Department of Arabic

After completion of B.Sc. & B.Com Arabic students will able to

- Get information about the history of ancient, medieval and modern Arabic Literature.
- Read, write & Understand Arabic language fluently.
- Develop Reading, Writing and Communication Skills of Students.
- Get information about Literary Theory.
- Develop Attitude of Literary Forms. (Arabic Poetry, Prose, Grammar & History) .
- Develop Approach of Arabic Linguistics and Grammar.

DEPARTMENT OF MARATHI

After completion of B. A. and M. A. (Marathi) student will able to

- To protect Manavi mulya, Sanskar and Sanskruti.
- Vyavahar Dnyanache akalan hone.
- Develop Attitude of Literary Forms. (Marathi Poetry & Story)
- Develop Reading, Writing & Communication Skills of Students.
- Develop Attitude of Literary Forms. (Marathi Aatmkathan& Novel)
- Develop Reading, Writing & Communication Skills of Students.
- Get Information about the history of Medieval Marathi Literature.
- Get Information about Literary Theory.
- Develop Attitude of Literary Forms. (Marathi Drama &LalitGadya)
- Develop Attitude of Literary Forms. (Padya)
- Develop Reading, Writing & Communication Skills of Students.
- Get Information about the history of MODERN Marathi Literature.
- Develop Attitude of Marathi Linguistics & Grammar.
- Daily translation Use Marathi As Medium

Department of Chemistry

Outcome of B Sc Chemistry

- To provide a broad foundation in chemistry that stresses scientific reasoning and Analytical problem solving with a molecularperspective.
- To provide students with the skills required to succeed in graduate school, the chemical industry or professionalschool.
- To expose the students to a breadth of experimental techniques using modern instrumentation.
- The student will understand the importance of the Periodic Table of the Elements, how it came to be, and its role in organizing chemicalinformation.
- The student will understand the interdisciplinary nature of chemistry and to integrate knowledge of mathematics, physics and other disciplines to a wide variety ofchemical problems.
- The student will learn the laboratory skills needed to design, safely conduct andinterpret chemicalresearch.
- The student will acquire a foundation of chemistry of sufficient breadth and depth to enable them to understand and critically interpret the primary chemicalliterature.
- The student will develop the ability to effectively communicate scientific information and research results in written and oralformats.
- The student will learn professionalism, including the ability to work in teams and apply basic ethicalprinciples.

Outcome of M. Sc Drug Chemistry

- To equip students with the knowledge and generic skills for employment or further training in R&D, science based industry and establishments, education, and for training at management levels in otherprofessions.
- To prepare students to develop interpersonal skills, relating to the ability to interact with other people and to engage in teamworking.
- To stimulate intellectual development, develop powers of critical analysis and ability to solveproblems
- To understand the instrumental method of analysis like AAS, FES, GC, HPLC, TGA, DTAetc.
- To introduce student to chemical research methodology through carrying out a research project
- To understand the official method of standardization and qualitycontrol

- To understand the data handling and knowing accuracy, precision, Standard deviation and regressionetc.
- Understanding application of various volumetric and gravimetric analysis in the various field like agriculture andpharmaceutical.
- To understand and perform analysis of drug cosmetics and food inlaboratory.
- To understand analysis of petroleum product like polymer andplastic.
- The programme aims to provide a broad and in depth understanding of ideas central to chemistry
- To train students in the practical skills necessary for the safe manipulation ofchemicals

Outcome of M. Sc Organic Chemistry

- To equip students with the knowledge and generic skills for employment or further training in R&D, science based industry and establishments, education, and for training at management levels in otherprofessions.
- To stimulate intellectual development, develop powers of critical analysis and ability to solveproblems
- Understand the synthesis by various mechanism and characterization of organic compounds and naturalcompounds.
- To train students in the practical skills necessary for the safe manipulation ofchemicals
- To generate interest in, and understanding of, the wider role of chemistry in society e.g. health,industry.
- To enable students to develop independent learning skills as well as the experience of working as part of ateam.
- Understand the Stereochemistry of the natural product and organiccompounds.
- Perform the organic preparation of one, two and three stage preparation by green and chemicalapproach.
- Understanding application of organic compounds like antibacterial, anticancer and antifungal etc. in medical and pharmaceuticalfield.
- To introduce student to chemical research methodology through carrying out a research project.
- Understanding application of IR, NMR, and GCMS for characterization of organic compounds.
- To understand professional responsibility and ethics inChemistry

DEPARTMENT OF COMPUTER SCIENCES

On completion of the B.Sc. (Computer science) students are able to:

- Serve as Programmer or Software Engineer with sound knowledge of practical and theoretical concepts for developing softwares.
- Serve as Computer Engineer with enhanced knowledge of computers and its building blocks.
- Work as Hardware Designer/Engineer with knowledge of Networking concepts.
- Work as Systems Engineer and System integrator
- Serve as System Administrator with thorough knowledge of DBMS.
- Give Technical Support for various systems.
- Work as Support Engineer and Technical Writer
- Work as Consultant and Management officers for system management.
- Work as IT Sales and Marketing person.
- Serve as IT Officer in Banks and cooperative societies.
- Work as DTP Operator in small-scale industries.
- Serve as Web Designer with latest web development technologies.

