of Simple interest, compound interest and the concept of EMI. • Imparted the concept of shares and to calculate Dividend, concept of population and sample. • They knew how to calculate various types of averages and variations along with the application of profit and loss in business.
FY (Paper-III)	Computer Concepts and Application - II (124 - B)	• Students get knowledge about the Computer environment and the basics of Operating System, basics of Network, Internet and related concepts. • Students become aware about applications of Internet in Commerce. • Enable students to develop their own web site.
FY (Paper-IV)	Organizational Skills Development- II (125 - A)	• On successful completion of this subject the students acquires the Knowledge about the various types of business organizations, office management and related practices.
FY (Paper-V)	Essentials of E- Commerce - II (126 - A)	• Technical knowledge on registration of a domain • Practical Knowledge on role of Internet in ecommerce • Analytical skills and Creative skills for web page designing
FY (Paper-VI)	Insurance and Transport- II (Insurance) (126 - B	• Students become knowledgeable on various insurance aspects and the importance of transport facility to a business.
FY (Paper-VII)	Marketing and Salesmanship- II (Fundamentals of Marketing) (126 -C)	• On successful completion of this course the students should get the practical knowledge and the tactics in the marketing.
FY (Paper-VIII)	Consumer Protection and Business Ethics - II (126 - D)	• The students have understood consumer motivation and perception, Learnt consumer protection act 1986.
FY (Paper-IX)	Business Environment & Entrepreneurship - II (126 -E)	• With this subject students are motivated to make their mind set for taking up entrepreneurship as a career.

Course Outcomes of SYBCom

Class	Course title	Outcome
SY	201 Business Communication	• Students will able to communicate in the language of business. • Developing intellectual, personal and professional abilities through effective communicative skills; ensuring high standard of behavioural attitude through

		literary subjects and shaping the students socially responsible citizens.
SY	202 Corporate Accounting	• To enable the students to be aware on the Corporate Accounting in conformity with the provision of the Companies Act 2013. • After the successful completion of the course the student should have a through knowledge on the accounting practice prevailing in the Corporate world.
SY	204 Business Management	• The students get the understandings of Principles & functions of Management, Process of decision making, and modern trends in management process.
SY	205 Elements of Company Law.	• Enlighten the students' knowledge on Companies Act 2013 and • Secretarial practices.
SY	206 A Business Administration	• Students are inculcated with the basic knowledge about various forms of business organizations, business environment and its implications thereon. • They will be able to aware with the latest trends in business.
SY	206 E Cost and Works Accounting	• Enables the students to inculcate knowledge on Cost sheet, Material issues, Labour cost, Financial statement analysis, Budgeting etc.
SY	206 G Business Entrepreneurship.	• The student will be well versed in Concept relating to entrepreneur and knowledge in the finance institution.
SY	206 H Marketing Management	• Enable the student to understand the Principles of marketing management, market segmentation Product life cycle, pricing, branding etc.
SY	206 K Insurance Transport and Clearance	• Aquatint skills needed to manage insurance business, the importance of insurance and tourism to a business.
SY	206 L Computer Programming and Application.	• Students learn to use VBScript, transform Web pages from static text and images into functional, interactive, and dynamic e-commerce tools. • They Learn to embed VBScript code in an HTML document, use VBScript operators; write code that makes decisions based on existing conditions, using control structures and loops, Web page visitor using Message and Input boxes,use the DOM to control the layout of HTML pages, add effects, and get information from users.
	TYBCOM	
TY	301 Business Regulatory Framework (Mercantile Law)	• Enables to inculcate knowledge on various laws relating to business such as law of contract, law of sale of goods, law of agency, Negotiable Instruments Act etc.
TY	302 Advanced Accounting.	• Providing entire coverage of advanced accountancy. • Acquired knowledge on preparation of departmental accounts with respect to Apportionment of overheads.
TY	304 Auditing &	• Creating basic conceptual knowledge about the auditing

	Taxation	principles. • Understanding the basic concepts and to acquire knowledge about Computation of Income, Submission of Income Tax Return, Advance Tax, and Tax deducted at Source, Tax Collection Authorities under the Income Tax Act, 1961.
TY	305 A Business Administration Special Paper II	• Acquaint the students with basic concepts & functions of HRD and nature of Marketing functions of a business enterprise
TY	305 E Cost and Works Accounting Special Paper II	• The students gets a thorough knowledge on the cost accounting principles and the methods of cost accounting.
TY	305 G Business Entrepreneurship Special Paper II	• Acquainted the students with the basic concepts of entrepreneurship and preparing a business plan to start a small industry and developed the Knowledge and understanding in creating and managing new ventures.
TY	305 H Marketing Management Special Paper II	• Enable the students to understand the Principles of marketing management, market segmentation Product life cycle, pricing, branding, advertising, sales promotions, marketing research and CRM.
TY	305 K Insurance Transport and Clearance Special Paper II	• Promoting the awareness of Insurance Business & practices by making they learn the various regulations relating to Life Insurance & General Insurance.
TY	305 I Computer Programming and Application Special Paper II	• Inculcate knowledge on Networking concepts and technologies like wireless, broadband and Bluetooth. • Meet the security requirements of the SLAs and other external requirements further to contracts, legislation and externally imposed policies.
TY	306 A Business Administration Special Paper III	• Acquaint the students with the basic concepts in finance and production functions of a business enterprise
TY	306 E Cost and Works Accounting Special Paper III	• Imparted the knowledge regarding costing techniques, concepts, procedures and legal Provisions of cost audit
TY	306 G Business Entrepreneurship Special Paper III	• Students are aware to develop the Knowledge and understanding of behavioural aspects of entrepreneurship. Through studying the autobiographies of various entrepreneurs.
TY	306 H Marketing Management Special Paper III	• Enable to inculcate the knowledge of brand and Distribution Management in marketing plus making them aware about importance of control on marketing activities
TY	306 K Insurance Transport and Clearance Special Paper III	• Students understand the significance of travel and tourism industry. • They study the functions and working of various Travel Organizations.

		• Understand the concept of marketing mix and recent trends with Global Tourism and Transport Business.
TY	306 I Computer Programming and Application Special Paper III	• Students understand the software project management and project planning also show how graphical schedule representations are used by project management and the risk management process.

Course Outcomes of M. Com 2019-20 Semester I

Class	Course title	Outcome
MCom I	101 Management Accounting	• Students will enable to explain the relationship between cost accounting-financial accounting and managerial accounting. • They can answer the importance of management accounting for businesses. • Students will get the knowledge about the budgeting and operating budgets concepts. • They can Prepares both the operating and financial budgets
MCom I	103 Advanced Accounting and Taxation Special Paper I	• Students can able to apply the theoretical foundation of Accounting and Accounting Standards in practical approach. • They can gain ability to solve problems relating to Company Accounts, Valuations and special types of situations.
MCom I	104 Advanced Accounting and Taxation Special Paper II	• Students can able to compute the taxable income of individual and partnership firm. • Students can apply the knowledge of Income Tax and use it in filling the Income Tax Return of 'Individual', 'Hindu Undivided Family' and 'Firm' assesses.
MCom I	107 Advanced Cost Accounting and Cost System Special Paper I	• Students will enable explain the costing concept and methods and Analyse the unit cost and job costing, process costing with normal and abnormal loss. • They can be able to analyse standard costing methods and prepare the reconciliations statements
MCom I	108 Advanced Cost Accounting and Cost System Special Paper II	• Students Explain equip the students for designing and implementing cost control, cost reduction programme and different cost system. • They can implement the Cost Accounting Standard in practice with the level of knowledge with Advanced Techniques of Costing • The students can differentiate between Cost Accounting and Global Competitive environment. • They also enables to learn application of different methods of costing in Manufacturing and Service Industry.
MCom I	113 Business Administration Special Paper I	• Students will able to explain and critically analyse the basic concepts & techniques of Production and operations management.
MCom I	114 Business	• The post graduate students can take the decisions of

	Administration Special Paper II	Investment with the help of Financial Statements. • They also able to analyse the Financial Statements.
	SEMESTER II	
MCom I	201 Financial Analysis & Control	• Students can acquire sound knowledge of concepts, methods and techniques of management accounting and to make the students develop competence with their usage in managerial decision making and control.
MCom I	203 Advanced Accounting and Taxation Special Paper III	• Develop competency of students to solve problems relating Special areas in accounting including accounting for Services Sector and also the knowledge of Financial Reporting Practices. • They will be familiarize the student with procedure of accounting for Taxation.
MCom I	204 Advanced Accounting and Taxation Special Paper IV	• They can understand the concept of Direct Taxes including Rules pertaining thereto and their application to different business situations and principles underlying the Service Tax, basic concepts of VAT, Excise Duty and Customs Duty.
MCom I	207 Advanced Cost Accounting and Cost System Special Paper III.	• The post graduate students can use the knowledge on advanced cost accounting practices and Relevant Cost Accounting Standard are to be studied.
MCom I	208 Advanced Cost Accounting and Cost System Special Paper IV	• The students will be answer and design the implement cost control, cost reduction programme and different cost systems and Relevant Cost Accounting Standards are to be studied.
MCom I	213 Business Administration Special Paper III.	• They will get the Knowledge about the chambers of commerce and trade, Associations, Public enterprises and Public utilities.

Course Outcomes of M. Com II

Class	Course title	Outcome
MCom II	301 Business Finance	• Students will acquire sound knowledge of concepts, nature and structure of business finance.
MCom II	302 Research Methodology for Business.	• Students will enable to get the knowledge about the areas of Business Research Activities and capabilities of students to conduct the research in the field of business and social sciences. • Students will acquaint, in developing the most appropriate methodology for their research studies and familiar with the art of using different research methods and techniques.
MCom II	303 Advanced Accounting and	• They will get the knowledge and develop understanding of methods of auditing and their application

	Taxation Special Paper V	
MCom II	304 Advanced Accounting and Taxation Special Paper VI	• Students will enable to answer and develop the methods of audit in Specialized areas
MCom II	307 Advanced Cost Accounting and Cost System Special Paper V	• Students can acquire adequate knowledge on Cost Audit Practices. Level of Knowledge.
MCom II	308 Advanced Cost Accounting and Cost System Special Paper VI.	• The students with the knowledge of the techniques and methods of planning and executing the Management Audit. Level of Knowledge.
MCom II	313 Business Administration Special Paper V	• The students understand various concepts of organisation behaviour and depth knowledge about process of formation of group behaviour in an organization set up
MCom II	314 Business Administration Special Paper VI	• The students get with in-depth knowledge of HRM and understanding about recent trends in HRM
	MCOM-II SEM-IV	
MCom II	401 Capital Market and Financial Services	• Students can acquire sound knowledge, concept and structure of capital market and financial services.
MCom II	403 Advanced Accounting and Taxation Special Paper VII.	• The students familiarise with latest developments in the Subject and inculcate the habit of referring to various periodicals and publications in the given subject, apart from text books and reference books • They will be able to read, understand, interpret and Summarize various articles from newspapers, journals etc.
MCom II	407 Advanced Cost Accounting and Cost System Special Paper VII	• Get the knowledge on recent advances in cost accounting and cost systems
MCom II	413 Business Administration Special Paper VII.	• The students will familiarise with the recent advancements in business administration and understanding about tools and their application in the business.

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Program Outcomes, Course specific Outcomes

Department of Bachelor of Business Administration (BBA)

Program outcome: FYBBA 2019-20	
35.	Industrial and Practical Exposure that will develop personality of the students to face the challenges in business environment
36.	The course structure is designed in a way to develop values, ethics and skill based specialisation that enabled students to survive and sustain best managerial skills required to industry.
37.	It lay down path for various professional courses like MBA, PGDM, MSW, MHA HRD, M.Com, Law, CA.,CMA.,CS.
38.	Ability to identify the role of businessman, entrepreneurs, consultants etc.
39.	Basic knowledge of Marketing, HR, International Business, Agri Business Management
40.	Development of overall personality of students
41.	Students become quality resource for industry
42.	Learners will be able to do higher education and advance research in the field of Management.

