

DEPARTMENT OF PHYSICS (B. Sc.)

PROGRAM OUTPUT	<ol style="list-style-type: none">1. To define the basic laws involved in Physics.2. To understand the concepts and significance of the various physical phenomena.3. To carry out experiments to understand the laws and concepts of Physics.4. To apply the theories learnt and the skills acquired to solve real time problems.
COURSE OUTPUT	
COURSE	OUTPUT
MECHANICS	This course aims the student to enable them to acquire engineering skills and practical knowledge of Moment of inertia, Elasticity, Properties of liquids, Relativistic dynamics and central forces. It also provide them theoretical basis for doing experiments in related areas, which help the student in their everyday life.
THERMAL PHYSICS	To aims is to provide the students basic understanding of the Principals and laws of Thermodynamics, kinetic theory of gases, Maxwell's relations, cryogenics, conduction and Thermal radiation and their practical applications.
MODERN PHYSICS	To aims is to provide the students basic understanding of the principles and laws of LASRER, magnetism , Nuclear Physics and Nuclear Instruments and their applications.
OPTICS	This course provides students with a working knowledge of optical physics, including diffraction, interference and polarization. It also provides understanding of basic concepts of Geometrical optics.
CLASSICAL MECHANICS AND MATHEMATICAL PHYSICS	This course provides the students to create average understanding about combination of mechanics behavior of small system particle as well as general behavior of day to day mechanics system
QUANTUM MECHANICS	It creates understanding of micro world among students
ATOMIC AND MOLECULAR SPECTRA	This course provides the students to learn how to calculate the molecular structure and recognize them.
ELECTRICITY AND MAGNETISM	The course aims to learn the theoretical understanding about the charge particle and charged material medium. Also how to calculate the atomic behavior by boundary condition.
ELECTRONICS	The student learn general concept of solid state electronics, amplifiers and rectifiers.
WAVES AND OSCILLATIONS	This course aims to create understanding about the oscillatory system of material body and their application in various dimensions of Physics

Department Of Chemistry

Program Output

1. To define the basic reagents used in Chemistry laboratory.
2. To understand the concept and significance of various chemical methods.
3. To know about role of chemicals in human and living beings.
4. The students are trained to work in distinguished chemical laboratory as chemist and analyst.

Course Output

Physical Chemistry

It gives us information that how chemicals are playing their role and is taking part in physical functioning.

It provides various informations used in chemical analysis

Inorganic Chemistry

To aim is to provide the students basic understanding of the entire element present in periodic table and related to daily life how can we use.

Organic Chemistry

Aim of this course is to provide knowledge about preparation, structure, stereochemistry and applications of compounds.

It also provides idea about the reaction intermediates and industrial applications of organic compounds.

Analytical Chemistry

This course provides experimental knowledge and qualitative as well as quantitative analysis. Knowledge about experimental error in which determinate

		and indeterminate errors are involved.
	Biological Chemistry	It provides the knowledge about the structure and function of biochemicals such as nucleic acids, enzymes and role of metals in biological system.
	Molecular Symmetry and Molecular Vibrations	Determination of hybridization of inorganic molecule and term symbol of transition elements, calculation of isomers.
	Spectroscopy	Determination of the structure of organic and inorganic compounds using various spectroscopic methods.
	Stereochemistry	This course provides knowledge about 3D structure of compounds and its relation with chemical behaviour.
	Biomolecules	This course provides knowledge about biomolecules i.e. vitamins and hormones and their synthesis and functions.

DEFENCE STUDIES

Department of Defence and Strategic Studies (B.A. /B.Sc.)

Programme Output	<ol style="list-style-type: none"> 1. To define the basic concept of Defence and Strategic Studies. 2. To make understand the concept and significance of the Defence and Strategic Studies 3. To carry out different experiments that comprises in Defence and Strategic Studies 4. To apply the theories of the subject in relevant context.
	Course Output
Course	Output
War and Peace in Contemporary World	The course aims to introduce the current issues of war and peace in the contemporary world with expanded concept and scope of war. This course introduces the different dimensions of

	war and in this context how the peace and security can be established in the world. There are a number of alternatives to war through which peace can be established.
National Security	This course is aimed to clarify the basic concepts of national security which is easy to understand and hard to define. The national security has different dimensions that include human security to global security. The threat perspective of security is also analysed in this course.
Higher Defence Mechanism of Modern States	This course is aimed to elaborate the defence mechanism of modern states like India, Britain, USA, China etc. It aims to compare the defence mechanism of these states and find out their positive and negative perspectives. This course is made to provide extensive knowledge of defence organisations to the students.
Modern Strategic Thoughts	In this course the thoughts of prominent strategic thinkers are communicated to the students to understand the different aspects of war and peace. The thoughts of Machiavelli, Jomini, JFC Fuller, Liddle Hart etc. is taught to the students
Evolution of the Indian Art and Science of War	This course provides the wide view of strategy and science of war in India from Vedic period to the Indian Independence. This course specially focuses on the wars like War of Ten Kings, War of Ramayana, War of Mahabharata, War of Hydespas, War of Tarain, Islamic war tactics, wars during colonial period and war of independence.
Arab-Israel wars 1967 and 1973	Through this course the pupil are made aware that how a small country protects itself from the enemies from all sides. Israel is popularly known for its aggressive strategy. The major battles fought on the borders of Egypt, Syria, Jordon, Lebanon are taught to the students.
Military Psychology	In this course the psychological aspects of armed forces are discussed with the students. The psychological impact on

	armed forces during war and peace and during service period and post-service period is widely analysed and studied.
Insurgency and Counter Insurgency	In this course the Insurgency and counter Insurgency operations conducted worldwide is studied in details. As we know that now a number of countries are suffering the problems of Insurgency and terrorism, this course give the students clear view of terrorism and insurgency.
Strategic Geography	This course offers the wide view of the effects of geography on the security of a nation. This course helps the students to formulate national policy as per the geographic requirements. It helps to make the futuristic strategy of the nation. The strategic location of India is elaborately discussed in this course