Program Specific Outcomes of M.Sc. (Computer Science)

The career opportunities after **M.Sc. (Computer Science)** are quite huge. Many major national and multinational firms take in aspirants who have accomplished their graduation in these fields. The top IT firms such as Microsoft, Google, Yahoo, Rediff, Wipro, TCS, Infosys, Accenture, Cap Gemini etc. offer aspirants very attractive packages. Jobs for professionals in these fields can also be got with management consultancy organizations, Government organizations, Banks, Educational Institutions, Research Organizations and other organizations that use computers and computer-aided systems.

On completion of the M.Sc. (Computer science) students are able to work as:

- Programmer or Software Engineer
- Computer Engineer
- Web Designer
- Hardware Designer/Engineer
- Systems Engineer
- System integrator
- System Administration
- Technical Support
- Support Engineer
- Technical Writer
- Consultant
- Management
- Administration
- IT Sales and Marketing
- IT Officer
- Computer Scientist
- Research Staff Member
- Systems Analyst
- Logic Designer
- Computer Scientist in research and R & D laboretories.

Department of Environmental Science

On completion of B. Sc. (Environment Science) students are able to:

- Develop the techniques for minimization of environmental problems.
- Understand the role and responsibilities of Human Being towards the environment and environment related issues.
- imbibe the theoretical and practical knowledge in the field of environment conservation.
- Get an insight into wild life habitat, biodiversity conservation programme, environmental monitoring. EIA study, etc.
- Learn and understand various environmental aspects for sustainable development of living beings
- Find newer techniques for adopting environmental friendly approach towards global society.
- Learn various Environment awareness programs for the ecosystems.
- Understand the environmental problems of industrial sector with sound knowledge of environment, health and safety.

KOHINOOR COLLEGE OF ARTS COMMERCE AND SCIENCE, KHULTABAD

DEPARTMENT OF MATHEMATICS

Program_Specific_Outcomes.

UG:

After completion of B. Sc. (Mathematics) student will able to

1. Learn to solve improper integrals.
2. use of Linear equations for solving any differential equations
3. Understand various problems related with planar graphs.
4. Understand Concepts of Matrices and linear equations.
5. learn properties of inverse Laplace transforms
6. Understand the concept of number theory.
7. Solution of Integral and Differential Equations by using Laplace Transform.
8. Basic concepts of Mechanics.
9. To learn basic concepts of Group Theory, and Ring Theory.
10. To learn Different Solution of Ordinary differential Equation.

PG:

After completion of M. Sc. (Mathematics) student will able to

1. Understand Lebesgue integrals.
2. Learn the methods of Real Analysis
3. Learn Ordinary and Partial differential equations
4. Know the fundamentals of game theory..
5. Know about differentiation of functions.
6. Application of Operation Research.
7. Use of Mathematics in C Language.
8. Application of Topology.
9. Application of Mathematics in solving different Physical Problems.
10. Application of Advanced Discrete Mathematics.
11. Understanding Functional Analysis.
12. Understanding Lattices Theory.
13. Application of Numerical Analysis.

DEPARTMENT OF PHYSICS

On completion of the B. Sc. (Physics) program, students will be able to

- Demonstrate a rigorous understanding of the core theories & principles of physics, which include mechanics, electromagnetism, thermodynamics, & quantum mechanics.
- Learn the Concept of Quantum Mechanics, Relativity, introduced at degree level in order to understand nature at atomic levels.
- Provide knowledge about material properties and its application for developing technology to ease the problems related to society.
- Understand the set of physical laws, describing the motion of bodies, under influence of system of forces.
- understand the relationship between particles & atom, as well as their creation & decay.
- Relate the structure of atoms & subatomic particles
- Understand physical properties of molecule the chemical bonds between atom as well as molecular dynamics.
- Analyze the application of mathematics to problem in physics & development of mathematical method suitable for such application & for formulation of physical theories.
- Learn the structure of solid materials & their different physical properties along with metallurgy, cryogenics, electronics, & material science.
- Understand fundamental theory of nature at small scale & energy levels of atom & sub-atomic particles.

On completion of the M. Sc. (PHYSICS) program, students will be able to

- To equip students with the knowledge and generic skills for employment or further training in R&D, science based industry and establishments, education, and for training at management levels in other professions.
- To prepare students to develop interpersonal skills, relating to the ability to interact with other people and to engage in team working.
- To stimulate intellectual development, develop powers of critical analysis and ability to solve problems
- To introduce student to physical research methodology through carrying out a research project
- To understand the official method of standardization and quality control
- To understand the data handling and knowing accuracy, precision, Standard deviation and regression etc.
- Understanding application of physics in various fields.
- The programme aims to provide a broad and in depth understanding of ideas central to physics.
- Understand fundamental theory of nature at small scale & energy levels of atom & sub- atomic and Nuclear particles.

DEPARTMENT OF SOCIOLOGY (B.A.)

After successful completion of three years degree course in B.A.Sociology, student will be well versed with Field skills and Research Field.

Society Skills:

- Learn about Society.
- Knowledge of Village.
- Solution of Village Problem
- Develop the Cultural Activity
  - Learning Skill
  - Mentally Prepared
  - Computer Knowledge
  - Hard work Skill

Transferable Skills

During the course student will develop skills other Field skills and Research Field that are transferable across the number of career areas. These are:

- Lawyer.
- Management Consultant Graphic Designing
- Market Research Analyst Background Artist
- Media Planner Composition Artist
- Policy Analyst

DEPARTMENT OF HINDI

B. A. in HINDI

After completion of B. A. Hindi student will able to

- Develop Reading, Writing & Communication Skills of Students.
- Develop Attitude of Literary Forms. (Hindi Poetry & Fiction)
- Get information about the history of ancient, medieval and modern Hindi Literature.
- learn the literary works on the basis of the foundation laid by the scholars.
- Get information about Literary Theory.
- Develop Approach of Hindi Linguistics & Grammar.