Course Outcomes of FBBA : Semester I

Class	**Course title**	**Outcome**
FYBBA	Principles of Manage	• Basic aspects of management thinking & Develop ability of managerial thinking and cultivate business acumen • To understand different approaches to management thoughts and philosophy & Ability to understand approaches to philosophy of management thinking • To understand the importance of functions of management and their roles & Ability to organize various programmes and events • To know what are the themes in modern management and changes in the business & To learn about new systems and trends in modern management
FYBBA	Business Communicatio n Skills	• Ability to understand implication of effective communication • To develop an appropriate understanding role and utility of written communication in life • To develop proficiency for different purposes for different organizations • To develop proficiency in effectives uses of various media of communication

		• To communicate interact effectively by using different forms of social media
FYBBA	Business Accounting	• To learn about importance of acc. In business • Ability to distinguish between different tractions and its nature • Ability to prepare and interpret bank reconciliation statement • Appling software basic financial statement and converting row • financial data into well written financial data
FYBBA	Business Economics – Micro	• To understand different facets of economics and importance of prudent thinking • To understand variation in demand and supply. How it affects the different economic situations and various factors of production • To understand how the revenue is calculated for different situations and factors determined revenue. • To know the system of determination and factors consider in cost determination • To understand how pricing determination is affected by different market players and forces and its impact on market and society
FYBBA	Business Mathematics	• To understand how to apply the concept of interest and methods of calculation of interest. • To develop Mathematical competence for various interest related transactions and other activities • Ability to examine concept of discount in different business situations • Ability to apply the various concepts in business situations • Ability to develop the skills for data interpretation and inferences.
FYBBA	Business Demography	• Ability to understand the components of demography. Factors • Governing of a particular economics and government. Socio economic changes as a outcome of demographic changes. • Ability to examine how demographic changes influences different aspects of policy formulation and social development • To learn about implications of changes in population and structure of population on economy and society

Course Outcomes of FYBBA : Semester II

Class	Course title	Outcome
FYBBA	Business Organization and System	• To understand the purpose of business, • To learn how a business unit works and serves the society, historical progress of business as an economic entity, socio economic changes have led to economic development, • To study the new trends in commerce.

FYBBA	Principles of Marketing	• Role and importance of marketing manager • To understand the silent features of Indian and international Marketing Management • Ability to learn how marketing functions in a given environment • To understand various tasks performed by marketing managers in different environment
FYBBA	Principles of Finance	• To understand role and importance in business • Ability to understand implication of finance on business • To understand role and need of source of finance • How different determinants of size and type of business Sources of business finance • To learn about imp features and their applications considering their requirements in business
FYBBA	Basics of Cost Accounting	• To understand importance of costing in decision making • Ability to understand importance of costing and role of costing • To develop competence, to prepare comprehensive cost sheet and understand implication of overheads on total cost structure • Development of reasonable working knowledge of methods of ascertainment of cot of a contract or process.
FYBBA	Business Statistics	• To understand role and importance of statistics in various business situations • To develop skills related with basic statistical technique • Develop right understanding regarding regression, correlation and data interpretation
FYBBA	Fundamentals of computers	• To understand the importance of operating system • To understand structure and modeling of computer networking and data communication in business process. • To develop understanding regarding usage, functionality and services provided by operating system in business processes. • To develop understanding regarding need, structure and working of computer networking in business operations

Course Outcomes of SYBBA: Semester III

Class	Course title	Outcome
SYBBA	Personality Development	• To make the students aware about the dimensions and importance of effective personality. • To understand personality traits and formation and vital contribution in the world of business. • To make the students aware about the various dynamics of personality development.
SYBBA	Business Ethics	• To impart knowledge of Business Ethics to the students. • To promote Ethical Practices in the Business. • To develop Ethical and Value Based thought process among the future manager's entrepreneurs.

SYBBA	Human Resource Management and Organizational Behavior	• To introduce to the students the functional department of human resource management and acquaint them with planning, its different functions in an organization. • To introduce the human resource processes that are concerned with planning, motivating and developing suitable employees for the benefit of the organization.
SYBBA	Management Accounting	• To impart basic knowledge of Management Accounting. • To know the implications of various financial ratios in decision making. • To study the significance of working capital in business. • To understand the concept of budgetary control and its application in business. • To develop the calculating ability of various techniques of management accounting.
SYBBA	Business Economics (Macro)	• To study the behavior of working of the economy as a whole. • To develop an analytical framework to understand the inter-linkages among the crucial macroeconomic variables. • To apply economic reasoning to problems of business and public policy.
SYBBA	IT in Management	• To understand the role of IT in Management. • To understand the basics of operating systems. • To know the current happenings.

Course Outcomes of SYBBA: Semester IV

Class	Course title	Outcome
SYBBA	Production & Operations Management	• To provide goods and services at the right time, at the right place at the right manufacturing cost of the right quality. • To understand manufacturing technology and its role in developing business strategy. • To identify the role of operation function. • To understand the external and internal effects of five operation performance objectives
SYBBA	Industrial Relations and Labour Law	• To impart the students with the knowledge about complexities between labour and management relationships. • To make the students aware about mechanisms of Industrial Dispute and friendly interventions to deal with employee-employer problems. • To impart the students with the knowledge of laws & how law affects the industry & labour.
SYBBA	Business Taxation	• To understand the basic concepts and definitions under the Income Tax Act,1961. • To update the students with latest development in the subject of taxation. • To Acquire knowledge about Computation of Income

		under different heads of Income of Income Tax Act, 1961. • To acquire knowledge about the submission of Income Tax Return, Advance Tax, Tax deducted at Source, Tax Collection Authorities. • To prepare students Competent enough to take up to employment in Tax planner. • To develop ability to calculate taxable income of firms, co-operative societies and charitable trust
SYBBA	International Business	• To acquaint the students with emerging issues in international business. • To study the impact of international business environment on foreign market operations. • To understand the importance of foreign trade for Indian economy.
SYBBA	Management Information System	• To understand the concepts of Information System • To study the concepts of system analysis and design • To understand the issues in MIS
SYBBA	Business Exposure	• To develop the understanding of the student with a realistic and practical perception of the industry its layout, procedures, processes, organization structure • The objective of the Industrial Visit is to help students gain firsthand information Regarding the functioning of the Industry which presents the students with opportunities to plan, organize and engage in active learning experiences both inside and outside the classroom

Course Outcomes of TYBBA: Semester V

Class	Course title	Outcome
TYBBA	Supply Chain and Logistics Management	• To introduce the fundamental concepts in Materials and Logistics Management. • To familiarize with the issues in core functions in materials and logistics management
TYBBA	Entrepreneurship Development	• To create entrepreneurial awareness among the students. • To help students to up bring out their own business plan. • To develop knowledge and understanding in creating and managing new venture
TYBBA	Business Law	• To understand basic legal terms and concepts used in law pertaining to business • To comprehend applicability of legal principles to situations in Business world by referring to few decided leading cases
TYBBA	Research Methodology	• To provide the students with basic understanding of research process and tools for the same. • To provide an understanding of the tools and techniques necessary for research and report writing.

TYBBA	Analysis of Financial Statements	• This course is designed to prepare students for interpretation and analysis of financial statements effectively. • To make the student well acquainted with current financial practices • This course is designed primarily for students who expect to be intensive users of financial statements as part of their professional responsibilities.
TYBBA	Sales Management	• To provide the students with basic understanding of the processes and skills necessary to be successful in personal selling and insights about recent trends in sales management. • To provide an understanding of the tools and techniques necessary to effectively manage the sales function - organization - sales individual. • To provide students with advanced skills in the areas of interpersonal communications, Motivational techniques
TYBBA	Human Resource Management Principles and Functions	• To introduce the concept, principles and practices of H.R.M. to the students
TYBBA	Management of Services	• To inculcate in depth knowledge of services as an essential economic activity. • To get overall understanding about special features of services, various concepts and issues related with management of services.
TYBBA	Agricultural and Rural Development	• To study the importance of rural economy of India • To understand the role of agribusiness management in development of economy
TYBBA	Long Term Finance	• To make the study of long-term financing • To make the student well-acquainted regarding current financial structure
TYBBA	Retail Management	• To provide insights into all functional areas of retailing. • To give a perspective of the Indian retail scenario. • To identify the paradigm shifts in retailing business with increasing scope of technology and e-business
TYBBA	Human Resource Practices	• To familiarize the students with it & practices
TYBBA	Marketing Services	• To provide insights into all functional areas of selling. •
TYBBA	International Agricultural Systems	• To study of farming system and recent issues in agriculture sector. • To understand export potential of Agri. Business

Course Outcomes of TYBBA: Semester VI

Class	Course title	Outcome
TYBBA	Business Planning and Project Management	• To acquaint the students with the planning process in business and familiarize them with the function and techniques of project management
TYBBA	Event Management	• To acquaint the students with concepts, issues and various aspects of event management.
TYBBA	Management Control System	• To introduce to the students the function of management control, its nature, functional areas, and techniques.
TYBBA	E- Commerce	• To know the concept of electronic commerce • To know the concept of Cyber Law & Cyber Jurisprudence • To know Internet marketing techniques
TYBBA	Financial Services	• To study in detail various financial services in India • To make the students well acquainted regarding financial markets
TYBBA	Advertising and Sales Promotion	• To develop knowledge and understanding of importance and functions of advertising. • To understand Key features of Sales Promotion
TYBBA	Labour Laws	• To acquaint the students with important legal provisions governing the industrial employees
TYBBA	Special Services of Marketing in India	• To create a right understanding about nature of services in India. • To develop a right approach towards marketing of services in India. • To make students aware about upcoming areas of services in India
TYBBA	Recent Trends in Agri business	• To study the agro base industries in Indian economy • To understand services associated with Agriculture Business
TYBBA	Cases in Finance/ Project	• To understand of application of theory into practice
TYBBA	Cases in Marketing / Project	• To understand of application of theory into practice
TYBBA	Cases in Human Resource Management / Project	• To understand of application of theory into practice
TYBBA	Cases in Service Sector Management / Project	• To understand of application of theory into practice
TYBBA	Cases in Agri Business Management / Project	• To understand of application of theory into practice

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Program Outcomes, Course specific Outcomes

Department of Journalism and Mass Communication

Program outcome: Master's program in Journalism and Mass Communication	
1	To understand the basic concepts of Mass Communication - its implications, its effects and its use in constructing messages for the media.
2	Understand the basic difference between advertising, propaganda, public relations and its purpose.
3	To understand the role of journalism in the functioning of democracy. Its responsibility, effects and history.
4	To be able to think rationally in terms of benefit of the society.
5	To think scientifically about the process of mass communication and to be able to scientifically research in communication and Journalism.
6	To develop multitasking skills required in the dynamic multi-media and convergent environment.
7	To understand the legal framework in which journalism and mass communication operates, its limitations and strengths, its use in building the nation.

Program specific outcomes	
1	Gain knowledge of journalism and mass communication through practical work, assignments, project work, seminars, workshops.
2	To understand the 'why' and 'how' of the communication process.
3	To develop an analytical approach for critical evaluation of the mass communication media.
4	To imbibe skills required to work effectively in various field of mass communication.
5	To train well rounded journalist and mass media professionals with requisite technical and content-generation skills

Course specific outcomes: MJMC
Semester I

Class	Course title	Outcome
MJMC I	JMC 101 Fundamentals of communication	• To understand the different aspects of communication including language, sound and gestures. • To understand the different forms of communication as per a) the media and b) persons involved. • To know the importance of good vocabulary and the correct usage of words at the right place. • To understand the various aspects of sound like pitch, intonation, style etc in a speech/ talk / presentation etc.

MJMC I	JMC 102 Journalism: Principles, process and practice	• To learn the concept of journalism. • To understand its process, and its history. • To learn the roles and responsibilities associated with the journalist. • To be aware about the various legal aspects related to journalism and journalist • To learn the media management aspect, its organisation and structure.
MJMC I	JMC 103 Understanding society (1)	• Journalist are expected to know every aspect of life and therefore to make them aware about the society and its challenge, apart from knowing and understanding the universe and environment. • To learn the basic concepts of sociology, philosophy, science and technology. • To understand the world, Indian and regional history in order to understand the dynamics of events happening in the political, cultural, economic etc spheres .
MJMC I	JMC 104 Media technology	• To help students learn and develop skills required to work for print, audio video and digital media. • To learn the functioning and working of a camera and to learn the skills required to use a camera for still and video. • To learn the software used to record and edit audio. • To learn the standard operating procedures used in digital media.

Semester II

Class	Course title	Outcome
MJMC I	JMC 201 Print Journalism	• To learn and get acquainted with the organisational structure of a newsroom. • To learn news writing, editing, proof reading, editorial writing and feature writing. • To lean the history and know the trends and challenges associated with print journalism • To learn magazine journalism and process of bringing out a magazine.
MJMC I	JMC 202 Audio and video Journalism	• To understand audio, its characteristics and use. • To learn about radio along with its strengths and limitations. • To learn to write for ear and learn aural reading. • To understand Television its characteristics and use. • To learn visual thinking. • Learn interview techniques for audio and visual medium. • To understand the impact TV has on its audience and its effects.
MJMC I	JMC 203 Digital Journalism	• To learn the concept of internet and its functioning. • To learn the concept of media convergence. • What is story telling? How can it be told using different

		medium? • Also learn mobile journalism and data journalism.
MJMC I	JMC 204 Research Methodology	• To learn the concept of research and its scientific use in the media and communication related field. • To learn different research methods • To understand the importance of research in the mass communication and its use in learning the process of communication and to find out its impact.