BEd DEPARTMENT

Department of B.Ed	
PROGRAMME OUTPUT	<p>1-The bachelor of education programme,generally known as B.Ed,is a professional programme that prepare teachers for upper primary or middle level,Secondary level and Senior level.</p> <p>2-The B.Ed course is designed to integrate the study of subject knowledge,human development and pedalagic knowledge and communication skills.</p> <p>3-The programme comprises of three board curricular areas:foundations of education,curriculum and pedalagic studies and engagement with the field.</p> <p>4-The B.Ed programme shall provide for sustained engagement with the self and the child,community and school at different level and through establishing close connections between different curricular areas through its three components.</p> <ul style="list-style-type: none">a) Task and Assignments that run through all the courses.b) School Internshipc) Cources on enhancing professional capacities and practical activities.
COURSE OUTPUT	
COURSE	OUTPUT
KNOWLEDGE AND CURRICULUM	<p>1-The concept of knowledge.</p> <p>2-Basic ideas of different school of philosophy of education.</p> <p>3-Relationship between philosophy and education and implications of philosophy for education.</p> <p>4-The impotence and role of education in the progress of Indian society.</p> <p>5-The role of education in promoting national intrgration and international understanding.</p> <p>6-Understand and characteristics of good text books.</p>

COURSE OUTPUT	
CHILDHOOD AND GROWING UP	<p>1-Understand the psychology of learners.</p> <p>2-Acquire knowledge and understanding of adolescent's learners.</p> <p>3-Understanding the process and theories of learning and motivation.</p> <p>4-Understand the techniques of teaching exceptional children.</p> <p>5-Understand the basic concept of measurement and evaluation.</p> <p>6-Understanding the issues of development of learners in different genders, casts and poverty etc.</p>
CONTEMPORARY INDIAN AND EDUCATION	<p>1-Understand the influenced of socio-political forces of the time education.</p> <p>2-Understand the characteristics features, strengths and weaknesses of ancient,medieval,British and contemporary system of education in india.</p> <p>3-Understand the contribution of various major committees and commissions on education set up from time to time.</p> <p>4-Appreciate the development of Indian education in the post-independence era.</p> <p>5-Understand the critical issues of contemporary system of education in india.</p>
EDUCATIONAL ADMINISTRATION AND MANAGEMENT COURSE OBJECTIVES	<p>1-To acquaint the student teachers with the concept of education administration and management.</p> <p>2-To develop and understanding of Educational Administration and management.</p> <p>3-To enable the students of understand the administration of education at different levels.</p> <p>4-To enable the students to understand the role of Headmasters in school management.</p>
PRACTICAL ACTIVITIES	
READING AND REFLECTING ON TEXTS	<p>1-Read and respond to a verity of texts in different ways.</p> <p>2-Enhance their capacity as readers and writers.</p> <p>3-Learn to think together.</p>
MICRO-TEACHING AND ICT IN CLASSROOM	<p>1-Develop practical understanding of various skill of Micro Teaching.</p> <p>2-Adapt ICTs in line with principles of classroom activities of teaching and learning.</p> <p>3-Learn integrating technologies in teaching-learning process.</p>

COURSE OUTPUT	
COURSE	OUTPUT
HOME SCIENCE	<p>1-गृह विज्ञान के प्रति रुचि जागृत होगी।</p> <p>2-शरीर विज्ञान और स्वास्थ्य शिक्षा का ज्ञान उत्पन्न होगा।</p> <p>3-पाक विद्या की जानकारी होगी।</p> <p>4- शिक्षण सहायक सामग्री की क्षमता विकसित करना।</p>
METHODS OF TEACHING MATHEMATICS	<p>1-Understand and appreciate the uses and significance of mathematics in daily life.</p> <p>2-Learn successfully various approaches to mathematics and to use them judiciously.</p> <p>3-Know the methods of planning instruction for the classroom.</p> <p>4-Prepare curricular activities and organize the library in it as per needs.</p> <p>5-Appreciate and organize activities to develop aesthetics of mathematics.</p> <p>6-Obtain feedback both about teaching as well as student's learning.</p>
CIVICS TEACHING	<p>1-know the concept and significance of civics.</p> <p>2-propagate the social ideals through teaching of civics.</p> <p>3-Know the methods of planning instruction for the classroom.</p> <p>4-Know the principles and maxims of teaching the subject.</p> <p>5-Learn successfully various methods of teaching civics.</p> <p>6-Develop instructional support materials.</p>
HISTORY TEACHING	<p>1-Appreciate the need for learning history.</p> <p>2-Develop knowledge about the basic principles governing the construction of history curriculum.</p> <p>3-Develop the classroom skills needed for teaching history using modern methodologies.</p> <p>4-Acquire the ability to complete the plan for institution.</p> <p>5-Develop the ability to organize co-curricular activities and community resource for promoting history learning.</p> <p>6-Acquire the ability to develop instructional support materials.</p>

COURSE OUTPUT	
UNDERSTANDING THE SELF	<p>1-Develop a holistic and integrated understanding of the human self and personality.</p> <p>2-Develop the skills of personal growth.</p> <p>3-Develop social relational sensitivity and effective communication skills</p>
DRAMA,ART AND MUSIC IN EDUCATION	<p>1-Give message to the society regarding educational social problems.</p> <p>2-Understand the functioning of informal agents of education.</p> <p>3-Organize different types of educational activities.</p>