M.A in HINDI

After completion of M. A. Hindi student will able to understand

- Applications of Literature and Language concepts Of Bhartiy Hindi literature.
- the literary works on the basis of the foundation laid by the scholars.
- The basic need for strengthening the language capacity.
- The latest development of literary works in the world and within the country
- Indian National language and Hindi language used office work that help the student communicate.

DEPARTMENT OF ELECTRONICS

On completion of the B. Sc. (Electronics) program, students will be able to

- Water level Controller using PLC Simulator.
- Traffic light Control Using PLC simulator
- Understand Basic Circuits using Active Devices.
- Understand Basic Analog Circuits and their applications using Active Devices.
- learn basic test instruments such as power supply, function generator, DFM and CRO and their construction and working principle.
- Understand Basic differential amplifier and their applications in linear Integrated circuits
- Design & conduct experiments as well as to analyze data and its interpretation.
- Design a system components or process to meet desired needs within realistic constraints such as economic environmental, social, ethical, health & safety.
- Understand the fundamental concept of semiconductor like crystal structure, energy band gap, charge carrier statistics.

DEPARTMENT OF PUBLIC ADMINISTRATION

On completion of B.A (Public Administration), Students are able to:

- Understand basic concepts of Public Administration.
- Analyze **Administration** behavior in practice.
- Understand the Administration ways of thinking.
- Write clearly expressing Public Administration point of view.
- Understand alternative approaches Public Administration problems through exposure to coursework in allied fields.
- Create ability to suggest of the various Public Administration problems.

On completion of M.A (Public Administration), Students are able to

- Conduct socio- economical survey on Administration fields.
- Learn Indian Foreign Public Administration.
- Learn Modern Public Administration Issues.
- Understand Public Administration process in Indian Administration
- Learn public administration
- Learn socio- Public Administration research methods
- Understand comparison between public administration, private administration, Indian administration.

Department of URDU

After completion of B. A. Urdu student will able to

- Develop Attitude of Literary Forms. (Urdu Poetry ,Gazal, ,Fiction ,Non Fiction) .
- Read and write Urdu language fluently.
- Develop Reading, Writing and Communication Skills of Students.
- Get information about the history of ancient, medieval and modern Urdu Literature.
- Learn the literary works on the basis of the foundation laid by the scholars.
- Get information about Literary Theory.
- Develop Approach of Urdu Linguistics and Grammar.

DEPARTMENT OF B.VOC FOOD PROCESSING TECHNOLOGY

After successful completion of three years degree course in B.Voc Food Processing Technology, student will be well versed with laboratory skills and transferable skills.

Laboratory Skills:

- Laboratory safety practices
- Accurate weighing and reagent preparation
- Skillful handling of basic and advanced instruments
- Calibration of basic instruments like Weighing Balance, Refrigerator, Hot Air Oven, etc
  - Adavanced techniques like
  - Food processing process
  - Food safety and hygiene
  - Handling Equipment

Transferable Skills

During the course student will develop skills other than laboratory skills that are transferable across the number of career areas. These are:

- Quality Control
- Production
- Research and Development
- Dairy Industries
- Hotels & Restaurants
- Video Editor
- Composition Artist
- Art Director
- Live Action Director

DEPARTMENT OF GEOLOGY

On completion of the B.Sc. Geology, Students are able to:

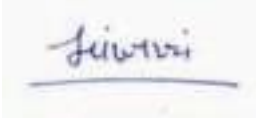
- **Identify the Minerals and its various properties.**
- **Understand the crystal chemistry and crystallographic systems.**
- **Understand different Geological Processes of mineral formation.**
- **Understand the Mother Earth, Solar system and the Universe.**
- **Understand different types of Earth movements and Earth balancing system with resulting landforms and features.**
- **Understand about Basics of Mountains (Orogeny), Earthquakes (Seismology), Volcanoes (Volcanology), their impact on rocks and landforms with structural features.**
- **Analyze Mineralogical and Crystallographic problems of Geology and types of Geological Maps.**
- **Gain the knowledge about Petrology such as Types of rocks and their evolution, Magma-types and forms etc.**
- **Gain the Basics of Palaeontology, its branches and scope, also deal with the Fossils and their different phylum.**
- **Gain the Basics of Stratigraphy especially about India and its Physiography, Indian Geological Time Scale.**
- **Difference between Igneous, Sedimentary and Metamorphic rocks also Fossils and basic of Field Geology.**
- **Understand Crystalline, Non Crystalline Minerals and Silicate types.**
- **Understand Igneous rocks and Magma relation with respect to Crystallisation, Texture and Structure.**
- **Extend the knowledge of Crystallography and its Symmetry Systems, Classes and types.**
- **Understand Optical behaviour of Minerals under Normal and Microscopic observation.**
- **Differentiate Minerals on the basis of their physical properties as well as Crystal systems and Optical behaviour.**
- **Classify Igneous rocks on their Physical appearance and Optical behaviour under petrological microscope.**
- **Understand types of Sedimentary rocks, their Formation, Composition, Texture and Structures.**
- **Gain knowledge of Tectonics and Structural Geology, with linear, planer and vertical structural forms such as Folds, Faults, Joints and especially Unconformity.**
- **Extend knowledge of Palaeontology, Fossils and their types, Geological Environments in different Eras of Earth History.**
- **Differentiate Sedimentary and Metamorphic rocks on the basis of their physical appearance.**
- **Identify different Fossils and Geological structures given in the practical lab and in the field.**
- **Extend the knowledge about Indian Stratigraphy - Division, Distribution, Formations, Groups and Geological Events, Fossil records in Indian Geological Time Scale.**
- **Understand Economic Geology of India, Formation of Mineral Deposits in different Geological Environments and their Distribution within India.**
- **Understand various Surface and Subsurface Techniques and Methods to gather Geological Information in the Field and in the Lab.**
- **Understand various aspects of Groundwater on Surface, Subsurface and its Occurrence, Hydrological properties, its Distribution and Movements.**
- **Identify Economic Minerals and depict their Distribution within country and Economic importance.**
- **Solve different Structural Maps and related problems; depict Geological, Stratigraphical, formations and groups on given Indian Maps.**