Semester III

Class	Course title	Outcome
MJMC II	JMC 301 Understanding society (2)	• To know the and understand politics, role it plays in democracy, how media looks at politics. • To understand the concept of nation security and nation and state. • To understand the economics and its importance in all aspects of life. • Also to learn the concept of development; models of development and sustainable development. • To understand the importance of sports in life and society and its economic and political implications. • Also to learn music, literature and entertainment.
MJMC II	JMC 302 Journalism and Mass Communication : Theories and Practice	• To understand the basics of communication along with its rise, models and its relation to society. • To learn the different theories of media effects, cultural theories, functional theories. • Also to understand non-western theories. • To learn journalism as a means of communication and various theories related to it.
	Common Elective	
MJMC II	JMC COM 1Advertising	• To learn the concept of advertising and to learn it from the mass communication point of view. • Also to learn advertising as an art form. • To learn the impact and effect it has on society.
MJMC II	JMC COM 2 Development Communication	• To understand development; and Indian thoughts and process involved in the process of development. • To find out the difference between development, growth and rise.
MJMC II	JMC COM 3 Gender and Media	• To understand the concept of gender. • To learn the relation between gender and media. • To learn the methods of consumption of media from the gender point of view .
MJMC II	JMC COM 4 Magazine Production	• To learn the different types of magazine . • To learn the difference between writing for a daily and a magazine. • To learn the functioning of a magazine print and digital .
MJMC II	JMC COM 5	• To understand the process of teaching and learning from

	Mass Communication Pedagogy	the point of view of communication. • To learn the concept and process of teaching mass communication.
MJMC II	JMC COM 6 Public Relations	• To understand public relations. • To learn the role and responsibilities associated with public relations.
MJMC II	JMC COM 7 Radio Broadcasting	• To learn the process of radio broadcasting. • To understand the technology associated with it . • To learn the management aspect associated with radio broadcasting .
	Journalism Stream Elective	
MJMC II	JMC JR 1 Agriculture Journalism	• To understand rural society and structure. • To understand the relation between development, politics and media. • To know the agriculture in India and Maharashtra . • To understand the agriculture economy of India. • To understand agri- crisis. • To learn agriculture journalism .
MJMC II	JMC JR 2 Business Journalism	• To understand the concept of economy, business and finance • To learn the fundamentals of Indian economy. • To learn the different aspects while doing reporting for the field of business, finance and industrial journalism .
MJMC II	JMC JR 3 Crime Journalism	• To understand the ethics of crime and justice coverage . • Learn about the various law enforcement machinery. • What needs to be done and undone while covering crime.
MJMC II	JMC JR 4 Culture Journalism	• To understand the basic difference between culture and traditions. • To learn the various arts and its importance in society. • What skills are required to cover culture as a beat.
MJMC II	JMC JR 5 Data Journalism	• Learn the emerging beat of data journalism and the challenges it has. • To understand data. • To understand data visualisation. • To find out the data driven stories .
MJMC II	JMC JR 6 Environment Journalism	• To learn ‘What is environment?’. • To understand the relation between environment and development. • Learn different concepts as climate change, biodiversity, pollution and waste management. • To understand the relation between environment and energy.
MJMC II	JMC JR 7 Investigative and in-depth reporting	• To learn what is investigative journalism, how it is different from instigative, routine and sensational journalism. • Learn the process of investigative journalism. • To learn to write in-depth stories.

MJMC II	JMC JR 8 Science Journalism	• To understand science. • To know the contemporary scenario of science communication in India. • To learn about various science and technology related organisations and its contribution. • To learn to write stories about science .
MJMC II	JMC JR 9 sports Journalism	• To know about the history and traditions associated with sports. • To learn about the various sports associations. • To learn the skills and techniques required to do journalism of sports beat.
	Mass Communication Stream Elective	
MJMC II	JMC MC 1 Audio visual production	• To learn the basics of audio and video production • To understand the concepts and works associated with pre and post productions . • To learn about the floor production techniques.
MJMC II	JMC MC 2 Book Editing	• Overview of 'Book Publishing' • To learn the process of book editing. • To learn the economic and copy right aspect associated with book publishing. • To learn publishing laws.
MJMC II	JMC MC 3 Technical writing	• To explore the need for technical writing. • To learn the process of technical writing • To understand document review and publication
MJMC II	JMC MC 4 Film Studies	• To understand what cinema is • To understand the language of cinema • To explore the world cinema, different styles and genres. • To know film history. • To know about various film institutions • To understand the economic aspect of cinema
MJMC II	JMC MC 5 Intercultural communications	• To define and understand the importance of intercultural communications in globalised world. • Role of media in ICC. • ICC contemporary phases.
MJMC II	JMC MC 6 Political communications	• To understand media and political communication • To understand political campaigns and propaganda • To explore 'communicating politics'
MJMC II	JMC MC 7 Social media communications	• To know the internet based communication revolution. • To understand the concept of network society • Understand the digital culture • To understand social media for personal and business use, its impact on individual and society at large.
MJMC II	JMC MC 8 Translation skills	• Understand language • To understand translation – process and skills required. • To learn different types of texts translated • To learn the skills required of a good translator.

Semester IV

Class	Course title	Outcome
MJMC II	JMC 401 Internship and study visits	• Study tour/ visits help students the process of self communication to mass communication. • Interactions to various personalities and celebrities help students gain knowledge through the experience shared by these people
MJMC II	JMC 402 Research Dissertation	• To learn the research through actual practice by doing a small research project under the umbrella of journalism and communication.
MJMC II	JMC 403 In-depth reporting	• To inculcate the skills of interaction through actual doing of in-depth project on topics having social significance.
MJMC II	JMC 404 Documentary production	• To visualise what has to be shown. • To implement the visualised and learn through practical of making a documentary
MJMC II	JMC 405 Translation project	• Putting to practice the skills of translation.
MJMC II	JMC 406 Podcast production	• To learn podcast and to implement it, allowing the responsibility and the consistency to be followed while carrying out the project.
MJMC II	JMC 407 web-based content development	• Learn the skill of web-based content development.
MJMC II	JMC 408 advertising campaign	• To learn the art of campaigning.
MJMC II		• All these projects help students enrich their resume and also help them launch themselves in the media industry with the chosen media as their platform to work.

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Program Outcomes, Course specific Outcomes

Department of Political Science

Program outcome : BA/BCom/BSc (Political Science)	
43.	Learns about the politics of India along with constitutional structures and institutions.
44.	Enriches the knowledge of students about western political thinkers of the ancient and medieval period.
45.	Efforts are being made to appraise the global and regional politics along with the inter state relationship.
46.	To develop and be able to demonstrate skills in conducting as well as presenting research in political science
47.	To analyze political and policy problems and formulate policy options.
48.	Students enable to discuss the major theories and concepts of political science and its subfields, and also deliver thoughtful and well articulated presentations of research Findings.

Program outcome : MA/MCom/MSc (Political Science)	
34.	Post Graduate Course in Political Science seeks to offer students advance knowledge of political concepts and practices in a manner that enables students to relate them to the contemporary local, national and international event.
35.	It seeks to emphasize both the knowledge and skill element by exposing students to new ideas not only by classroom teaching, but by also engaging in continuous experiential learning through field visits, seminars, discussions etc.
36.	Understanding of the institutions, processes, constitutional background, and policy outcomes of Indian government and the ability to compare Indian government to other countries around the world.
37.	Understanding of the institutions, processes, constitutional background, and policy outcomes of Indian government and the ability to compare Indian government to other
38.	Knowledge of key theories and concepts, historical developments, organizations, and modern issues in international relations.
39.	Understanding of government institutions, electoral processes, and policies in a variety of countries around the world and the ability to compare the effectiveness or impact of differing political arrangements across countries.
40.	Knowledge of some of the philosophical underpinnings of modern politics and Government and the legal principles by which political disputes are often settled.
41.	Ability to use the comparative case study method of analysis, quantitative forms of Analysis and legal analysis in oral communication and in written research.

Program Specific outcome : BA (Political Science)	
27.	Students enable to understand the philosophy of Indian constitutions.
28.	Students enable to identify the causes, impact of British colonial rule.
29.	Students enable to appreciate the various phases of Indian national movement.
30.	Students enable to create value in young youth regarding the patriotism.
31.	Students enable to understand the various Government of Indian acts their provision and reforms.
32.	Students enable to know the salient features in making of Indian constitution
33.	Students enable to appreciate the socio-economic political factors which lead to the freedom struggle.
34.	To Familiarize students with the working of the constitution of India
35.	Understand the structure and composition of Indian Constitution
36.	Assessing the nature of Indian Federalism with focus on Union-State Relations.

Program Specific outcome : MA (Political Science)	
20.	Become aware of the sociological and political issues including institutions and process.
21.	They are taught about the organization and theories of public administration with their application in India.
22.	Familiarity with different approaches to the study of politics and an ability to apply these to contemporary collective and political problems, and political behavior.
23.	MA in Political Science helps understand the broad administrative system in India, thus making them the right fit for managerial positions.
24.	Public Relations is also a good option as exposure to political practices also acquaints one with culture and social systems of a place and hence making them ideal for a role as Public Relations executive.
25.	An ability to formulate and construct logical arguments about political phenomena and an ability to evaluate these through empirical and theoretical methods.
26.	Analyze political problems, arguments, information, and/or theories

Course outcomes (Political Science)

Class	Course title	Outcome
FYBA	Introduction to Indian Constitution	• Learns about the politics of India along with constitutional structures and institutions. • Students enable to understand the philosophy of Indian constitutions. • Students enable to appreciate the various phases of Indian national movement.
SYBA	Political Theory & Concept (G-2)	• Students enable to understand the nature and scope of political theory. • Students enable to understand the significance of political theory. • Students enable to acquaint with the theories, approaches, concepts and principles of political theory.

		• Students enable to appreciate the procedure of different theoretical ideas in political theory. • Students enable to Interpret and assess information regarding a variety of political theory. • Students enable to understand the various traditional and modern theories of political science. • Students enable to evaluate the theories of origin of the state.
SYBA	Western Political Thought (S-1)	• Examine political thought through the Classical, Renaissance, and Enlightenment periods based on the works of Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Tocqueville, and Marx; Compare and contrast the concepts of justice, freedom, equality, citizenship, and sovereignty in the works of Machiavelli, Hobbes, Locke, and Rousseau; • Explain the different versions of, and importance of, the state of nature to political thought; Explain Karl Marx's worldview, with particular regard to his critique of democracy and the modern, politically liberal state; how it came to be; and its fundamental link to capitalism; and Explain John Stuart Mill's theory on utilitarianism and how he applies it to society and the state.
SYBA	Political Sociology (S-2)	• Have good knowledge about main issues and topics in political sociology. • Be able to understand basic principles of the exercise of power, of the state relations with civil society; individual and group interactions in the political realm. • Achieve practical skills of analysis of social phenomena in their political settings. • Acquire habits of socio-political information finding, sorting and critical examining. • Foster skills of public presentations and discussions.
TYBA	Modern Political Ideologies (G-3)	• Student enables to understand the role of different political Ideologies and their impact in Politics. • Students enable to understand the different streams and subtle nuances within each ideology, the change and continuities in its doctrine and its relevance to contemporary times are highlighted. • Student enables to understand the core doctrines of each of the ideologies and to make
TYBA	Public Administration (S-3)	• Students enable to demonstrate understanding of various activities of governmental administrators that fall under the rubric of public administration to include rule-making, ratemaking, and other regulatory activities, policy making and the delivery of services and programs. • Students enable to understand the 20th century emergence of the modern administrative state as a result of the technological, social, economic and political pressures that have emerged in national industrialized and developed

		complex, interdependent systems. • Students enable to understanding of public administration as a career field in government.
TYBA	International Politics (S-4)	• Students enable to understand the evolution, scope and significance of international relations • Students enable to demonstrate an understanding of: the key historical events and also they enable to understand contemporary international system; and the key actors which shaped the international Politics. • Students enable to discuss the main international relations theories. • Students enable to analyze importance of International relation in process of nation progress. • Students enable to appreciate the foreign policy their determinants features& its relevance

Class	Course title	Outcome
MA (Sem-I) (Paper-I)	PO-C1: Traditions of Political Thought	• Student enables to know major traditions of thought that have shaped political discourse in different parts of the world over the last three millennia. • Student stresses the great diversity of social contexts and philosophical visions that have informed the ideas of key political thinkers across epochs. • The chief outcome is Student project the history of political thought as a series of critical interconnected and open-ended conversations about the ends and means of the good life.
MA (Sem-I) (Paper-II)	PO-C2 : Administrative Theory	• Student enable to understand important concepts, approaches and theories of public administration • Student enables to equip students with understanding of the latest developments in the field of Public Administration. • Student enables to understand and analyze broad transformations in the study of public administration in the course of changes in socio-economic and political life.
MA (Sem-I) (Paper-III)	PO-C3 : Political Institutions in India	• Students enable to introduce the leading institutions of the Indian political system and to the changing nature of these institutions. Apart from explaining the structure and • Functions of the main institutions. • Student enable to understanding the institutional balance of power as discussed in the Indian constitution and as developed during the functioning of Indian democracy over the past decades.