B.Ed SECOND YEAR	
COURSE OUTPUT	
COURSE	OUTPUT
PRINCIPLE AND METHOD OF TEACHING	<p>1-Acquire the knowledge of principles and stages of teaching.</p> <p>2-Develop understanding of process of communication and micro teaching.</p> <p>3-Understand the learners and teacher centered approaches of classroom teaching.</p> <p>4-Identify exceptional children and understand different techniques of teaching.</p> <p>5-Understand the teaching as a profession.</p> <p>6-Develop understanding of various approaches of</p>
PHYSICAL SCIENCE	<p>1-Develop a board understanding of the principles and procedures used in modern science education.</p> <p>2-Develop their essential skill for practicing modern Science Education.</p> <p>3-Develop their skills necessary for practicing instructional accessories.</p> <p>4-Prepare models;select teaching strategies essential for preparing designs of lessons</p> <p>5-Manage instructional activity in such a way that the vast majority of the learners attain most of the objectives of teaching.</p>
BIOLOGICAL SCIENCE	<p>1-Develop a board understanding of the principles and procedures used in modern biology education.</p> <p>2-Develop their essential skills for practicing modern Biology Education.</p> <p>3-Develop their skills necessary for practicing instructional accessories.</p> <p>4-Prepare models;select teaching strategies essential for preparing designs of lessons</p> <p>5-Manage instructional activity in such a way that the vast majority of the learners attain most of the objectives of teaching.</p>
AGRICULTURAL SCIENCE	<p>1-Acquire the ability to develop instructional Support material.</p> <p>2-Develop the classroom skills needed for teaching of Agricultural Science using modern methodology.</p> <p>3-Develop knowledge about the basic principles governing the construction of Agricultural Science curriculum.</p> <p>4-Develop the ability to organize co-curricular activities and community resource for promoting Agricultural Science learning.</p> <p>5-Acquire the ability to complete the plan for instruction.</p>

COURSE OUTPUT	
COURSE	OUTPUT
ENGLISH TEACHING	<p>1-The nature and characteristics of a language and its use.</p> <p>2-The required skills for mastering a language.</p> <p>3-The various approaches to successful language teaching.</p> <p>4-Approaches/Methods of teaching different aspects of language.</p> <p>5-The importance teaching aids and other technological devices used for language teaching.</p> <p>6-Evaluation and testing techniques for obtaining feedback.</p>
HINDI TEACHING	<p>1- मातृभाषा की महत्ता का ज्ञान विकसित होगा।</p> <p>2-मातृभाषा शिक्षण के उद्देश्यों के ज्ञान विकसित होगा।</p> <p>3-हिंदी के शिक्षण की विधियों की जानकारी विकसित होगी।</p> <p>4-हिंदी के शिक्षण की विधियों की जानकारी विकसित होगी।</p>
SANSKRIT TEACHING	<p>1-संस्कृत भाषा की महत्ता का ज्ञान विकसित होगा।</p> <p>2-संस्कृत भाषा शिक्षण के उद्देश्यों के ज्ञान विकसित होगा।</p> <p>3-संस्कृत शिक्षण की विधियों की जानकारी विकसित होगी।</p> <p>4-संस्कृत भाषा के मूल्यांकन की क्षमता का विकास होगा।</p>
POPULATION EDUCATION AND ENVIRONMENTAL EDUCATION	<p>1-To develop in the student teacher an understanding of the concept, need and importance of population and environmental education.</p> <p>2-To enable the student to understand various terminologies connected with population and environmental education and factors responsible for population growth and environmental degradation.</p> <p>3-To develop an awareness in the student teacher of the implications of population growth and awareness of the environment in the various aspects of social functioning.</p> <p>4-To help student teacher to understand the effect of unchecked growth of population on the depletion of natural resources from the environmental.</p> <p>5-To help student teacher to appreciate the role of population education and environmental education for upgrading the quality of social functioning.</p>

COURSE OUTPUT	
COURSE	OUTPUT
GEOGRAPHY TEACHING	<p>1-Develop the understanding of teaching Geography.</p> <p>2-Develop the classroom skills needed for teaching Geography.</p> <p>3-Develop geographical sense,critical thinking and scientific outlook.</p> <p>4-Acquire the ability to develop instructional support materials.</p>
ECONOMICS TEACHING	<p>1-Appreciate the need for learning Economics.</p> <p>2-Develop knowledge about the basic principles governing the construction of economics curriculum.</p> <p>3-Develop the classroom skills needed for teaching of economics using modern methodologies.</p> <p>4-Acquire the ability to complete the plan for instruction.</p> <p>5-Develop the ability to develop instructional support.</p> <p>6-Acquire the ability to develop instructional support.</p>
COMMERCE TEACHING	<p>1-Appreciate the need for learning Commerce.</p> <p>2-Develop the understanding of principles of developing commerce curriculum.</p> <p>3- Develop the skills needed for classroom teaching of commerce using its teaching Methodology.</p> <p>4-Acquire the ability to prepare and teach the lesson plans for classroom instructions.</p> <p>5- Develop the ability to organize co-curricular activities and community resource for promoting commerce teaching.</p> <p>6-Acquire the ability to develop instructional support material for commerce teaching.</p>
ART/HANDICRAFTS TEACHING	<p>1-To know the historical development to Art/handicraft in India.</p> <p>2-To understand the problems of Art/handicrafts in various sections.</p>

DEPARTMENT OF BOTANY

<u>B.Sc. Botany</u>	
Programme Output	<ol style="list-style-type: none">1. To know diverse form of plant and their boundary.2. To understand variation among them.3. To develop insight in principle governing such variations.4. To identify them and orderly grouping to develop systematics and developing understanding their phylogeny.5. To understand various biological phenomenon and factors affecting them.6. To understand inheritance of characters and verify them as well as know their application in human welfare.
Lower Group:	This course deals with boundary of plant kingdom and their different group and representative details. It aims them to make them aware of morphology anatomy and systematics of lower group verify practically. It develops basic skills of mode of working with them and help them in their everyday life.
Angiosperm:	It emphasis the diversity of flowering plants identifying them, grouping and orderly arrangement to develop insight in various system of classification.
Anatomy:	To know the internal structure of diverse form type of cell, tissue, system and correlation between them it helps the students to understand basic structure and their support to the various life processes.
Embryology:	The course provides understanding of various embryological phenomenon and their application in human welfare through theory practical and experimentation some highlights are parthenocarpy, seedless fruits, vegetative propagation, endosperm, embryo rescue and culturing of ovary.
Economics Botany:	It aims to introduce the various plant and plant material useful to man, their characteristics active principle and efficient cultivation parameters
Cytogenetic:	To understand various cytological and genetic process, their application in agriculture and human welfare principle of inheritance, cytoplasmic and quantitative inheritance, gene concept, structure function, interaction mutation etc.
Molecular Genetics:	To understand DNA, RNA, Protein their structure synthesis, applications in human welfare.
Biotechnology:	To develop understanding that how biological form inter- related resultants and their application in human welfare.