DEPARTMENT OF HOME SCIENCE

B. A.

On completion of the B.A.Home ScienceProgramme, students are able to:

- Understand the basic concepts and modern trends in Home Science.
- Make the students aware of the applications of Home Science concepts.
- Understand the relationship between theoretical and practical principals of Home Science.
- Make the students aware of the various concepts in Home Science of the Indian context.
- Understand the Home Science measurements to help to understand the client.
- Understand the students how to follow up the behavioral problem and solve it with the behavior.
- Administer Home Science measurements and their interpretation.



Miss. Manisha PandurangWanjari

Assit. Prof. & Head Dept. of Home Science

DEPARTMENT OF MICROBIOLOGY

Class	Course	Outcomes (Students will be able to)
FYBSc	P-I: Fundamental s of Microbiology	• Get an idea about the historical events in microbiology
		• Understand the general characteristic of microorganism
		• Know the scope of Microbiology
		• Understand the taxonomic classification of microorganisms
		• Know parts of microscope, type and its principal
	P-II:Microbiological Techniques and general Microbiology	• Get the theoretical concepts of related stain
		• Understand different methods of staining techniques
		• Develop basic skill in aseptic techniques
		• Understand various accessories for microbiology practicals
		• Perform various staining techniques
		• Cultivate bacteria with different cultivation technique
	Practical-P-III(based on paper I and II)	• Microscopy
		• Stain the bacteria with differential staining techniques
		• Understand the effect of various environmental factors
		• Perform various biochemical test
		• Get familiar with various instrumentation
	P-IV: Cytology and general Microbiology	• Understand concepts bacterial morphology and ultrastructure
		• Understand the nutritional requirements
		• Know bacterial growth
		• Understood microbial physiology
		• Know Advance s in Microbiology
	P-V:Basic Biochemistry	• Understand carbohydrates
		• Understand lipid

		• Understand protein
		• Understand nucleic acid
	Practical-P-VI(based on paper IV and V)	•Structural staining
		•Sterility check for autoclaving
		•understood isolation of microorganism
		•understood cultivation of anaerobes
		•know the effect environmental factors
		•Streak plate method
SYBSc	P-VII: Environmental Microbiology	•Microbiology of air
		• Understand microbiology of water and waste water management
		• Know microbiology of sewage
	P-VIII: Immunology	• Understand basics of immunology
		• Know immunity
		• Get an idea regardingimmuno response
		• Understand the antigen and antibody
	P-XI:Applied Microbiology	• Understand Microbiology of milk
		• Understand Microbiology of Soil
		• Understand Microbiology of Food
		•Principles of food preservation.
	P-XII: Clinical Microbiology	• Understand Human Diseases
		• Bacteria
		• Viruses

		• Protozoa
		• Fungi
		• Typhus fever
	Practical-P-IX and XIII	• Microbial sampling of air
		• MPN,SPC.
		• Measurement of chloride, phosphate and nitrate in water
		• BOD, COD.
		• Isolation of coliphages from sewage and estimation of phage titre
		• Preparation of media for cultivation of pathogenic bacteria
		• Staining techniques
		• RBC count by haemocytometer
		• Agglutination tests
		• Isolation & study of normal flora of skin, nose, throat.
		• Precipitation test
	Practical-P-X and XIV	•Determination of R: S ratio
		• Demonstration of IAA production using soil fungi
		• Isolation & study of Rhozobiumsp from root nodules of leguminous plants.
		• Bacteriological analysis of milk and food.
		• Visit to waste treatment plants, dairies , food industries, agricultural universities
		• Study of pathogens
		• Isolation & Identification of Candida albicans
		• Demonstration of haemolysin& coagulase tests
		• Determination of antibiotic resistance of bacteria
		• Detection of specific antigen by ELISA

TYBSc	P-XV: Microbial Genetics	• DNA/RNA as genetic material
		• experimental proof
		• DNA replication
		• Post replication modifications
		• Salient features of Genetic code
		• Transcription
		• Translation
		• Regulation of gene expression at the level of transcription
		• Bacterial Recombinations
		• Mutations
	P-XVI: Microbial metabolism	• Enzymes
		• Nomenclature and classification of enzymes
		• Types of enzymes
		• Michaelis_Menten equation
		• Commercial uses of enzymes
		• Types of co-enzymes
		• Bioenergetics
		• Modes of energy yielding metabolism
		• Fermentation of carbohydrates
		• Aerobic respirations
		• Catabolism of saturated (16 carbon) and unsaturated fatty acids (16 carbon) by β oxidation