MA (Sem-I) (Paper-IV)	PO-O1 : Modern Political Ideologies	• Student enables to understand the difference between ideology and thought as well as between theory and ideology. • Students enable to understand the relationship between ideas and politics. • Student enables to understand the core doctrines of each of the ideologies and to make sense of politics through different ideological perspectives.
MA (Sem-II) (Paper-I)	PO-C4 : Comparative Political Analysis	• The purpose of this course is to acquaint the students with the sub-discipline of Comparative Politics with the following outcomes. • Students enable to understand the trajectory of the sub-discipline. • Student enable to understand the significance of the comparative methodology • Student enables to understand the dynamics of domestic politics across the countries.
MA (Sem-II) (Paper-II)	PO – C5: Theory of International Politics	• Students enable to introduces the evolution and important of various theories. • Students know a brief history of international politics. • They understanding what are happening in the world and the levels of analysis. Competing theories are presented.
MA (Sem-II) (Paper-III)	PO-C6 : Public policy	• Student enables to understand basic concepts, theories and process of public policy. • Student enables to understand policy processes and actors involved in it by studying specific policies. • Student enables to understand and analyze policy making in practical context.
MA (Sem-II) (Paper-IV)	PO-O8: Political Thought in Modern Maharashtra	• Student knows the key ideas of political thinking in modern Maharashtra since the late 19th century. • Student enable to understand and decipher the diverse and often contesting ways in which ideas of nationalism, democracy and social transformation were discussed by leading Maharashtra thinkers. • To acquaint students with the main issues and concern in the public life of a regional society as it shaped in the context of colonialism and modernity. • To help students understand the essentially collective and yet diverse nature of Political Thought.

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Program Outcomes, Course specific Outcomes

Department of B VOC DIRECT –INDIRECT TAX

Program outcome : B.Voc. Direct –Indirect Tax	
49.	To acquire basic knowledge of the subject on theoretical grounds. On completion the first year students shall have the basic knowledge and skill regarding various aspects of Taxation laws (Direct-indirect), Financial Accounting, Business Communication, Laws for performing basic activities on the article-ship platform and the student reach to the level of Diploma in Direct – Indirect Tax.
50.	To learn the subject on advanced - technical and practical level of the subjects in First year and Basics of new subjects like Indirect Taxation, Costing, Law, Accounting, management and other crucial laws of stage and will reach the level of Advance Diploma in Direct – Indirect Tax.
51.	To learn the professional level of Direct Tax, Indirect Tax, Financial Accounting, Cost & Management Accounting, Company & Corporate Laws subject with the Practical and Professional view and building up the good Carrier and candidate will be awarded Bachelor of Vocation Degree in Direct – Indirect Tax.

Program Specific outcome : B.Voc. Direct –Indirect Tax	
37.	To know the basic idea of all taxation and Accounts related subjects
38.	To learn the practical aspect od various accounting ,taxation related work in internship with Practicing CA,CMA,CS, Tax Consultant, etc.
39.	To understand the accounting concept with help of Tally ERP software
40.	To get experience of various types of client and their requirements etc.by that students should know how to handle clients .
41.	To get professional and analytical skills for creating professional opportunities
42.	To acquire practical skills related with commerce, trade, banking and finance.

Course Outcomes of B.Voc. Direct –Indirect Tax

Course outcome : B VOC direct indirect tax	
After successful completion of three year degree program in B.Voc. Direct –Indirect Tax a student should be able ……	
1.	To become entrepreneur and self-employed by offering consultancy
2.	To give taxation ,accounting, financial management advice to the clients
3.	To create professional job opportunities in the field of taxation, banking, finance etc
4.	To develop personality by improving communication with clients and handling various types of industries works like audit and GST working etc.
5.	To gain huge experience of three years of Internship with any Practicing CA.

	CMA, CS, Tax consultant, etc. which will helps students to become self-employed in the field of : Professional Consultant; Self-Practicing Skills; Legal Advisor
6.	Apart from this by completion of this course following skills will develop in students : • Accounting Skills • Communication Skills • Handling different types of work at one time • Audit skills • Interpret various sections of Income tax ,GST ,Company Law for solving clients quarries.

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Program Outcomes, Course specific Outcomes

Department of B.Voc. Interior Design

Program outcome : B.Voc Interior Design	
PO-1	Become entrepreneur and work freelance (self-employed), by offering consultancy services directly to individual clients.
PO-2	Design show-homes for builders & property developers.
PO-3	Advise clientele & providing shopping services in specialised furniture and furnishings stores
PO-4	Work with kitchen and bathroom manufacturers to help clients plan their space effectively.
PO-5	Larger interior design and architectural practices may also hire to work alongside more senior personnel
PO-6	In addition to qualification, develop one of the best tools to impress potential clients and/or employers, which is a strong portfolio.
PO-7	Following skills are develop after completion of this course : 1. Communication ability 2. Presentation skills 3. Observation skills 4. Read and interpret building plans, Structural drawing and interior design drawing 5. Understand concepts and principles related to Interior Design and Decoration 6. Supervision and execution of Interior sites works. 7. Analyse and interpret test results for interior materials. 8. Taking various types of measurement for valuation. 9. Draw interior plans manually and by using CAD & 3d Max. 10. Give layout of software 11. Calculate quantities of interior work and prepare estimates. 12. Understand procedure of tender notice and contract agreement. 13. Use computer software. 14. Use standard Professional ethics. 15. Planning and organization of interior & construction activities. 16. Quality control techniques in Interior Design and Decoration. 17. Prepare working drawing for interior work and details. 18. Work as a member of a team and as leader. 19. Write report for given task / project. 20. Understand the treatment required for interior materials. 21. Apply principles of Design in Interior Design and Decoration.

	22. Know the use of equipment and machinery in interior fields.

Program Specific outcome : B.Voc Interior Design	
PSO-1	Incorporate a global perspective when making design decisions, based on sustainable, socio-economic and cultural contexts.
PSO-2	Apply theories of human behaviour to human-centred design solutions.
PSO-3	Apply the design process to generate creative solutions to complex problems optimizing the human experience within the interior environment.
PSO-4	Collaborate in multi-disciplinary teams respecting a variety of points of view and perspectives that enrich the process and product of the team.
PSO-5	Communicate complex ideas clearly to specialists and non-specialists through appropriate oral, written and representational media.
PSO-6	Exemplify accepted standards of professionalism and business practice including a commitment to engage in lifelong learning.
PSO-7	Analyze interiors, architecture, the decorative arts, and art within a historical and cultural context to inform contemporary design solutions.
PSO-8	Synthesize theories and concepts of spatial definition and organization into multi-dimensional design solutions.
PSO-9	Apply theory, psychology and methodology of colour to designs of the interior environment.
PSO-10	Specify furniture, fixtures, equipment and finish materials to meet the design criteria for a variety of interior spaces.
PSO-11	Apply principles of lighting, acoustics, thermal comfort, and indoor air quality as required to enhance the health, safety, welfare, and performance of building occupants.
PSO-12	Produce construction drawings and documents using industry standards for a variety of interior spaces.
PSO-13	Comply with laws, codes, and standards that impact fire safety and life safety.
PSO-14	Employ environment-behaviour research methodologies to address open-ended problems in interior design.

Course Outcomes : B.Voc. Interior Design
Semester I

Class	Course title	Outcome
F.Y. B.Voc	BASIC DESIGN-I BV ID 1801	• CO1- Understand importance of interior design and be able to differentiate between design and decoration. • CO2 -Develop knowledge about Basic design in interiors. • CO3 - Use tools of interior design based on Aesthetical and Functional aspects. • CO4 - Understand the Ergonomics study for different activities. • CO5 -Understand the Anthropometric data required for interior designing.
F.Y. B.Voc	BASIC MATERIALS AND PRODUCTS BVID 1802	• CO1-To understand & select common building materials based on their properties • CO2-To understand & select plumbing, electrical and lighting materials as per requirements. • CO3-To understand & select floor coverings based on

		their properties & requirements.
F.Y. B.Voc	PRIMARY SERVICES BV ID 1803	• CO1 - Develop knowledge and concepts of prim CO1ary services • CO1Use appropriate resources including optimisation • CO2-Design layouts for services • CO3-Calculate required illumination for given activity layout. • CO4-Choose the required lighting systems or different activities and areas. • CO5-Develop knowledge of basic interior services.
F.Y. B.Voc	FURNITURE DESIGN (STUDIO) BVID 1804	• CO1 - Improve their sketching skills and drawing abilities • CO2-Learn and understand the techniques of various methods of drawing. • CO3-Understand the use of colors and their effects in drawing. • CO4-Acquire knowledge in the field of interior perspective drawing and sociography. • CO5-Improve presentation skills, techniques for construction as a tool towards effective visualization and presentation. • CO6-Students should acquire knowledge of the various drawings, which effectively communicate their designs. • CO7-Develop sketching abilities using observational drawing methods.
F.Y. B.Voc	PARALINE & PERSPECTIVE PROJECTIONS(STUDIO) BVID 1805	• CO1-Use drafting instruments, develop drafting skills. • CO1-Use graphical language & lettering techniques; and learn the use of scale and its importance. • CO3-Represent 3-D objects in 2-D & 3-D views using parallel lines and converging lines. • CO4-Graphically represent annotations, symbols, colour, shades and shadows of objects. • CO5-Prepare technical and presentation drawings.
F.Y. B.Voc	COMMUNICA TION SKILL (STUDIO) BV ID1806	• CO1 - Understand & use basic concepts of Communication in an organisation and social context. • CO2-Use reasonably and grammatically correct English language with reading competency. • CO3-Utilise the skills to be a competent communicator. • CO4-Develop comprehension skills, improve vocabulary, and acquire writing skills. • CO5-Overcome language and communication barriers with the help of effective communication techniques.
F.Y. B.Voc	MARKET SURVEY-I (STUDIO)	• CO1 - Develop observational and analytical skills. • CO2- Develop communication and

	BV ID 1807	presentation skills. • CO3 - Develop professional ethics and code of conduct.