Ecology:	Inter relation of plant and environment how they modify each other, why biological form are facing destruction at the cost of environment and their consequence to mankind and ecosystem as well.
Physiology:	To understand various physiological process in plants their mechanism and modification for betterment of human being.
Paleo Botany:	To develop understanding of past forms of plants that existed even today as fossile form impression, cast, compression, coalballs and petrification and using this knowledge. In tracing phylogeny of form and various biological process as well.
Soil Science:	To develop understanding of various soil their formation, physical and chemical properties and factor affecting them and to practice modify them to enhance fertility for agriculture and human welfare. Problem soils their reclamation, phytoremediation and to develop understanding of erosion, conservation and soil fertility and productivity on cause effect relationship.
Morphogenesis:	To develop understanding of various morphogenetic process, origin of different form factor effecting them and repetition of same in artificial condition for human welfare.
Course M.Sc. Botany Algae and Bryophytes:	To know the variety of aquatic photo synthetic plants rom algae and intermediate forms of bryophytes and how their forms and physiology adopted to aquatic and intermediate environments, their application as source of food, diazotrophication, bio fertilizer, surgical dressing, plant propagation and other beneficial uses as single cell protein and space travel.
Pteridophytes:	To develop understanding of form and associated anatomy, life cycle and their grouping to meet phylogenetic one. To develop insight in aquisition of land habit and associated modification.
Gymnosperm:	To develop understanding of naked seeded plants, their morphology, anatomy and life cycles. Their identification and systematics, their fossils and inter relationship among different plants.
Fungi:	To develop understanding of achlorophyllous forms of plants. Their morphology and life cycle forms and diversity of structures. Their

	interrelationship and ability to cause diseases of plant, animal and man and their control for human welfare.
Microbiology:	Study of microbiology forms that are invisible to naked eye. To develop insight in their systematics, phenetic, genetic, phylogenetic and various life process. Their application to human welfare.
Paleobotany:	To study various fossils forms and developing insight in environment of past and how present forms have developed from them as well as to fit the missing links of present forms.
Cytogenetics:	To develop understanding of cell and genetic phenomenon or nature language to express in diversity of forms (morphology and anatomy) physiological and biochemical process as well. Also develop insight in their inheritance, the carrier of life process as cause and effect relationship.
Taxonomy:	To develop understanding of identification, genetic classification of angiosperm forms bar coding of divers forms and developing insight in thrust area of research.
Morphology Anatomy and Embryology of Angiosperm	:To develop understanding of diversities of morphology, anatomy and embryology of angiospermic plants. It aims to develop insight of interactive structural diversity to facilitate variety of function. Students become able to co-relate this relation.
Physiology:	To develop understanding of various physiological process occurs in biological system, role of bioenergetics, thermodynamics, and enzymology in governing them. To identify thrust area of research and to apply these understanding in human welfare.
Plant Pathology:	To develop understanding of disease of crops, etiology, chemical, cultural and biological management of diseases for human host parasite interaction, factors affecting them and disease forecasting for increasing crop productivity by minimizing losses.
<p>* Note: At graduate and post graduate level, a number of poster competition, science exhibition, herbarium preparation, material collection, field visit and lecture competitions organized to develop all-round personality of students. Students learn by doing and it pays rich benefit to students in practical exam</p>	

Seminar:	It aims to provide students a platform to express their understanding of topics selected by them incorporating latest research in the field and write paper in presentable form
Dissertation:	It aims to focus students on precise specific problem and to train them basic techniques associated and conclusion drawn so that they understand and prepare themselves for research. Different students are given different topics after due discussion with faculty and students.

पाठ्यक्रम

बी.ए. प्रथम वर्ष

प्रथम प्रश्न पत्र— हिन्दी नाटक, निबन्ध तथा नवीन गद्य विद्याएँ— इसके अध्ययन से विद्यार्थियों में गद्य विधाओं जैसे—नाटक एकांकी, निबन्ध, आत्मकथा जीवनी यात्रा साहित्य आदि विधाओं का ज्ञान होता है। साथ ही अभिनय तथा रंगमंच कौशल का विकास होता है।

द्वितीय प्रश्न पत्र— आधुनिक काव्य— विद्यार्थियों में आधुनिक काव्य पढ़ने की रुझान, प्रकृति चित्रण एवं सामाजिक समस्याओं का बोध तथा कविता लिखने की प्रेरणा मिलती है।

बी.ए. द्वितीय वर्ष —

प्रथम प्रश्न पत्र—हिन्दी कथा साहित्य—कथा साहित्य के माध्यम से सामाजिक समस्याओं का ज्ञान तथा उसे दूर की इच्छा शक्ति उत्पन्न होती है।

द्वितीय प्रश्न पत्र— हिन्दी साहित्य का इतिहास तथा निबन्ध— विद्यार्थियों में सम्पूर्ण हिन्दी साहित्य का ऐतिहासिक ज्ञान तथा निबन्ध लेखन का विकास होता है।

बी.ए. तृतीय वर्ष—

प्रथम प्रश्न पत्र— मध्यकालीन काव्य— विद्यार्थियों को भक्तिकाल के कवियों एवं भक्ति के उदय का ज्ञान प्राप्त होता है।

द्वितीय प्रश्न पत्र— साहित्यशास्त्र एवं हिन्दी आलोचना— इसके अन्तर्गत विद्यार्थी साहित्यशास्त्र का समीक्षात्मक अध्ययन करते हुए आलोचना के स्वरूप आलोचक के दायित्व का बोध होता है।

तृतीय प्रश्न पत्र—हिन्दी भाषा, देवनागरी लिपि एवं प्रयोजनमूलक हिन्दी— इससे भाषा एवं भाषा के क्रमिक विकास, लिपि तथा रोजगार परक हिन्दी भाषा का ज्ञान प्राप्त होता है।