		• Pharmaceutical audit and testing procedures for fermentation process
		• Catabolism of saturated (16 carbon) and unsaturated fatty acids (16 carbon) by β oxidation
		• Degradation of proteins and amino acids
		• Transformation of aminoacids
		• Nucleic acid catabolism
		• Biosynthesis of nucleotides
		• Carbohydrate synthesis
	P-XIX:Recombinant DNA Technology	•Recombinant DNA technology
		•Modification of blunt ended DNA
		•Vectors
		• Genetic engineering
		• Genomic library
		• Nucleic acid & protein blotting techniques
		• Colony hybridization
		• DNA sequencing
		• Probes
		• PCR
		• Gene therapy
		• Applications of genetic engineering
		• Transposition
	P-XX:Industrial Microbiology	• Design of typical fermenter, types of fermenters
		• Screening method
		• Strain improvement methods

		• Preservation methods
		•Fermentation media
		• Down stream processing
		• Production of Antibiotic, Vitamin,Amino acid,Organic Solvent
		• Production of Enzymes- α,Bakers yeast,Vaccines,Biofertilizers
	Practical-P-X VII and XXI	• Determination of one step growth curve of bacteriophage
		• Isolation of lac mutants of E.coli. (Lac) by UV induced mutagenesis and chemical mutagens
		• □ UV damage and photoreactivation
		• Study of transformation in E. Coli
		•Study of conjugation in E.Coli.
		•Study of conjugation in E.Coli.
		• Demonstration : Polymerase chain Reaction
		• Isolation of genomic DNA from E. coli.
		• Restriction analysis of E. coli
		• Separation of plasmid DNA by agarose gel electrophoresis
		• Western blotting
		• SDS PAGE
	Practical-P-X VIII and XXII	• Preparation of buffers and reagents
		•Study of enzymes
		• Demonstration of nitrate reduction
		• Demonstration of decarboxylation of amino acid
		•Isolation of photosynthetic bacteria by column method
		• Primary screening

		• Production, detection and estimation.

		• Strain improvement
		•Paper / TLC
		• Separation of proteins using agarose gel electrophoresis
		• Bioassay of Penicillin/ Vit B12
		• Study tour and report presentation
	M.Sc.I:P TH-I:BIOSTATISTICS AND COMPUTER APPLICATIONS	• Introduction to Biostatistics
		• Measures of central tendency
		•Tests of significance
		• Introduction to computers and computer applications
		• net working concepts
	PAPER TH-II BIOENERGETICS AND MOLECULAR ENZYMOLOGY	• Carbohydrate catabolic pathways and microbial growth on C1 Compounds
		• Endogenous metabolism and degradation of aliphatic and aromatic compounds
		• Properties of Enzymes
		• Enzyme kinetics
		• Bacterial fermentations (biochemical aspects) and Biosynthesis
	PAPER TH-III BIOINSTRUMENTATION	• Basic laboratory Instruments
		• Chromatographic techniques
		• Electrophoretic techniques
		• Spectroscopy
		• Radioisotopic techniques

	PAPER TH-IV FOOD AND DAIRY MICROBIOLOGY	• Industrial Food fermentations
		• Quality assurances in foods
		• Food preservation methods
		•Microbiology of cheese and beverage fermentation.
		• Advanced Food Microbiology
	PRACTICAL PAPER P-I BIOSTATISTICS AND COMPUTER APPLICATIONS	• Representation of Statistical data
		• Determination of Statistical averages/ central tendencies
		• Determination of measures of Dispersion
		• Tests of Significance-Application of following
		• Computer operations-getting acquainted with different parts of Computers
		• An introduction to INTERNET, search engines, websites, browsing and Downloading.
	PRACTICAL Paper P-II: BIOENERGETICS AND MOLECULAR ENZYMOLOGY	• Isolation and Identification of Reserve food material (Glycogen / polyphosphates, PHB) of B. megaterium and Azotobacter SP
		• Quantitative estimation of amino acids by Rosen's method
		• Quantitative estimation of sugars by Summner's method
		• Quantitative estimation of proteins by Folin-Lowry / Biuret method
		• Production of fungal alpha amylase
		• Purification of fungal alpha-amylase
		• Studies on enzyme kinetics of alpha amylase/Protease

	PRACTICAL PAPER P-III BIOINSTRUMENTATION	• Studies on pH titration curves of amino acids
		• TLC or Paper Chromatography
		• gel electrophoresis
		• Study of UV absorption spectra of macromolecules

		• Quantitative estimation of hydrocarbons
		• Demonstration of PCR, DNA sequencer and Fermenter
		• Friske dosimetry
	PRACTICAL PAPER - P-IV FOOD AND DAIRY MICROBIOLOGY	• Production and estimation of lactic acid by Lactobacillus Sp. Or Streptococcus Sp
		•Extraction and estimation of diacetyl
		• Sauerkraut fermentation
		• Extraction and detection of afla toxin for infected foods
		•Preservation of potato/onion by UV radiation
		• Production of fermented milk by Lactobacillus acidophilus
		• Rapid analytical techniques in food quality control using microbial Biosensors.
	PAPER TH-V RECENT TRENDS IN VIROLOGY	• Classification and Morphology of Viruses
		• Cultivation and assay of viruses
		• Viral Multiplication,Pathogenesis of Viruses
		• Control of Viruses and Emerging Viruses
	PAPER TH-VI MOLECULAR IMMUNOLOGY	• Immune System
		• Antigens and Immunoglobulins