Semester II

Class	Course title	Outcome
F.Y. B.Voc	BASIC DESIGN-II BV ID 1808	• CO1 - Use tools of interior design based on Aesthetical and Functional aspects. • CO2-Understand the principles of Design and its implementation in design. • CO3-Identify Concepts with approach; Various interior Styles • CO4-IdentifyConceptswith approach;Historical Periods • CO5-Identify Concepts with approach;Themes.
F.Y. B.Voc	ALLIED MATERIALS AND PRODUCTS BV ID 1809	• CO1-Select verities of glass & treatments based on the application & use. • CO2-Select Metals & Alloys based on properties and requirements • CO3-Select Polymers & Composites based on properties and requirements • CO4-Select Paints, varnishes, polishes & coatings based on properties & requirements. • CO5-Select the appropriate materials for interior construction. • CO6-Select and describe speciality materials.
F.Y. B.Voc	BASIC CONSTRUCTION BV ID 1810	• CO1-Describe types of structures, their systems, elements & fundamentals of load transfer. • CO2-Select appropriate teakwood joinery while designing furniture items • CO3-Describe limitations of joinery • CO4-Choose type of doors & windows along with different materials used. • CO5-Describe different techniques of laying various floor finishes, erecting & installing the structural floor.
F.Y. B.Voc	INTERIOR DESIGN (STUDIO) BV ID 1811	• CO1-Understand the design need and process of planning. • CO2-Develop skills in planning of residential and small commercial spaces. • CO3-Identify and use appropriate materials in design. • CO4-Develop skills in primary services required for the project. • CO5-Develop skills in electrical services required for the projects. • CO6-Identify and list the principles of design used in given interior layout. • CO7-Develop manual drafting skills.
F.Y. B.Voc	BASIC	• CO1-Describe types of structures, their systems,

	CONSTRUCTION (STUDIO) BV ID 1812	elements & fundamentals of load transfer. • CO2-Select appropriate teakwood joinery while designing furniture items • CO3-Describe limitations of joinery • CO4-Choose type of doors & windows along with different materials used. • CO5-Describe different techniques of laying various floor finishes, erecting & installing the structural floor.
F.Y. B.Voc	CAD-I (2D-3D)(STUDIO) BV ID 1813	• CO1-Understand the importance of 2D for preparing and exchanging drawings. • CO2-Use CADD software. • CO3-Increase productivity and lessen rework of drawings thereby saving time. • CO4-Use basic CAD command to develop 2D drawings. • CO5-Use CAD commands for edit/modification of existing drawings as per needs and suggestions • CO6-Use Plotting and printing techniques.
F.Y. B.Voc	MANAGEMENT SKILLS-I (STUDIO) BV ID 1814	• CO1-Understand the various Career Opportunities. • CO2-Understand the duties and responsibilities of Supervisor interior designer. • CO3-Develop generic skills in team work, making decisions, communicating and collaborating. • CO4-Understand the office structure and its working. • CO5-Develop observational and analytical skills. • CO6-Develop professional and work ethics. • Implement Processes of design. • CO7-Gain first-hand experience in aspects of workshops.

Semester III

Class	Course title	Outcome
S.Y. B.Voc	CONSTRUCTION TECHNIQUES-I BV ID 1815	• CO1 - Types of stairs and staircases using different materials. • CO2 - Appropriate type of Partitions, Panelling as per requirements. • CO3 - Various types of ceilings. • CO4 - Appropriate constructional details for various furniture items. • CO5 - Work out quantities of materials, estimate the cost and do the rate analysis.
S.Y. B.Voc	QUANTITY SURVEYING BV ID 1816	• CO1 - Standardized units, modes of measurement of materials, labour & items of work • CO2 - Present practices such as Estimating. • CO3 - Various functions carried out in an interior designer's office Like Rate Analysis. • CO4 - Management, administration of 'design & execution' aspect of an interior project.

S.Y. B.Voc	SECONDARY SERVICES-I BV ID 1817	• CO1 - Apply concepts of secondary services • CO2 - Use appropriate resources including optimization • CO3 - Design layouts for services
S.Y. B.Voc	CONSTRUCTION TECHNIQUES-I (STUDIO) BV ID 1818	• CO1 - Types of doors & windows using different materials. • CO2 - Types of stairs and staircases using different materials. • CO3 - Appropriate type of flooring as per requirements. • CO4 - Various types of modular ceilings. • CO5 - Appropriate constructional details for various furniture items.
S.Y. B.Voc	ADVANCED INTERIOR DESIGN –I (STUDIO) BV ID 1819	• CO1 - Design and plan residential and commercial spaces. • CO2 - Develop skills in planning of residential and commercial spaces. • CO3 - Identify and use appropriate materials in design. • CO4 - Develop skills in primary services required for the project. • CO5 - Identify and list the principles of design used in given interior layout. • CO6 - Develop manual drafting skills.
S.Y. B.Voc	CADD- II (2 D CADD)(STUDIO) BV ID 1820	• CO1 - Understand the importance of 2D for preparing and exchanging drawings. • CO2 - Use CADD software. • CO3 - Increase productivity and lessen rework of drawings thereby saving time. • CO4 - Use basic CAD command to develop 2D drawings. • CO5 - Use CAD commands for edit / modification of existing drawings as per needs and suggestions. • CO6 - Use Plotting and printing techniques.
S.Y. B.Voc	MARKET STUDY-II (STUDIO) BV ID 1821	• CO1 - Develop the ability to relate the theoretical knowledge acquired during lectures to practical activities. • CO2 - Develop generic skills in team work, making decisions, communicating and collaborating. • CO3 - Gain first-hand experience in aspect of workshops, market surveys, case studies and site visits related to interior design profession. • CO4 - Develop observational and analytical skills. • CO5 - Develop communication and presentation skills. • CO6 - Develop professional ethics and code of conduct.

Semester IV

Class	Course title	Outcome
S.Y. B.Voc	CONSTRUCTION TECHNIQUES-II BV ID 1822	• CO1 - Appropriate system for modern kitchens used extensively in interiors. • CO2 - Appropriate type of Partitions, Panelling as per requirements. • CO3 - Various types of ceilings. • CO4 - Appropriate constructional details for various furniture items. • CO5 - Work out quantities of materials, estimate the cost and do the rate analysis.
S.Y. B.Voc	QUANTITY SURVEYING & ESTIMATION BV ID 1823	• CO1 – Specification Writing with Standardized units, modes of measurement of materials, labour & items of work • CO2 - Codes of conduct for ethical practice of interior design profession. • CO3 - Present practices such as Tendering and Contracting. • CO4 - Design & Execution' aspect of an interior project.
S.Y. B.Voc	SECONDARY SERVICES-II BV ID 1824	• CO1 - Apply concepts of secondary services • CO2 - Use appropriate resources including optimization • CO3 - Design layouts for services.
S.Y. B.Voc	CONSTRUCTION TECHNIQUES-II (STUDIO) BV ID 1825	• CO1 - Appropriate system for modern kitchens used extensively in interiors. • CO2 - Appropriate type of Partitions, Panelling as per requirements. • CO3 - Various types of ceilings. • CO4 - Appropriate constructional details for various furniture items. • CO5 - Work out quantities of materials, estimate the cost and do the rate analysis.
S.Y. B.Voc	ADVANCED INTERIOR DESIGN –II (STUDIO) BV ID 1826	• CO1 - Design and plan commercial spaces. • CO2 - Identify and use appropriate materials in design. • CO3 - Develop skills in primary services required for the project. • CO4 - Identify and list the principles of design used in given interior layout. • CO5 - Develop manual/ Auto-Cadd drafting skills.
S.Y. B.Voc	CADD-III (3 D CADD)(STUDIO) BVID 1827	• CO1 - 3D interface. • CO2 - Use basic modeling techniques in 3D CADD. • CO3 - Convert the two dimensional drawings of plans and elevations of a building in to

		the three dimensional models by applying the various materials
S.Y. B.Voc	MANAGEMENT SKILLS-II(STUDIO) BV ID 1828	• CO1 - Understand the duties and responsibilities of senior interior designer. • CO2 - Develop the skill of supervision of work. • CO3 - Develop the team management skill. • CO4 - Develop generic skills in team work, making decisions, communicating and Collaborating. • CO5 - Develop generic skills in managing client and vendors • CO6 - Develop business development skills. • CO7 - Understand to maintain the health and safety at site/workplaces.

Semester V

Class	Course title	Outcome
T.Y.B.Voc	WORKING DRAWING BV ID 1829	• CO1: Appropriate method of construction, detailing, storage, materials, soft furnishing methods required for Beds and seating systems in residential & commercial Interiors. • CO2: Various complex materials required for tables & counters as furniture items • CO3: Work out the near-to-exact quantities of various materials required and do rate analysis of material & labour required to estimate the project cost of designed Interior spaces. • CO4: Various modular furniture items as per requirements.
T.Y.B.Voc	PROJECT MANAGEMENT BV ID 1830	• CO1: Appreciate the importance of planning. Scheduling and controlling resources. • CO2: Calculate Project Duration • CO3: Understand the importance of cost- time analysis
T.Y.B.Voc	LANDSCAPE DESIGN BV ID 1831	• CO1: Design and plan small scale spaces. • CO2: Develop skills of landscape planning for interior and exteriors • CO3: Identify and use appropriate plant species. • CO4: Develop application skills in landscape services • CO5: Develop knowledge about landscaping materials and tools. • CO6: Design and execute small-scale landscape sites
T.Y.B.Voc	WORKING DRAWING (STUDIO) BV ID 1832	• CO1: Drawing and drafting of detailed furniture items and work out there estimate. • CO2: Various complex materials required for tables & counters as furniture items • CO3: Work out the near-to-exact quantities of various materials required and do rate analysis of material &

		labour required to estimate the project cost of designed Interior spaces. • CO4: Various modular furniture items as per requirements. • CO5: Appropriate method of construction, detailing, storage, materials, soft furnishing methods required for Beds and seating systems in residential & commercial Interiors.
T.Y.B.Voc	SPECIALITY INTERIOR DESIGN (STUDIO) BV ID 1833	• CO1: Design and plan commercial spaces. • CO2: Develop skills in planning of commercial spaces. • CO3: Identify and use appropriate materials in design. • CO4: Develop skills in primary services required for the project. • CO5: Identify and list the principles of design used in given interior layout. • CO6: Develop manual/ Auto-Cadd drafting skills.
T.Y.B.Voc	SEMINAR-I BV ID 1834	• CO1: Develop skills to communicate the problems and solutions. • CO2: Develop analyzing and troubleshooting abilities. • CO3: Develop skills to prepare reports. • CO4: Develop presentation skills. • CO5: Understand and Implement recent developments in design fields.

Semester VI

Class	Course title	Outcome
T.Y.B.Voc	PROJECT AND THESIS BV ID 1835	• CO1: Develop the ability to relate the theoretical knowledge acquired during lectures to dissertation. • CO2: Develop abilities to search information • CO3: Collect data, information from various resources • CO4: Develop knowledge about design. • CO5: Develop knowledge about tools of interior design based on anthropometry, Aesthetical, Functional & Technological aspects. • CO6: Implement the process of Design. • CO7: Develop knowledge about project management.
T.Y.B.Voc	PROFESSIONAL PRACTICE BV ID 1836	• CO1: The main objective of the professional practice is to expose the students to practical field of the design & execution, to learn practical application of knowledge acquired to platform understand that he has prepared only a good base & that education is a continuing learning process throughout the carrier on which is about to embark. • CO2: Develop the ability to relate the theoretical knowledge acquired during lectures to practical activities. • CO3: Develop generic skills in team work, making decisions, communicating and collaborating.

		• CO4: Gain first-hand experience in aspect of site visits related to interior design profession. • CO5: Develop observational and analytical skills. • CO6: Develop communication and presentation skills. • CO7: Develop professional ethics and code of conduct.

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik

AQAR 2019-2020

Program Outcomes, Course specific Outcomes

Department of B.Voc. Printing Technology

Program Outcome: B.Voc. Printing Technology.	
22.	During their studies, students shall learn the detailed aspects of various printing processes like Offset printing, Gravure printing, Flexography, Letterpress and Screen printing including the machineries being used.
23.	Also students shall get the subject knowledge of printing material, pre-press technologies, digital printing, Security Printing, print finishing techniques, project work, business management, entrepreneurship development, cost estimation etc.
24.	Subjects on packaging technology have been included in the curriculum to impart basic knowledge of packaging technology to enable the students to apply the same in his professional career.

Program Specific outcome: B.Voc. Printing Technology.	
19.	On first year students shall have the knowledge of the subject on pre-press technology, offset printing process, printing material science, packaging technology with the practical aspects involved with it. On completion the first year students shall have the skill of Offset printing process and they will reach the level of Diploma in printing Technology.
20.	On second year students shall learn the subject on digital pre-press technology, Gravure printing process, Packaging technology, Computer science applicable to printing with the practical aspects involved with it. On completion the second year they will have the skill of Gravure printing process and will reach the level of Advance Diploma in printing Technology.
21.	On third year students shall learn the subject on printing finishing technology, Flexographic printing process, Digital and Security printing, mechanical maintenance, Estimating and costing Entrepreneurship with the practical aspects involved with it. Students shall get the Industrial Training and Project work. On completion the third year they will have the skill of security printing, entrepreneurship development and candidate will be awarded Bachelor of Vocation Degree in Printing Technology.

Course Outcomes of B.Voc. Printing Technology.

Semester I

Class	**Course Title**	**Outcome**
FY BVPT101	Basic Elements Of Printing Technology	• This course aims at creating a foundation among entry level students. • It introduces common concepts frequently used in the printing industry such as image carrier, design, various printing techniques and finishing processes.