Department of ZOOLOGY

B.Sc

Outcome	<ol style="list-style-type: none"> 1. Developed knowledge and understood of living organisms at several levels of Zoological and Biological organization from the molecular, through to cells and whole organisms and ecosystems all organs of evolutionary perspectives 2. Developed scientific outlook not only with respect to science subjects but also in all aspects related to life. 3. Understood the basic concepts, fundamental principles, and the scientific theories related to various scientific phenomena and their relevancies in the day-to-day life. 4. The evidences of comparative biology to explain how the theory of evolution offers the only scientific explanation for the unity and diversity of life on earth.
Lower non chordate –	They are cylindrical, triploblastic, coelomate, or pseudocoelomate animals.
Higher non chordate-	Are animals without a notochord? They are the most abundant and diversified of all animals living or extinct.
Elements of cell biology	The cells of living things are made mainly of four elements: carbon, hydrogen, oxygen and nitrogen.
Ecology	The study of how organisms interact with one another and with their physical environment. The distribution and abundance of organisms on Earth is shaped by biotic, living-organism-related, and abiotic, non-living or physical, factors.
Evolution	It is change in the heritable characteristics of biological populations over successive generations. These characteristics are the expressions of genes ...
Vertebrata	Also called Craniata , any animal of the subphylum. Vertebrata, the predominant subphylum of the phylum chordata . They have backbones, from which they derive their name.
Animal physiology and biochemistry	The study of living organisms at the molecular level; the building blocks from which they are made and the chemical processes that determine life itself. We understand the biology of an organism; the functioning of different cells, tissues, organs and other anatomical structures.
Protochordata	Any of the small marine animals belonging to the phylum Hemichordata or to either of the chordate subphyla Urochordata and Cephalochordata, characterized (at some point in the life cycle) by a hollow dorsal nerve cord, a notochord, and gill slits; a hemichordate, urochordate, or cephalochordate, or a hypothetical.
Histology	The study of the microanatomy of cells, tissues, and organs as seen through a microscope. It examines the correlation between structure and function.
Embryology	The branch of biology that studies the prenatal development of gametes (sex cells), fertilization, and development of embryos and fetuses.

Environmental biology and toxicology	Environmental toxicology is a multidisciplinary field of science concerned with the study of the harmful effects of various chemical, biological and physical agents on living organisms.
Economic zoology	Deals with the application of zoological knowledge for the benefit of mankind. It includes culturing animals for mass production for human use and to control or eradicate animals that are injurious to man directly or indirectly.
Elementary biostatistics	The development and application of statistical methods to a wide range of topics in biology. It encompasses the design of biological experiments, the collection and analysis of data from those experiments and the interpretation of the results.
Regulatory mechanism in vertebrates	Those which are found in industrial control systems have been around for a long time.
Cell physiology and biotechnology	Study of normal function within living creatures. It is a sub-section of biology, covering a range of topics that include organs, anatomy, cells, biological compounds, and how they all interact to make life possible.
M.Sc semester choice based credit system	
Non chordate	Are animals without a notochord. They are the most abundant and diversified of all animals living or extinct.
Tool & technique in biological sciences	Scientists use tools to help with their scientific investigations. The laboratory equipment that scientist use helps them to observe, measure, collect, and gather data as they investigate their problem or question.
Comparative animal physiology	Is a subdiscipline of physiology that studies and exploits the diversity of functional characteristics of various kinds of organisms. It is closely related to evolutionary physiology and environmental physiology.
Biological chemistry	The study of chemical processes within and relating to living organisms. ... Biochemistry is closely related to molecular biology, the study of the molecular mechanisms of biological phenomena.
Origin and evolution of chordate	Some deuterostome ancestor (echinoderms, hemichordates, pogonophorans etc.) as they have similarities in embryonic development, type of coelom and larval stages.
Systematic	If you do something systematically, you do it in an orderly, methodical way. something that's carried out in a deliberate way, especially following a plan
Biodiversity and evolution	The diversity of alleles, genes and organisms. They study processes such as mutation and gene transfer that drive evolution.
Cytogenetics	Is concerned with how the chromosomes relate to cell behaviour, particularly to their behaviour during mitosis and meiosis.
Developmental biology	The study of the process by which organisms grow and develop. Modern developmental biology studies the genetic control of cell growth, differentiation and "morphogenesis," which is the process that gives rise to tissues, organs and anatomy.
Principle of	Describe various aspects of living organisms e.g. evolution and

ecology	distribution of plants and animals, extinction of species consumption and transfer of energy in different components of biological communities, cycling and recycling of organic and inorganic ...
Biostatistics & computational biology	Includes many aspects of bioinformatics, is the science of using biological data to develop algorithms or models to understand biological systems and relationships
Applied zoology	The zoological disciplines studying morphology, physiology and ethology of animals in various conditions of dwelling also surely have in the structure a special course on research projects
Animal behaviour	Includes all the ways animals interact with other organisms and the physical environment. Behavior can also be defined as a change in the activity of an organism in response to a stimulus, an external or internal cue or combo of cues.
Cell biology	The study of cell structure and function, and it revolves around the concept that the cell is the fundamental unit of life. Focusing on the cell permits a detailed understanding of the tissues and organisms that cells compose.
Cytological technique	Methods used in the study or manipulation of cells. These include methods used in cell biology to culture, track, phenotype, sort and screen cells in populations or tissues, and molecular methods to understand cellular function.
Dissertation	Is a document submitted in support of candidature for an academic degree or professional qualification presenting the author's research and findings.
Special lecture by guest faculty	An important part of the educational experience for students. They expose students to real-world life experiences from the position of someone who has been there. ... One important benefit that is derived from having a guest speaker is the enhancement of the students' educational experience.

COMMERCE DEPARTMENT

PROGRAM OUTCOME

- B.COM.-To provide basic knowledge of principles and laws of business.

To understand vivid concepts and significance to humanities.

To apply the concept to working conditions.

- M.COM.-To gain decision making skill and ability under dynamic business environment.
To acquire ability to solve pressing problems of business management.
- CERTIFICATE PROGRAMMES-To gain ability to work in computerized environment regarding business processes.

PROGRAM SPECIFIC OUTCOME

- B.COM.-Student acquires working level knowledge in field of business accounting and business administration viz. marketing economic forecasting.
- M.COM.-Student obtains rational thinking toward solving relevant problems of society and business by using real time skill.