		• Antigen – Antibody reactions,Expressions and Regulation of Immune Response
		• Immunity and Immunoassays
	PAPER TH-VII MICROBIAL PHYSIOLOGY	• Bacterial photosynthesis
		• Bacterial Respiration
		• Bacterial Permeation,Bacterial Sporulation
		• Bacterial Chemolithotrophy
	PAPER TH-VIII : MICROBIAL DIVERSITY AND EXTREMOPHILES	• Biodiversity
		• Characteristics and classification of Archaebacteria.
		• Alkalophiles and Acidophiles,Halophiles and Barophiles
		• Space Microbiology
	PRACTICAL PAPER - P-V RECENT TRENDS IN VIROLOGY	• One step growth curve for determination of virus titre
		• Phage typing of E.coli bacteriophages
		• Induction of lambda lysogen by UV radiations
		• Amplification of lambda DNA by PCR
		• Cultivation and assay of viruses using embryonated eggs and Tissue culture Technique
	PRACTICAL PAPER P-VI MOLECULAR IMMUNOLOGY	• Diagnostic immunologic principles and methods
		• Separation of serum protein by submerged agarose gel electrophoresis
		• Purification of human immunoglobulins from serum and confirmation of its antigenicity
		• Identification of S.typhi by serotyping
		• Clinical diagnosis of Rheumatoid arthritis by purifying immunoglobulins

		• Demonstration of Western blotting
		• Clinical diagnosis of viral diseases by PCR, ELISA
	PRACTICAL PAPER P-VII MICROBIAL PHYSIOLOGY	• Isolation of Photosynthetic bacteria
		• Glucose uptake by E. coli / Saccharomyces cerevisiae
		• Effect of UV, gamma radiations, pH, disinfectants, chemicals and heavy metal ions on spore germination of Bacillus SP
		• Determination of Iron Oxidation Rate of Thiobacillusferrooxidans
		• Estimation of calcium ions present in sporulating bacteria by EDTA method
		• Biogenic methane production using different wastes
	PRACTICAL PAPER- P-VIII MICROBIAL DIVERSITY AND EXTREMOPHILES	• Isolation of thermophiles from hot water spring
		• Studies on halophiles isolated from seawater
		• Studies on alkalophiles isolated from lonar water/sea water
		• Demostration of utilization of sugars by oxidation and fermentation
	PAPER TH-IX ENZYME TECHNOLOGY	• Extraction and purification of microbial enzymes
		• Enzyme inhibition and Co-factors
		• Immobilization of microbial enzymes,
		• Enzyme Engineering
		•Applications of microbial enzymes
	PAPER -TH X BIOPROCESS ENGINEERING AND TECHNOLOGY	•Bioreactors
		•Mass transfer in reactors
		•Fermentation process
		•Down stream processing
		•Microbial strain improvement
	PAPER TH-XI MICROBIAL GENETICS	•DNA Structure and Mutagenesis
		•Prokaryotic Transcription and Translation
		•Regulation of gene expression in prokaryotes
		•Genetic recombination
		•Phage Genetics

	PAPER TH-XII : ENVIRONMENTAL MICROBIAL TECHNOLGY	•Environment and Ecosystems
		•Eutrophication
		•Effluent treatment techniques
		•Bioremediation of Xenobiotics
		•Global environmental problems
	PRACTICAL PAPER -P-IX ENZYME TECHNOLOGY	• Microbial production , Extraction , purification and Confirmation
		• Determination of efficiency of enzyme purification by measuring specific activity at various stages viz. Salt precipitation, dialysis, electrophoresi
		• Studies on enzyme Activation and Inhibition of extracted alpha amylase /Lipase .Effect of Heavy metal ions, Chelating agents activators and inhibitors
		• Immobilization of cells and enzyme using Sodium alginate
		• Studies on impact of immobilization on enzyme activity in terms of Temperature tolerance and Vmax and Km using various forms Of alpha amylase/Lipase
		•Determination of molecular weight of enzymes using PAGE technique
	PRACTICAL PAPER -P-X : BIOPROCESS ENGINEERING AND TECHNOLOGY	•Isolation of industrially important microorganisms for microbial processes
		•Determination of Thermal Death Point (TDP) and Thermal Death Time (TDT)
		•Determination of growth curve of a supplied microorganism
		• Monitoring of dissolved oxygen during aerobic fermentation
		•Preservation of industrially important bacteria by lyophilization
		• Cell disruption for endoenzymes by sonication
	PRACTICAL PAPER - P-XI MICROBIAL GENETICS	•Purification of chromosomal / plasmid DNA and study of DNA profile
		• Effect of UV radiations to study the survival pattern of E. coli
		•Isolation of antibiotic resistant mutants by chemical mutagenesis
		•Study of conjugation in E. coli
		•Restriction digestion and agarose gel electrophoresis of DNA
		• Generalized transduction in E. coli using P1 phage.
	PRACTICAL PAPER - P-XII ENVIRONMENTAL	• Physical analysis of sewage/industrial effluent by measuring total