		• After completion of this course, a student can understand the flow of various printing Processes. • Understand flow of printing. • Understand raw material required for printing. • Scope of Printing.
FY BVPT102	Basic Mechanical Engineering	• Printing Engineer is expected to develop basic workshop skills in wood working, Welding, sheet metal and plumbing. • Students are require to identify, select and use different kinds of tools, such as marking, measuring,, cutting, supporting, striking and various holding devices. • Read and interpret job drawing, plan various operations and make assembly. • Identify and select the proper material for the job undertaken.
FY BVPT103	Screen Printing	• Screen printing has created a niche by its wide range of application including packaging and label design, large format printing and special applications. • The process also requires less capital for upcoming entrepreneurs. • After completion of this course, a student can understand the cloth type, mesh count, different types of image carrier & their preparations; printing on different surfaces; etc. • Understand the cloth type, mesh count, different types of image carriers & their preparations; printing on different surfaces. • Print various job.
FY BVPT104	Basic Computer Fundamentals	• Since early 21st Century the use of Computer has been so rapidly that it is difficult to think of an area where computers are not being used. • It is very desirable that everyone should have good knowledge of computer. • Main purpose of this subject is how to use a computer for basic needs. • This subject covers application software's like MS-Word, MS-Excel, MS- PowerPoint. It is a gateway to wonderful world of information and part of various applications like business, academic, hospitals, construction, designing, chemical fields and many more. • Use of Operating System. • Use MS- Word, MS-Excel, MS- PowerPoint, efficiently for documentation. • Use browser for accessing Internet. • Handle Personal Computer System, Scanner, Printer.
FY BVPT105	Basic Mechanical-Lab	• These workshop practices are commonly used in engineering industries. Knowledge of Basic Workshop Practice enables students to use in preparing composite jobs. • Identify, select and use various marking, measuring,

		holding, striking and cutting tools & Equipment's. • Operate, control different machines and equipment in respective shops. • Inspect the job for specified dimensions • Produce and inspect the jobs as per specified dimensions. • Adopt safety practices while working on various machines.
FY BVPT106	Screen Printing-Lab	• Screen printing has created a niche by its wide range of application including packaging and label design, large format printing and special applications. • The process also requires less capital for upcoming entrepreneurs. • After undergoing the practicals of this course, the student would be able to perform multicolor printing with proper registration; understanding the cloth type, mesh count, different types of image carrier & their preparations; printing on different surfaces; etc. • Understand the cloth type, mesh count, different types of image carriers & their preparations; printing on different surfaces. • Print various job.
FY BVPT107	Communication Skill	• This course aims to build up the learner's confidence in oral and interpersonal Communication by reinforcing the basics of pronunciation. • To enhance the learners communication skills by giving adequate exposure in reading, writing, listening and speaking skills and the related sub-skills • To help the learners recognize and operate in various styles and registers in English • To impart better writing skills by sensitizing the learners to the dynamics of effective writing • To build up the learners confidence in oral and interpersonal communication by reinforcing the basics of pronunciation.

Semester II

Class	Course Title	Outcome
FY BVPT108	Sheetfed Offset Printing	• There are many different Offset presses in the market today with many minute operational • Differences. • The purpose of this course is not to provide a general operational manual, but to deal with the fundamental understanding that will enable the student to run any offset duplicator or single and multi-color sheet-fed offset printing press after studying the manufacturer's operating manual. • This course covers the information necessary to run an offset press and to give important information on press trouble-shooting concerns also. • Understand working of sheet fed offset printing machine.

		• Identify the trouble.
FY BVPT109	Basic Packaging Technology	• Packaging is becoming one of the large segments of printing and related industry. • This course intends to deal with knowledge of packaging, its requirements such as variety of substrates, finishing operations, conversion, etc. • It also includes use of paper, board, metals, glass in packaging, ecology of packaging and tests performed on packaging. • Understand Packaging • Understand material required for Packaging
FY BVPT110	Print Finishing	• Binding is required to protect as well as to enhance the appearance of the printed product. • This subject is required for students to understand various binding techniques depending upon the need of the product. In today's state of art print houses, most of the finishing operations are carried out using machines, the working and principle of these machines is also a part of the course. • Hot foil stamping, numbering, perforating, embossing, cutting, are the various finishing processes a student sho know in order to understand how these processes increase utility and beauty of the product. • Understand relevance of print finishing techniques in various segments of industry. • Understand material, machinery and equipment's used in various print finishing process.
FY BVPT111	Adobe Page Maker And Typing	• Computers and software help printer and prepress operator in creating a good design is important. • This subject deals with electronic ways of page making, designing and imposing techniques. • The emphasis is given on practice of PageMaker and Typing software packages related to the printing industry and creative use of the tools available with aesthetic sense. • Understand importance of publishing software in prepress. • Study and compare features and tools available to printer for digital origination.
FY BVPT112	Offset Machine – I	• There are many different Offset presses in the market today with many minute operational differences. • The purpose of this course is not to provide a general operational manual, but to deal with the fundamental understanding that will enable the student to run any offset duplicator or single and multi-color sheet-fed offset printing press after studying the manufacturer's operating manual. • This course covers the information necessary to run an offset press and to give important information on press trouble-shooting concerns also.

		• Understand working of sheet fed offset printing machine. • Identify the trouble. • Perform the registration on the machine.
FY BVPT113	Manual Book Binding	• Binding is required to protect as well as to enhance the appearance of the printed product. • This subject is required for students to understand various binding techniques depending upon the need of the product. In today's state of art print houses, most of the finishing operations are carried out using machines, the working and principle of these machines is also a part of the course. • Hot foil stamping, numbering, perforating, embossing, die cutting, are the various finishing processes a student should know in order to understand how these processes increase the utility and beauty of the product. • Understand relevance of print finishing techniques in various segments of industry. • Understand material, machinery and equipment used in various print finishing process.

Semester III

Class	Course Title	Outcome
SY BVPT114	Food And Pharmaceutical Packaging	• Annalise and choose a barrier material for a specific food product based on barrier properties studied. • Annalise and choose a preservation method for a specific food product based product sensitivity and shelf life required. • Describe the various characteristics of pharmaceutical drugs and their sensitivities. • Select the right type of package form for a pharma product, based on the product nature, form & size. • Learn and understand the types of food, their modes of deterioration and the fundamentals of package barriers. • Learn shelf life studies and sensory evaluation based on type of product. • Study the various food preservation techniques with real-life packaging examples. • Study the fundamental characteristics of pharmaceutical drugs & their dosage forms. • Understand the various existing pharma package forms.
SY BVPT115	Web Offset Printing	• Web machine operation is required to be learnt in order to understand efficient working procedures. • There is plenty of scope for skilful personnel in this branch of printing. This course imparts extensive knowledge about all the elements of web machines used in all the printing processes such as offset, flexography, gravure, as well as quality control procedures & auxiliary operations. • Understand working of web offset printing machine. • Identify the trouble.

		• Perform the registration on the machine.
SY BVPT116	Color Separation	• Color Separation is an important pre-press level subject that deals with digital advancements in graphic arts industry. • In digital imagining Concept of Colour, colour systems such as CIE LAB, concept of Colour Measurement are very much important for colour correction in digital scanned image. • PMT based drum and CCD based flatbed scanners coupled with modern colour Management, PostScript, Portable Document Format, Raster Image Processors, and Image editing software are the buzzword of this subject area. • The basic knowledge of these functionalities will be worthwhile for the student and amateur of printing technology to grasp, understand and implement the developments in modern image computing. • Understand Concept of colour, colour measurement, colour systems. • Understand digital image recording by scanners and camera. • Learn color correction and different tools for color correction in software.
SY BVPT117	Corel Draw And Photoshop	• Computers and software help printer and prepress operator in creating a good design is important. • This subject deals with electronic ways of page making, designing and imposing techniques. • The emphasis is given on practice of Corel Draw and Photoshop software packages related to the printing industry and creative use of the tools available with aesthetic sense. • Understand importance of publishing software in prepress. • Study and compare features and tools available to printer for digital origination.
SY BVPT118	Offset Machine - Ii	• Web machine operation is required to be learnt in order to understand efficient working procedures. • There is plenty of scope for skilful personnel in this branch of printing. • This course imparts extensive knowledge about all the elements of web machines used in all the printing processes such as offset, flexography, gravure, as well as quality control procedures & auxiliary operations. • The student will be able to: • Understand working of web offset printing machine. • Identify the trouble. • Perform the registration on the machine.
SY BVPT119	Mechanical Book Binding	• Binding is required to protect as well as to enhance the appearance of the printed product. • This subject is required for students to understand various

		binding techniques depending upon the need of the product. • In today's state of art print houses, most of the finishing operations are carried out using machines, the working and principle of these machines is also a part of the course. • Hot foil stamping, numbering, perforating, embossing, die cutting, are the various finishing processes a student should know in order to understand how these processes increase the utility and beauty of the product. • Understand relevance of Binding techniques in various segments of industry. • Understand material, machinery and equipment used in various print finishing process.

Semester IV

Class	Course Title	Outcome
SY BVPT120	Paper and Ink	• Paper and Ink are the basic raw material used in Printing Industry. • Student should know the Physical and Chemical properties of Paper and Ink. In today's state of art print houses, the tests for various properties are carried out in the Q.C department using different instruments. • A Diploma Holder is required to supervise this section in Press and therefore knowledge of this Subject is very essential. • Student should know how good quality paper and ink will provide high-speed production with better quality and greater accuracy. • Develop knowledge of Paper and ink properties. • Use effectively different instruments to carry out property tests. • Annalise various tests to offer the best or required quality material.
SY BVPT121	Material Science And Technology	• After Completion of the course, student will have adequate background, conceptual clarity and knowledge of appropriate solution techniques related to: • Attain the basic technical knowledge of various materials used in different printing processes. • Understand the importance of surface energy and surface tension for the better interaction of substrate and coatings. • Know the importance various types of printing inks and their properties required in different printing processes. • Understand the various grades of papers used for printing and packaging applications and their properties. • Understand the vital role other consumables used during printing. • Learn the method of testing the materials scientifically. • Understand the role of plastic in printing and packaging industry. 8. Know the process of manufacturing of printing

		ink and paper. • Apply the knowledge to use of metals and polymers in printing and allied industry. • Apply the knowledge to select the appropriate consumable for the effective use in printing and converting applications. • Annalise the characteristics of various raw material used in printing ink and to formulate the best suitable ink for the printing application. • Annalise the properties and testing methods of printing ink for run ability, printability and shelf life. • Annalise the characteristics of various raw materials used to manufacture paper and its properties for run ability, printability and shelf life. • Understand the various methods and instruments used for material analysis.
SY BVPT122	Gravure Printing	• Gravure Processes of Printing are Major Printing Techniques for Printing for Packaging, Newspapers and many other such Products. • The subject is being introduced for the first time, exclusively. • This will enable students to learn various machines, their configurations and working, used for gravure Printing. • Understand working of Gravure printing machine. • Identify the trouble. • Perform the registration on the machine.
SY BVPT123	In Design And Illustrator	• Computers and software help printer and prepress operator in creating a good design is important. • This subject deals with electronic ways of page making, designing and imposing techniques. • The emphasis is given on practice of In Design and Illustrator software packages related to the printing industry and creative use of the tools available with aesthetic sense. • Understand importance of publishing software in prepress. • Study and compare features and tools available to printer for digital origination.
SY BVPT124	Paper And Ink Testing	• Paper and Ink are the basic raw material used in Printing Industry. • Student should know the Physical and Chemical properties of Paper and Ink. In today's state of art print houses, the tests for various properties are carried out in the Q.C department using different instruments. • A Diploma Holder is required to supervise this section in Press and therefore knowledge of this Subject is very essential. • Student should know how good quality paper and ink will provide high-speed production with better quality and greater accuracy.

		• Develop knowledge of Paper and ink properties. • Use effectively different instruments to carry out property tests. • Annalise various tests to offer the best or required quality material.
SY BVPT125	Package Testing Methods	• Packaging is becoming one of the large segments of printing and related industry. • This course intends to deal with knowledge of packaging testing, its requirements such as variety of substrates, finishing operations, conversion, etc. • It also includes use of paper, board, metals, glass in packaging, ecology of packaging and tests performed on packaging. • The student will be able to: • Understand packaging testing methods • Understand material required for packaging
SY BVPT126	Seminar	• The student of printing technology having introduced, learnt and understood the basics of • Graphic reproduction process is well placed to grasp different processes carried out in graphic arts Industry. • Inclusion of the subject seminar requiring student to undertake little enhanced activities so that he or will have developed attitude toward learning and knowing subject related aspect wherein class room environment would be just complementary. • The variable for the students to enrich their knowledge kitty are info search, group discussion, industrial visits, seminar presentations and expert or guest lectures. • The student will be able to: • Identify different areas eligible for info collection of his or her interest. • Identify prevailing or important topic from different areas eligible for seminar preparation or presentation of his or her choice. • Prepare a seminar report on any topic from a prevailing subject of his or her choice.