COURSE OUTCOME

- ACCOUNT AND STATISTICS-This course refers to develop numeral ability among students covering basic financial accounting principles and methods ,business statistics used for forecasting and decision making cost control techniques ,marginal costing techniques, tax laws and its implementation ,auditing procedures of managerial efficiency and decision making accounting corporate financial statement as per corporate law, preparation and presentation.
- BUSINESS ADMINISTRATION ON –This course provides the students general understanding of business administration principle viz. Principles of management ,business communication

as effective tool for coordinating managerial function ,specific lows related to business practices, corporate low concerned to corporate governance mean while marketing practices, human resource management abilities.

- **ECONOMIC AND FISCAL ADMINISTRATION**-The student learn general concept of economic environment such as money and financial system economic lows related to business forecasting, pressing business environment. Entrepreneurial decision making, impact of monetary economics over businesses procedures and society covering Banking regulation and development and administration.

ENGLISH DEPARTMENT

PROGRAM OUTPUT	<p><i>Study of English literature opens up a world of inspiration and creativity. It also develops skills which are essential for today's global environment. It gives a chance to discover how literature make sense of the world through stories, poems, novels and plays</i></p>
COURSE OUTPUT	
COURSE	OUTPUT
ENGLISH LANGUAGE AND COMMUNICATION SKILL	<p><i>To develop verbal and communication skill. To help carrier growth. To enhance strong business relation. To train professional communication ability. To develop creative ideas and plans. Ability to build constructive and logical argument. To clearly describe, communicate and summarize</i></p>
ENGLISH POETRY, PROSE AND DRAMA FROM 16TH- 18TH CENTUARY	<p><i>To provide oppportunity to know literary development of the 16th to 18th century literature. To Know different forms of poetry such as Sonnet, Epic, Elegy, Lyric and Metaphysical poetry. To know the Essay as a form of Prose. To Know types of Drama: Tragedy-Comedy Characteristic of Shakespearean Tragedy and Comedy To know Renaissance Reformation Neo-classism</i></p>
POETRY II	<p><i>To know war poetry and poets. To know modernism. To know Characteristic modern age literature. To know Indian writing in English literature. To know Anglo- Indian literature. To know modern poets. To difference between classical, neo-classical, romantic and modern poetry.</i></p>

<p>DRAMA-I</p>	<p><i>To Know types of Drama: Tragedy-Comedy and problem play</i> <i>Characteristic of Shakespearean Tragedy and Comedy</i> <i>To know comedy of manners</i> <i>To know the Characteristic of restoration drama.</i> <i>To know the difference between short story and drama</i> <i>To provide effective way of building variety of communication skills in an empowering and engaging way.</i> <i>To provide an outlet for emotions, thoughts and dreams that day might not otherwise have means to express.</i></p>
<p>DRAMA-II</p>	<p><i>To know the Impact of world war I and II on English Drama.</i> <i>To provide effective way of building variety of communication skills in an empowering and engaging way.</i> <i>To provide an outlet for emotions, thoughts and dreams that day might not otherwise have means to express.</i> <i>Indian writing in English Drama.</i> <i>Translation in English Literature.</i> <i>To know feminism and contribution in English Literature</i></p>
<p>FICTION</p>	<p><i>To know History, development and types of novel.</i> <i>To look at the world through the eye of protagonist.</i> <i>To open a window to another place when to forget about trouble for a short while.</i> <i>To view life and our problems in perception</i> <i>To empathy: imagining which creates understanding.</i> <i>To increase reality simulation.</i></p>
<p>LITERARY MOVEMENTS AND CRITICISM</p>	<p><i>To know about the literary movements-</i> <i>Renaissance</i> <i>Reformation</i> <i>Neo-classicism</i> <i>Romanticism</i> <i>Victorian Compromise</i> <i>Pre-Raphaelite movement</i> <i>Modernism</i> <i>The Movement</i> <i>The Absurd</i> <i>To know critical terms-</i> <i>Three unities</i> <i>Catharsis</i> <i>Hamartia</i> <i>Negative Capability</i> <i>Dissociation of sensibility</i> <i>Objective- Co-relative</i> <i>Realism</i></p>

	<p>Naturalism Symbolism Imagism Magic realism Allegory etc. To know types of criticism, importance of criticism in literature. To practice practical criticism in verse and prose</p>
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MATHEMATICS DEPARTMENT

- Programmes output

<i>Programmes output</i>	<i>1.To define the basic theorem in mathematics</i>
	<i>2.To understand the concepts and application</i>
	<i>3. To apply the theories learnt and skill acquired to solve real life problem</i>
<i>Course</i>	<i>Course out put</i>
<i>1. Algebra and trigonometry</i>	<i>This course aims to enable the student with understanding the basic concept of sets , groups , homomorphism,, isomorphism, and theorems in trigonometry such as De-Moivre's theorem , Euler's theorem and their applications.</i>
<i>2. Advanced calculus</i>	<i>This course aims to provide basic concepts of limit continuity and differentiability, maxima minima Expansion of functions , Taylor's series Maclaurin's series , multiple integral, Beta gamma functions and their applications.</i>
<i>3. Differential equation</i>	<i>This course aims to provide basic concepts of differential equations such as to understanding orders, degree, and solving differential equations of higher order, Laplace transform and their applications.</i>
<i>4 Analytical geometry</i>	<i>The course aims to provide basic concepts to d.e such as to understand order ,degree of d.e and solving d.e of higher order ,laplace transform and their concepts</i>
<i>5 Abstract algebra</i>	<i>This course aim to provide the basics concepts ,rings ,integral domain, field, vector space</i>