	MICROBIAL TECHNOLOGY	solids, total dissolved solids
		• Determination of indices of pollution by measuring BOD/COD of different effluents
		• Bacterial reduction of nitrate from ground waters
		• Isolation and purification of degradative plasmid of microbes growing in polluted environments
		• Recovery of toxic metal ions of an industrial effluent by immobilized cells
		•Reduction of distillery spent wash (or any other industrial effluent) BOD by bacterial cultures.
		• Microbial dye decolourization/adsorption
	Service course-Applied Agricultural Microbiology	•Introduction to biofertiliser
		•Microorganism as biofertiliser
		•Nitrogenous biofertiliser,Biopesticide
		•Plant pathology
	M.Sc.II PAPER TH - XIII RECOMBINANT DNA TECHNOLOGY	•Techniques and enzymes in genetic recombination
		• Plasmids
		•Specialized cloning strategies
		• PCR methods and Applications
		•Molecular mapping of genome
	PAPER TH-XIV : FERMENTATION TECHNOLOGY	•Microbial Fermentations
		•Microbial production of therapeutic compounds
		•Modern trends in microbial production
		•Biofuels
		•Immobilization techniques , IPR and Patents
	PAPER TH-XV BIOINFORMATICS, MICROBIAL GENOMICS AND PROTEOMICS.	•Bioinformatics and its applications
		• Whole genome analysis
		• Sequence analysis

		• DNA Microarray
		• Proteome analysis
	PAPER TH –XVI PHARMACEUTICAL MICROBIOLOGY	•Antibiotics and synthetic antimicrobial agents
		•Mechanism of action of antibiotics
		•Microbial production and Spoilage of pharmaceutical Products
		•Regulatory practices, biosensors and applications in Pharmaceuticals
		• Quality Assurance and Validation
	PRACTICAL Paper - P-XIII RECOMBINANT DNA TECHNOLOGY	•Isolation of genomic DNA and its confirmation by southern blotting
		• Isolation of plasmid DNA and its restriction digestion
		• DNA sequencing by Sangers method
		• RFLP analysis
		• Amplification of DNA by PCR.
	PRACTICAL PAPER P-XIV FERMENTATION TECHNOLOGY	•Production and characterization of citric acid using A. Niger
		• Microbial production of glutamic acid
		•Production of rifamycin using Nocardia strain
		•Comparison of ethanol production using various Organic wastes
		•Production and extraction of thuricide
		•Microbial production of dextran by Leuconostocmesenteroides
		• Microbial production of hydrogen gas by algae/bacteria
	PRACTICAL PAPER- P-XV BIOINFORMATICS, MICROBIAL GENOMICS AND PROTEOMICS.	•Studies of public domain databases for nucleic acid and protein sequences
		•. Determination of protein structure (PDB)
		•Genome sequence analysis
	PRACTICAL PAPER P- XVI PHARMACEUTICAL MICROBIOLOGY	•Spectrophotometric / Microbiological methods for the determination of Griesofulvin
		•Bioassay of chloremphenicol by plate assay method or turbidiometric Assay method.
		• Treatment of bacterial cells with cetrimide, phenol
		•To determine MIC, LD 50 of Beta-lactum/aminoglycoside tetracycline/ansamycins
		• Sterility testing by Bacillus stearothermophilus

		• Determination of D value, Z value for heat sterilization in pharmaceuticals
		•Determination of antimicrobial activity of a chemical compound (Phenol, resorcinol, thymol, formaldehyde) to that of phenol under Standardized experimental conditions
	Laboratory course (Project Dissertation)	• principles and methods
		• Collection and compilation of literature
		• Designing of experiment with objectivity

		• Compilation and interpretation of results
		• Presentation of research data in report form

DEPARTMENT OF HISTORY

B.A. History

On completion of the BA (History) special, students will be able to

- Understand the basic themes, concepts, chronology and the Scope of Indian History.
- Acquaint with range of issues related to Indian History that span distinct eras.
- Understand the history of countries other than India with comparative approach.
- Think and argue historically and critically in writing and discussion.
- Prepare for various types of Competitive Examinations
- Critically recognise the Social, Political, Economic and Cultural aspects of History.

M.A. History

On completion of the MA (History) special, students will be able to

- Understand and evaluate the complexities of historical developments of various nations, societies and cultures.
- Acquaint with research skills, methodologies, philosophy of history and historiography as being a professional historian and researcher.
- Prepare themselves for the competitive carriers in fields like civil services and teaching.
- Recognise history of the man in the context of universal as well as national perspective.
- Learn to evaluate the historical narratives withthe approach of comparative methods.
- Think and argue historically and critically.
- Critically analyse the various sources of history.
- Understand Indian history and world history with the scientific, critical and rational approach.
- Understand values of unity in diversity, multiculturalism, multi-religiosity, secularism and humanism which are inherited in Indian Culture and upheld by our Constitution.
- Identify how the Indian culture had been contributed to the world human civilisation through the Ages.

DEPARTMENT OF B.VOC MULTIMEDIA & ANIMATION

After successful completion of three years degree course in B.Voc Multimedia & Animation, student will be well versed with laboratory skills and transferable skills.