Semester V

Class	Course Title	Outcome
TY BVPT127	Digital And Security Printing	• Pre-press activities such as operating reproduction photography camera, printing down frame, off-line chemical processing of exposed film and plate require more manpower, number of raw materials and are time consuming and perhaps less environment friendly. • Digital Imaging techniques sans camera, printing down frame and even film are replacing conventional imaging technologies at faster rate. • Output quality rendered by any of the digital imaging technique promises saving in turnaround time, cost

		incurred on account of manpower required, and effective use of raw materials. • These techniques also offer easiest ways of storing original, positives and negatives in digital form and unmatched digital quality. • Thus understanding the concepts of digital imaging and its scope in inevitable for aspirants of career in printing technology. • Understand the various principles used in digital printing system. • Use different illuminant and outputting devices required in digital printing techniques. • Understand the Security printing inks, substrate and process
TY BVPT128	Flexography Printing	• Flexography Processes of Printing are Major Printing Techniques for Printing for Packaging, papers and many other such Products. • The subject is being introduced for the first time, exclusively. • This will enable students to learn various machines, their configurations and working, used for gravure & flexography Printing. • Understand working of flexo printing machine. • Identify the trouble. • Perform the registration on the machine.
TY BVPT129	Printing And Packaging Management	• Management of organization is paramount since quite long. • Printing industry like other industry has also been consolidated and is now reflecting in all forms of ownership. • To be a going concern printing organization needs to be professionally management in a dynamic and competitive business environment. In addition globalization and liberalization has also been complementary and influential factors for formal management education being widely followed. • These developments have, therefore, emphasized the need of student of printing technology to be formally educated in the following subject. • Understand relevance of formal management education in printing, allied industry. • Understand organization structure, departmentalization and financing printing concern. • Understand organization structure, departmentalization of costing department.
TY BVPT130	Advertising And Multimedia	• Computers and software help printer and prepress operator in creating a good design is important. • This subject deals with electronic ways of page making, designing and imposing techniques.

		• The emphasis is given on practice of Corel Draw and Photoshop, in design and Illustrator software packages related to the printing industry and creative use of the tools available with aesthetic sense. • Understand importance of publishing software in prepress. • Study and compare features and tools available to printer for digital origination. • Understand the multimedia and designing for advertising • The concepts of Advertising. • Role of the media • Advertising Production and Business in detail.
TY BVPT131	Package Design & Development	• Packaging is becoming one of the large segments of printing and related industry. • This course intends to deal with knowledge of packaging development, its requirements such as variety of substrates, finishing operations, conversion, design etc. • Become acquainted with the nature and impact of visual communications in packaging design • To familiarize with the various graphic design and software's • To conduct various characterization tests for packaging materials.
TY BVPT132	Printing Machine Maintenance	• In the atomization era printing machines are modified with advance mechanical and electronic components. • It is necessary to maintenance the machine and it's all components for max. Benefits. • This subject includes information about mechanical and electronic components used in printing machine and how to maintain the components for preventing damage and breakdown. • Understand mechanical and electronic components. • Learn maintenance of machines.
TY BVPT133	Flexography-Lab	• This subject is related to flexo plate preparation process and flexography printing process being introduced for the first time, exclusively. • This will enable students to learn flexography plate making process as well as flexography printing process. • Understand working of flexo plate making machine. • Understand working of flexo printing machine. • Identify the trouble. •

Semester VI

Class	Course Title	Outcome
TY BVPT134	Internship / Industrial Training	• The main objective of the Industrial Training is to experience and understand real life situations in industrial organizations and their related environments and accelerating the learning process of how student's

		knowledge could be used in a realistic way. • At the end of the training they have to submit a report with following information: • Profile of the Industry • Product range • Organization structure • Plant layout • Processes/Machines/Equipment/devices • Personnel welfare schemes • Details of the training undergone • Projects undertaken during the training, if any • Learning points.
TY BVPT135	Project Work	• A Project topic must be selected by the students in consultation with their guides. • The aim of the project work is to deepen comprehension of principles by applying them to a new problem which may be the design and fabrication of a device for a specific application, a research project with a focus on an application needed by the industry/society, a computer project, a management project or a design project. • The progress of the project is evaluated based on a minimum of three reviews. • The review committee may be constituted by the Head of the Department. A project report is required at the end of the semester. • The project work is evaluated jointly by external and internal examiners constituted by the Head of the Department based on oral presentation and the project report.

Maratha Vidya Prasarak Samaj's
K.R.T. Arts, B.H. Commerce and A.M. Science (KTHM) College Nashik
AQAR 2019-2020
Program Outcomes, Course specific Outcomes

Department of Marathi

Program outcome : B.A. (Marathi)	
1.	विशिष्ट कालखंडाच्या पार्श्वभूमीवर साहित्यामागील प्रेरणा प्रवृत्तींचे ज्ञान करून घेतो.
2.	चिकित्सक अभ्यासाची क्षमता विकसित होते.
3.	जागतिकीकरणात विविध क्षेत्रांना सामोरे जाण्यासाठी भाषिक क्षमता विकसित करतो.
4.	विविध प्रकारची लेखनकौशल्ये विकसित करण्यास मदत होते.
5.	आस्वाद घेण्याची क्षमता विकसित होते.
6.	वाङ्मयीन व्यवहार व प्रकाशन व्यवसायाचे स्वरूप समजते.
7.	समीक्षा करण्याची दृष्टी व क्षमता विकसित होते

Program outcome : M.A. (Marathi)	
1.	विद्यार्थ्याला आपल्या आवडीचे संशोधनाचे क्षेत्र निश्चित करता येते.
2.	मराठी भाषा आणि वाङ्मयाचे प्रगत ज्ञान प्राप्त होते.
3.	समकालीन वाङ्मयीन प्रवाहांचे नीट आकलन होते.
4.	वाङ्मयीन प्रश्नांविषयी विचार करण्याची जाण निर्माण होते.
5.	वाङ्मयीन आणि जीवनविषयक जाणीव प्रगल्भ होते.
6.	चिकित्सक अभ्यासाची क्षमता विकसित होते.
7.	विद्यार्थ्याला लेखनगुणांना उत्तेजन मिळते.

Program Specific outcome : B.A. (Marathi)	
1.	मराठी साहित्यातील भिन्न- भिन्न प्रवाह आणि प्रकार लक्षात घेतो..
2.	विद्यार्थ्यांच्या वाङ्मयीन अभिरूचीचा विकास व्हायला मदत होते.
3.	संशोधनाची संकल्पना , प्रयोजने आणि विविध संशोधन पध्दती समजावून घेतो.
4.	व्यक्तिमत्त्व विकासासाठी भाषिक कौशल्ये आत्मसात करतो.
5.	प्रसारमाध्यमांसाठी विविध प्रकारची लेखन कौशल्ये आत्मसात करणे.

Program Specific outcome : M.A. (Marathi)	
1.	विशिष्ट कालखंडातील साहित्याच्या व्याप्तीबद्दल जाण निर्माण होण्यास मदत होते.
2.	विषयाच्या चिकित्सेची समज वाढण्यास मदत होते.

3.	साहित्यकृतींच्या ,साहित्यप्रकारांच्या तौलनिक अभ्यासाबाबत दिशा , व्याप्ती आणि मर्यादा यांची समज निर्माण होण्यास मदत होते ,अशा अभ्यासाची क्षमता वाढते.
4.	साहित्याच्या व्यवच्छेदक लक्षणांबाबत विचारांची आणि वाङ्मयीन मूल्यमापनाची सवय लागते.

Course Outcomes of BA (Marathi)

Class	Course title	Outcome
FYBA	CC-1 A (सामान्य स्तर-1) Sem-I मराठी साहित्य: कथा आणि भाषिक कौशल्यविकास /Sem-II मराठी साहित्य:एकांकिका आणि भाषिक कौशल्यविकास	1. मराठी साहित्य ,मराठी भाषा आणि मराठी संस्कृती यांचा क्रमश: परिचय करून घेतो. 2.मराठी साहित्यासंबंधी रूची निर्माण होते. 3.वाङ्मयीन अभिरूचीचा विकास होतो. 4. मराठी साहित्यातील भिन्न भिन्न वाङ्मयीन प्रवाह व प्रकार लक्षात येतात. 5.विविध भाषिक क्षेत्रांतील कौशल्ये विकसित होण्यास मदत होते. 6. मराठी भाषेची उपयोजनात्मक कौशल्ये जाणून घेण्यास मदत होते.
SYBA	MAR 2024 आधुनिक मराठी साहित्य आणि उपयोजित मराठी	1. आत्मचरित्रात्मक वेच्यांचे आकलन , आस्वाद आणि मूल्यमापन करण्याची क्षमता विकसित होते. शुद्धलेखनाची ओळख होते. 2. पारिभाषिक संज्ञांचा परिचय होतो. 3.चरित्र ,आत्मचरित्र या साहित्यप्रकारांच्या तात्त्विक घटकांचे ज्ञान प्राप्त होते. 4. मराठीतील निवडक चरित्र ,आत्मचरित्रांची ओळख होते.
SYBA	MAR 2025 मराठी साहित्यातील विविध साहित्यप्रकार (विशेष स्तर-1)	1. मराठी साहित्यातील तात्त्विक घटकांचे ज्ञान प्राप्तहोते. 2. वेगवेगळ्या कालखंडातील मराठीतील अभिजात साहित्यकृतींचा संस्कार घडतो. 3.साहित्याविषयीची अभिरूची निर्माण होते. 4. साहित्यकृतींना मुक्त प्रतिसाद देण्याची क्षमता निर्माण होते. 5. साहित्यकृतीचे आकलन , आस्वाद आणि मूल्यमापन करण्याची क्षमता विकसित होते.
SYBA	MAR 2026 अर्वाचीन मराठी वाङ्मयाचा	1 अभ्यासाच्या प्रारंभी विद्यार्थी मराठी साहित्याच्या ऐतिहासिक परंपरेचे ज्ञान प्राप्त करून घेतो. 2 विशिष्ट कालखंडाच्या पार्श्वभूमीवर साहित्यामागील प्रेरणा

	इतिहास -1818 ते 1960 (विशेष स्तर -2)	प्रवृत्तींचे ज्ञान करून घेतो. 3.साहित्यप्रकारांच्या विकसनशील परंपरेचे स्थूल ज्ञान करून घेतो. 4. विद्यार्थी पदव्युत्तर अभ्यास करण्याची तयारी करतो.
TYBA	MAR-3024 आधुनिक मराठी साहित्य आणि व्यवहारिक व उपयोजित मराठी (सामान्य स्तर -3)	1. आधुनिक मराठी साहित्यातील विविध साहित्यप्रकारांचा परिचय होतो. 2. साहित्याबद्दलची अभिरूची विकसित होऊन कलाकृतीचा आस्वाद घेण्याची क्षमता विकसित होते. 3. भाषेचे यथोचित आकलन करून तिचा वापर करण्याची क्षमता विकसित होते. 4. निबंध व प्रवासवर्णन या साहित्यप्रकारांचे ज्ञान मिळते.
TYBA	MAR-3025 साहित्यविचार (विशेष स्तर 3)	1. साहित्याचे स्वरूप समजून घेतो. 2. वाङ्मयीन मूल्यांचा परिचय होतो. 3. साहित्याची प्रयोजने जाणून घेतो. 4. साहित्य आणि समाज यांच्यातील परस्पर संबंध समजून घेतो. 5 साहित्य निर्मितीची तत्त्वे जाणतो.
TYBA	MAR-3026 भाषाविज्ञान (विशेष स्तर-4)	1. भाषेचे स्वरूप व कार्य,भाषेच्या अभ्यासाचे महत्व ,भाषेच्या प्रमुख अंगांचा परिचय करून घेतो. 2. भाषेचे मानवी जीवनातील कार्य व महत्त्व जाणून घेतो. 3. वेगवेगळ्या भाषाभ्यास पद्धतींचे वेगळेपण व महत्त्व जाणून घेतो. 4. मराठी भाषेचा उत्पत्तीकाल जाणून तत्कालीन भाषिक स्थित्यंतराचा परिचय होतो. 5.मराठी भाषेचा ऐतिहासिक परिचय होतो.