	<i>,matrices ,rank e.t.c</i>
6 <i>Real analysis</i>	<i>This course aim to provide the basics concepts of real number ,limit ,continuity and differentiability ,convergence of series e.t.c</i>
7 <i>Advanced calculus vector analysis and numerical analysis</i>	<i>This course aim to provide the basics concepts of numerical analysis ,jacobians ,maxima minima e.t.c</i>
8 <i>Statics and dynimics</i>	<i>This course aim to provide the basics concepts of equilibrium of rigide body ,virtual work ,catnery , stable and un stable concepts of kinitics e.t.c</i>
9 <i>Metrics space</i>	<i>This course aim to provide the basics concepts of open set ,close set ,limit point ,sub space ,compactness ,e.t,c</i>
10 <i>Complex analysis</i>	<i>This course aim to provide the concepts of complex number ,analytics function complex integration e.tc ,</i>
11 <i>.Tensor and diff. geometry</i>	<i>This course aim to provide the concepts of tensor algebra and use tensor notation to derive a geometry</i>
12 <i>Mechanics</i>	<i>This course aim to provide the concepts of three dimension body central forces ,de almbert principal e.t.c</i>
13 <i>Linear programming problem and game theory</i>	<i>This course aim to provide the concepts of L.p.p. game theory assinement transportation ,and inegers .p.p. e.t.c</i>

PSYCHOLOGY DEPARTMENT

PROGRAM OUTPUT	<ol style="list-style-type: none"> 1. Investigate human behavior, developing into how people think, how they learn, and how they develop emotionally and socially. 2. To explain behavior's by conducting experiments. 3. Make a measurement of behavior and predicting what people do in future. 4. To change or modify the behavior of individuals
COURSE OUTPUT	
COURSE	OUTPT
Basic psychological processes	The aims are to provide the students basic understanding about basic psychological processes (sensation, perception, learning, memory, problem solving, thinking etc.) both of their theories and their practical applications.
Environmental Psychology	The aim of environmental psychology is to provide our student better understanding of human behavior aimed towards the environment. It focuses on the relationship between individuals and their surroundings. This includes the study of human behavior that interacts with the natural and physical environment.
Social Psychology	The main aim of social psychology is to provide knowledge to our students how social interactions and social influences effect behavior. It also aimed to understand cognition and behavior as they naturally occur in a social context.
Statistics in psychology	Aimed to present data in ways that are easier to comprehend for students. Statistics for a number of reasons, including to find relationship between different variables and to use data to draw more general conclusions regarding our society. With all, it concern with the theory and technique of psychological measurement.
History and system of psychology	Students will learn about the history of psychology in different ages from ancient concept to the most modern structure. It encompasses the lives as well as the concept of all those philosophers or psychologists who worked for the subject directly or indirectly including Greek thinkers, German contributions, Russian psychology and different schools of thought i.e. structuralism, functionalism, behaviorism, gestalts etc.
Personality and Psychopathology	The course to learn scientific study of mental disorders, including efforts to understand their genetic, psychological and social causes. Also know how people are individually different due to psychological forces.
Psychology of life span development	Aim to explain how and why human being changes over the course (Physical, motor, social, emotional, personality, cognition etc.) of their life. Originally concern with conception, infants and children, the field has expended to include adolescence, adult development, ageing, and the entire life span.

ECONOMICS DEPARTMENT

<p><i>Programme output</i></p>	<p>To understand the concept and significance of economics in human life.</p> <p>To define the basic laws and application of economics.</p> <p>To define the techniques to understand the application of economics.</p>
<p><i>Course output</i></p>	
<p><i>Micro Economics</i></p>	<p>This course provide to students to understand the basic law and application of demand and supply of economic factors.</p>
<p><i>Indian economy and elementary statistics</i></p>	<p>This course aims to improve the understanding level of students to understand central tendency with elementary knowledge of Indian economy.</p>
<p><i>Money banking and international trade</i></p>	<p>This course aims to provide basic concept of money, banking and international transactions with exchange rate.</p>
<p><i>Public finance and employment theory</i></p>	<p>It provides basic knowledge about effect of taxation and budget system as well as employment based theories.</p>
<p><i>Macro economics</i></p>	<p>This course aims to provide understanding of macroeconomic variables of the economy like investment, consumption, saving, employment, national income, distribution of national income etc.</p>
<p><i>Develop planning and environmental economics</i></p>	<p>Purpose of this course is providing to knowledge about developmental policies of India and environmental effect of economic activities on human welfare.</p>
<p><i>Quantitative techniques (mathematics and statistics)</i></p>	<p>The objective of this course is to provide basic concept of mathematical and statistical calculations.</p>
<p><i>History of economic thought</i></p>	<p>Intension of this course to provide basic or fundamental knowledge of economics provided by Classical, Keynesian and Modern economists.</p>

GEOGRAPHY DEPARTMENT

OUTPUT COURSES	<i>To define the basic method use in Geography</i>
	<i>To know about the role of weather instruments in Geography</i>
	<i>to give the knowledge of use of computer in geography</i>
	<i>The student are trained to work cartography department and metrological department and varrius mapping institute</i>
	<i>To give the knowledge of remote sensing and GIS</i>
PHYSICAL GEOGRAPHY	<i>Its gives knowledge of earth and its structure</i>
HUMAN GEOGRAPHY	<i>Its gives knowledge orgine of man of the earth</i>
ECONOMIC GEOGRAPHY	<i>Aim of this course to provide knowledge abut .econamice activetis and impact on the earth</i>
GEOGRAPHY OF INDIA	<i>This course provide the knowledge.of structural pheonomena of india,culcural part also.</i>
GEOGRAPHICAL THOUGHT	<i>Aim of this course to provide knowledge,of geography evulation and development concepts and issus.</i>
WORLD REGIONAL GEOGRAPHY	<i>Gives a knowledge about the world region</i>
ENVIORMENT & ECOLOGY	<i>To provide a knowledge about environment and environmental crisis, ecosystem.</i>
GEOMORPHOLOGY	<i>Its gives knowledge about land scape geomorphological knowledge to regional planning</i>
MAN AND BIO- SPHERE	<i>This course provides huge knowledge about man and enviorment relationseep</i>
GEOGRAPHY OF RESOURCE	<i>It provides a knowledge about resourses of the world and impact of man on the resousorse adequacy and</i>