Laboratory Skills:

- Laboratory safety practices
- Accurate weighing and reagent preparation
- Skillful handling of basic and advanced instruments
- Calibration of basic instruments like Computer & Animation Software etc
  - Adavanced techniques like
  - Basic Computer Skills
  - Adobe Software Skills
  - Autodesk Software Skills
  - Camera handeling Skills
  - Drawing Skills

Transferable Skills

During the course student will develop skills other than laboratory skills that are transferable across the number of career areas. These are:

- 2D animation
- 3D Animation
- Graphic Designing
- Roto Artist
- Background Artist
- Video Editor
- Composition Artist
- Art Director
- Live Action Director

Programme Outcomes (Undergraduate Level)

Faculty – Humanities (Department of English)

After completing the graduation in the faculty of humanities the student should have:

- Acquired knowledge with facts and figures related concerned with subjects such Languages.
- Understood the basic concepts, fundamental principles, and various theories in the above mentioned subjects.
- Realized the importance literature in creating aesthetic, mental, moral, intellectual development of an individual and increasing a healthy society.
- Gained the analytical ability to analyze critically the literature and social issues, appreciate the strength and suggest the improvements for better results.
- Convinced himself/herself that study of literature and social sciences not only help to evolve better individual and better society but also help to make the life of an individual more happy and meaningful.
- Participated in various social and cultural activities voluntarily.
- Written articles, novels, stories to spread the message of equality, nationality, social harmony, etc.
- Emerged as a multifaceted personality who is self dependant; earning his own bread and butter and also creating opportunities to do so.
- Realized that pursuit of knowledge is a lifelong process and in combination with untiring efforts and positive attitude are necessary qualities for leading a successful life.
- Developed various communication skills such as reading, listing, speaking, etc., which will help in expressing ideas and views clearly and effectively.

Programme Outcomes (Post Graduate Level)

Faculty – Humanities (Department of English)

After completion the Post Graduation in Humanities, the student should have -

- Acquired a deep knowledge as possible in the subject concerned by making use of reference books, research journals, periodicals and internet facilities.
- Known in detail how the subject matter has developed from ancient time till this date with important landmarks, theories and people have contributed to achieve these.
- Critically evaluated the works of various authors or social scientists by considering the strength and weakness and suggestions probable modifications for improvement.

- Understood how the developments in the field of Humanities have improves the quality of life and how they have satisfied the aspirations, intensions likes and dislikes and how they could modify them.
- Realized how the studies in Humanities have led to various social, economical, political changes over last few centuries.
- Predicted the future course of the developments in the subject and the various factors that are likely to influence them and how they will change the life of common man.
- Taken up an independent research project, plan and execute it and present the results and conclusions systematically at the end.
- Taken up independent creative writing or various aspects in literature, social, economic political, environmental issues in the form of story, poetry, research articiles, reports, etc in various periodicals & journals.
- Recognized the areas where there is no further research work or areas which are not yet explored.
- Developed a strong belief that study of humanities will lead to development of soul, giving immense pleasure & satisfaction for any individual.
- Recognized that studies in humanity will dissolve differences & inequalities due to caste, creed and religion, social status etc leading to human dignity which will help to create social & national integration.
- Participated & led various activities related to literature & social issues in order to create social awareness and harmony.

Programme Specific Outcomes

Department of English

UG

On completion of B.A (English), students are able to:

- Use correct English in oral as well as written form.
- Inculcate of human values for one's transformation of behavior.
- Interpret the literary works by critical analysis.
- Compare literary works of the great philosophers using their logic and literary capacity.
- Develop Attitude of Literary Forms. (English Poetry & Fiction)
- Develop Reading, Writing & Communication Skills of Students.
- Get information about the history of ancient, medieval and modern English Literature.
- Learn the literary works on the basis of the foundation laid by the scholars.
- Get information about Literary Theory.
- Develop Approach of English Linguistics & Grammar.

PG

On completion of M.A (English), students are able to:

- Understand and learn the literary works on the basis of the foundation laid by the scholars.
- Strengthen their language capacity.
- Assist them in understanding of extended frontiers of language and literature.
- Applications of Literature and Language concepts.
- The literary works on the basis of the foundation laid by the scholars.
- The basic need for strengthening the language capacity.
- The latest development of literary works in the world and within the country.

DEPARTMENT OF GEOGRAPHY

On Completion of the BA (Geography) Students are able to:

- Study the land forms and processes.
- Understand the structure, composition of different spheres of the earth and its
- Atmosphere. Understand importance of oceans, rivers and water and find ways of their conservation.
- Understand the Function and types of Biogeography.
- Understand the science of Remote Sensing.

DEPARTMENT OF PSYCHOLOGY

B. A.

On completion of the BA Psychology Programme, students are able to:

- Understand the basic concepts and modern trends in Psychology.
- Make the students aware of the applications of Psychological concepts.
- Understand the relationship between theoretical andpractical principals of psychology.
- Make the students aware of the various concepts in Social Psychology of the Indian context.
- Understand the psychological measurements to help to understand theclient.
- Understand the students how to follow up thebehavioral problem and solve it with the behavior and other therapies.
- Administer psychological measurements and their interpretation

Programe Specific Outcomes Subject Zoology

On Completion of the B.Sc (Zoology)students are able to

- Understand the nature and basic concepts of cell biology
- Understand the basic concepts about chordates and non-chordates
- Understand the various Applications of Biotechnology
- Understand the Lamarkism, Neo-Lamarkism and Darwinism.
- Understand the term ELISA technique and DNA finger printing.
- Understand the process of evolution.
- Understand Ecology and importance of Biodiversity
- Understand the importance of insects and pest management
- Acquainted current trends in conservation biology, wildlife biology and management.

On Completion of the M.Sc Zoology, students are able

- Understand Ecology and importance of BiodiversityUnderstand the various microbial, bacterial as well as viral diseases and pathogenicity.
- Understand the Organization And Life: Homology and Analogy, Diversity of invertebrates, Phylogeny of invertebrates.
- Understand the larval forms of the invertebrates.
- Understand the colonial and social life in invertebrates.
- Understand the structure and function of the cell and its organelles
- Understand the Applications and uses of Statistics in Zoology.
- Acquainted current trends in conservation biology, wildlife biology and management.