Semester I & II

SYBSc-	MAR- 83111 , 83112 मराठी विज्ञान साहित्य आणि व्यवहारिक मराठी	1. मराठी विज्ञान साहित्याची अभिरूची निर्माण होते. 2. वैज्ञानिक जाणिवा निर्माण होतात. 3. विज्ञान ,उद्योगातील विविध प्रवाह संधी इ.चा परिचय होतो. 4. लेखन,वाचन ,आकलन संभाषण ही भाषिक कौशल्ये विकसित होतात. 5.वैज्ञानिक ,कार्यालयीन,व्यावसायिक माहिती घेऊन पारिभाषिक संज्ञांची ओळख होते..
FYBCom	Sem-I भाषा , साहित्य आणि	1. विविध क्षेत्रांतील भाषा व्यवहाराचे स्वरूप व गरज जाणून घेतो. 2.मराठी साहित्यासंबंधी रूची निर्माण होते. 3.वाङ्मयीन अभिरूचीचा विकास होतो. 4. विविध व्यावसायिक व वैचारिक मूल्यांची जोपासना करतो.

	कौशल्यविकास (117) Sem-II भाषा , साहित्य आणि कौशल्यविकास (117)	5.विविध भाषिक क्षेत्रांतील मराठी भाषेची उपयोजनात्मक कौशल्ये विकसित होण्यास मदत होते. 6. विविध क्षेत्रांतील कर्तृत्ववान व्यक्तींच्या कार्याची व विचारांची ओळख होण्यास मदत होते .

Course Outcomes of M.A (Marathi):
Semester I

Class	Course title	Outcome
M.A.-I	CC 1- भाषाव्यवहार आणि भाषिक कौशल्ये	1. विविध स्तरावरील भाषिक कौशल्ये व क्षमता विकसित होते. 2.भाषाव्यवहाराचे औपचारिक आणि अनौपचारिक क्षेत्रनिहाय स्वरूप समजते. 3. व्यक्तिमत्व विकासासाठी भाषिक कौशल्ये आत्मसात होतात. 4. प्रासारमाध्यमांचे स्वरूप व त्यासाठी भाषाव्यवहाराचे स्वरूप लक्षात येते.
M.A.-I	CC 2- मराठी साहित्याचा इतिहास (इ.स.१८१८ ते १९२०)	1. मराठीतील विविध साहित्य प्रकारांची वाटचाल,स्वरूप व ठळक विशेष जाणून घेतो. 2. मराठी साहित्याच्या ऐतिहासिक परंपरेचे ज्ञान प्राप्त करून घेतो. 3.विशिष्ट कालखंडाच्या पार्श्वभूमीवर साहित्यामागील प्रेरणा व प्रवृत्तींचे ज्ञान करून घेतो. 4. साहित्यप्रकारांच्या विकसनशील परंपरेचे स्थूल ज्ञान करून घेतो.
M.A.-I	CC 3- ऐतिहासिक भाषाविज्ञान	1. भाषेचे स्वरूप व कार्य, भाषेच्या अभ्यासाचे महत्व , भाषेच्या प्रमुख अंगांचा परिचय करून घेतो. 2. भाषेचे मानवी जीवनातील कार्य व महत्त्व जाणून घेतो. 3. वेगवेगळ्या भाषाभ्यास पध्दतीचे वेगळेपण व महत्त्व जाणून घेतो. 4. मराठी भाषेचा उत्पत्तीकाल जाणून तत्कालीन भाषिक स्थित्यंतराचा परिचय होतो. 5.मराठी भाषेचा ऐतिहासिक परिचय होतो. 6 समाजातील विविध बोलींचा आणि विविध क्षेत्रात वापरल्या जाणाऱ्या भाषेचा अभ्यास करतो.
M.A.-I	CBOP-4 ग्रामीण साहित्य	१. स्वातंत्र्यप्राप्तीनंतरच्या कालखंडात ग्रामीण साहित्याच्या निर्मितीची कारणपरंपरा समजावून घेतो.

		2. ग्रामीण साहित्याचे स्वरूप व कार्य यांची चिकित्सा करतो. 3. ग्रामीण साहित्यातील विविध साहित्य प्रकारांचा विकास कसा होत गेला याचे मूल्यमापन करतो. 4.ग्रामीण साहित्याने दिलेले योगदान, त्याच्या विकासाची गती, दिशा यांची मीमांसा करतो.
Semester II		
M.A.-I	CC 5- भाषाव्यवहार आणि भाषिक कौशल्ये	1. विविध स्तरावरील भाषिक कौशल्ये व क्षमता विकसित होते. 2.भाषाव्यवहाराचे औपचारिक आणि अनौपचारिक क्षेत्रनिहाय स्वरूप समजते. 3. व्यक्तिमत्व विकासासाठी भाषिक कौशल्ये आत्मसात होतात. 4. प्रासारमाध्यमांचे स्वरूप व त्यासाठी भाषाव्यवहाराचे स्वरूप लक्षात येते.
M.A.-I	CC -6 मराठी साहित्याचा इतिहास (इ.स.१९२० ते २०१०)	1. मराठीतील विविध साहित्य प्रकारांची वाटचाल,स्वरूप व ठळक विशेष जाणून घेतो. 2. मराठी साहित्याच्या ऐतिहासिक परंपरेचे ज्ञान प्राप्त करून घेतो. 3.विशिष्ट कालखंडाच्या पार्श्वभूमीवर साहित्यामागील प्रेरणा व प्रवृत्तींचे ज्ञान करून घेतो. 4. साहित्यप्रकारांच्या विकसनशील परंपरेचे स्थूल ज्ञान करून घेतो.
M.A.-I	CC -7 समाजभाषाविज्ञान	1. समाजातील भाषा उपयोजनातील विविधता,संस्कृती , भाषा आणि समाज यांचे परस्पर संबंध जाणतो. 2. सामाजिक भाषाविज्ञानाची नवी संकल्पना,भूमिका व भाषेची विविध रूपे जाणतो. 4. भाषा आणि विविध क्षेत्रीय वापराचे महत्त्व समजून घेतो. 5. प्रामाणभाषा आणि परभाषा संपर्काचे स्वरूप जाणतो.
M.A.-I	CBOP- 8 दलित साहित्य	1.स्वातंत्र्यप्राप्तीनंतरच्या कालखंडात दलित साहित्याच्या निर्मितीची कारणपरंपरा समजावून घेतो. 2. दलित साहित्याचे स्वरूप ,वाटचाल व कार्य यांची चिकित्सा करतो. 3. दलित साहित्याने निर्माण केलेल्या विविध वाङ्मयप्राकारांच्या

		विकासाचे मूल्यमापन करतो. 4. दलित साहित्यातून व्यक्त होणा-या वेदनांचे व विद्रोहाचे स्वरूप जाणून घेतो.

Course Outcomes of M.A (Marathi):
Semester III

Class	Course Title	Outcome
M.A.-II	MAR-30431 प्रसारमाध्यमे आणि साहित्यव्यवहार	1.संधी मिळविण्याची भाषिक क्षमता विकसित होते. 2. मुद्रित माध्यमातील विविध कौशल्ये ,प्रसारमाध्यमांतील लेखन कौशल्ये आत्मसात करतो. 3. प्रसारमाध्यमांचे समाजातील महत्त्व जाणतो. 4. प्रसारमाध्यमांत सेवेची संधी आत्मसात करतो. 5. विविध कलांच्या आस्वाद प्राक्रिया जाणून घेतो.
M.A.-II	MAR-30432 साहित्य: समीक्षा आणि संशोधन	1. प्रसारमाध्यमांतील लेखन कौशल्ये आत्मसात करतो. 2.प्रसारमाध्यमांचे समाजातील महत्त्व जाणतो. 3. प्रसारमाध्यमांत सेवेची संधी मिळविण्यासाठी भाषिक क्षमता विकसित होते. 4. मुद्रित माध्यमांतील विविध कौशल्ये आत्मसात करतो. 5. विविध कलांच्या आस्वाद प्राक्रिया जाणून घेतो.
M.A.-II	MAR- 30432 विशेष लेखकाचा अभ्यास	1.एकाच लेखकाचे वाङ्मयीन आकलन , लेखकाच्या व्यक्तिमत्त्वाची जडणघडण समजावून घेतो. 2.लेखकाचा काळ व त्याची साहित्यनिर्मिती यातील संबंधाचा शोध व त्याव्दारे लेखनातील कालतत्व व चिरंतनत्व यांचा मागोवा घेतो. 3. साहित्य निर्मितीतील वैविध्य व त्यातील लेखकाचे स्थान व वाङ्मयीन योगदान समजावून घेतो.
M.A.-II	MAR-30434 लोकसाहित्याची मूलतत्त्वे आणि मराठी लोकसाहित्य	1 .लोकसाहित्याचे स्वरूप व विशेष समजून घेतो. 2 .लोकसाहित्याची व्यापकता व सर्वसमावेशकता समजून घेतो. 3. लोकसाहित्यातील विविध प्रकार,उपपत्ती व संप्रदाय समजावून घेतो. 4.लोकसाहित्यातील सामाजिक ,धार्मिक ,सांस्कृतिक आदी जाणिवा स्पष्ट होतात.
Semester IV		

M.A.-II	MAR–– 40431 प्रसारमाध्यमे आणि साहित्यव्यवहार	1.वृत्तसंकलनाची प्राक्रिया जाणून घेतो. 2.जाहिरात लेखनाची कौशल्ये विकसित होतात. 3. विविध माध्यमांच्या पटकथा लेखनाचे कौशल्ये आत्मसात करतो. 4. विविध साहित्यप्रकारांचे स्वरूप आणि संकल्पना समजून गेतो. 5. रूपांतर कौशल्ये आत्मसात करून घेतो.
M.A.-II	MAR-40432 साहित्य: समीक्षा आणि संशोधन	1. समीक्षा करण्याची दृष्टी व क्षमता विकसित होते. 2. संशोधनाची संकल्पना , प्रयोजने आणि विविध संशोधन पध्दती समजावून घेतो. 3. वाङ्मयीन संशोधनाच्या विविध अभ्यासक्षेत्रांचा परिचय होतो. 4.आंतरविद्याक्षेत्रीय संशोधनाचे स्वरूप आणि महत्त्व लक्षात येते. 5. संशोधन करण्याची दृष्टी व क्षमता विकसित होते.
M.A.-II	MAR-40433 विशेष लेखकाचा अभ्यास	1. विविध कलाकृतीतून लेखकाचे योगदान व त्याचे तौलनिक आकलन करून घेतो. 2. मध्ययुगीन वारकरी संत परंपरा व तिचे स्वरूप समजावून घेतो. 3. मध्ययुगीन कालखंडातील सामाजिक, सांस्कृतिक व धार्मिक पर्यावरण जाणून घेतो. 4. आधुनिक कालखंडातील लेखनाच्या प्रेरणा जाणतो. 5. आधुनिक लेखकांची वैशिष्टये जाणतो.
M.A.-II	MAR– 40434 लोकसाहित्याची मूलतत्त्वे आणि मराठी लोकसाहित्य	1. जागतिकीकरणातील लोकसाहित्याचे व लोककलेचे महत्त्व समजून घेतो. 2. लोकसाहित्याचे इतिहास , पुरातत्त्वशास्त्र , मानसशास्त्र , भाषाशास्त्र , मानववंशशास्त्र , धर्म शास्त्र इ. शास्त्रांशी असलेला अनुबंध समजून घेतो. 3. मराठी लोकसाहित्याचे विविध कलाविष्कार जाणतो. 4. मराठी लोकसाहित्य अभ्यासकांची परंपरा जाणतो.

Course Outcomes of Ph.D. (Marathi)

Class	Outcome
Programme Outcomes	1. संशोधनाची संकल्पना ,प्रयोजने आणि विविध संशोधन पध्दती समजावून घेतो. 2.वाङ्मयीन संशोधनाच्या विविध अभ्यासक्षेत्रांचा परिचय होतो. 3. आंतर्विद्याक्षेत्रीय संशोधनाचे स्वरूप आणि महत्त्व लक्षात येते. 4. विविध समीक्षा पध्दती जाणून घेतो. 5. मराठी साहित्य समीक्षकांची परंपरा समजावून घेतो.

Programme Specific Outcomes	1.वाङ्मयीन संशोधनाच्या विविध अभ्यासक्षेत्रांचा परिचय होतो. 2. संशोधनाची संकल्पना ,प्रयोजने आणि विविध संशोधन पध्दती समजावून घेतो. 3. संशोधन करण्याची दृष्टी व क्षमता विकसित होते 4. समीक्षा व्यवहारातील मूल्यकल्पनांचा परिचय करून घेतो. 5. मराठी साहित्य समीक्षकांची परंपरा समजावून घेतो.