	<i>scarsity</i>
CARTOGRAPHY	<i>This course gives knowledge about mapping data collection and prese collection</i>
CLIMETOLOGY AND OCEANOGRAPHY	<i>To know about climet, atmosphere structur and fuction..oceanography is the paper of morphological knowledge of ocean</i>
ADVANCED GEOGRAPHY OF INDIA	<i>Its give huge knowledge of india and its reeleif featur rever system spaciol ospect of population agriculture development industrial region transport network marketing and banking economic development and other prospects</i>
POPULATION GEOGRAPHY	<i>Its give knowledge.about problmas population compotions population policys in developed and developing country.</i>
POLITICAL GEOGRAPHY	<i>Determination of geopolitical knowledge orgin and sucsees of political administrative problems and analysis of data and cartographic reprasentetion</i>

COMPUTER SCIENCE

PROGRAM OUTPUT	DEPARTMENT OF COMPUTER SCIENCE(B.Sc.)
	<ol style="list-style-type: none"> 1. Students will attain an ability to analyse a problem, and identify and define the computing requirements appropriate to its solution. 2. Students will attain an ability to apply knowledge of computing and mathematics appropriate to the discipline. 3. Students will attain recognition of the need for an ability to engage in continuing professional development. 4. Students will attain an ability to use current techniques, skills, and tools necessary for computing practice. 5. Students will attain an ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems 6. Students will attain an ability to apply design and development principles in the construction of software systems of varying complexity.

COURSE OUTPUT	
Introduction to computer and Programming	<p>This course aims the students to show how computer hardware represents information and explain how computing components may be combined to build computer systems.</p> <p>General problem-solving strategies to the development of computer algorithms.</p> <p>Computer programs to express and implement algorithms to solve problems.</p> <p>Identify and explain the application of abstract data types such as stacks, queues, lists, trees and graphs. The object-oriented methodology to computer problem solving.</p> <p>The role of an operating system in managing and interacting with computer system components including main and secondary memory. Information system software to organize, manipulate, and secure data and describe ways computer networks are used to communicate and share resources and facilitate web processing.</p>
Digital electronic and computer organization	<p>This course aims the students to understand operation of semiconductor devices and</p> <p>to understand number representation and conversion between different representation in digital electronic circuits. To analyse logic processes and implement logical operations using combinational logic circuits. To understand characteristics of memory and their classification and concepts of sequential circuits to analyse sequential systems in terms of state machines.</p>
Operating System	<p>This course aims the students to understand the working of an OS as a resource manager, file system manager, process manager, memory manager and I/O manager and methods used to implement the different parts of operating system.</p>
Data Structure	<p>This course aims the students to understand and remember algorithms and its analysis procedure. The concept of data structures through ADT including List, Stack, Queues. Introduce various techniques for representation of the data in the real world. Develop application using data structure algorithms. 6 Compute the complexity through various programs.</p>
Discrete Mathematics	<p>Understand the notion of mathematical thinking, mathematical proofs and be able to apply them in problem solving. Understand the basics of discrete probability and number theory, and be able to apply the methods in problem solving. Be able to use effectively algebraic techniques to analyze basic discrete structures and algorithms. Understand asymptotic notation, its significance, and be able to use it to analyze asymptotic performance for some basic algorithmic examples.</p> <p>Understand some basic properties of graphs and related discrete structures, and be able to relate these to practical examples. Graphs. Basic graph algorithms. Trees. Applications of graphs. Applications of linear algebra and matrix algebra in algorithms (e.g., in web searching).</p>

Database Management system	To describe a sound introduction to the discipline of database management systems. To give a good formal foundation students will able to: Explain the features of database management systems and Relational database. Design conceptual models of a database using ER modeling DEPARTMENT OF INFORMATION TECHNOLOGY on the relational model of data and usage of Relational Algebra. The concepts of basic SQL as a universal Database language. Enhance knowledge to advanced Foxpro topics, procedures connectivity. Demonstrate the principles behind systematic database design approaches by covering conceptual design, logical design through normalization. Provide an overview of physical design of a database system, by discussing Database indexing techniques and storage techniques.
Data Communication and Networking	Students will able to: Study the basic principles and techniques used in analog and digital communications. Understand the concept of noise and Fourier transform for designing and analysing. Differentiate analog and digital communication systems. Identify different types of noise occurred, its minimization and able to apply Fourier analysis in frequency DEPARTMENT OF INFORMATION TECHNOLOGY communication system. Acquire the knowledge of different modulation techniques such as AM , FM and study the block diagrams of transmitter and receiver. Study the Sampling theorem and Pulse Analog Modulation techniques. Learn the concepts of Digital modulation techniques such as PCM, DM, ADM and multiplexing techniques. Study the basic taxonomy and terminology of the computer networking and enumerate the layers of OSI model and TCP/IP model. Acquire knowledge of Application layer and Presentation layer paradigms and protocols. Gain core knowledge of Network layer routing protocols and IP addressing.
Statistical and Numerical Analysis	Students will able to acquire basic knowledge in finding the rank of matrices and analyzing them. Solving algebraic and transcendental equations by various numerical methods. Estimating the missing data through interpolation methods. Identification of errors in the experimental data. Finding the values of integrals through various numerical methods. Solving differential equations numerically when analytical methods fail. Systems of linear equations. Fitting of polynomials and different types of equations to the experimental data.
Computer Architecture and Microprocessor	Students will able to acquire basic knowledge of the history and development of computational devices. Identifying the different classes of computing applications and their characteristics (i.e. desktop computers, servers, and embedded computers). Listing the components of a computational system (i.e. Input, Output, Memory, Data path, control) and understanding their functionality. Distinguishing between Reduced Instruction Set Computer (RISC) and Complex Instruction Set Computer (CISC) instruction sets and identifying the advantages and disadvantages of each. Describing the stages of the common five stage pipeline (i.e. Instruction Fetch, Instruction Decode, Execute, Memory). Identifying data paths for various operations including arithmetic operations of a microprocessor.

Object Oriented System	<p>Students will able to understand programs using C++ language learnt in theory session. C++ Programming assignments based on class, inheritance, abstraction, encapsulation, dynamic binding, polymorphism, I/O systems, exception handling should be covered DS using C++ assignments should be based on Stacks, Queue, Linked List.</p> <p>Use the characteristics of an object-oriented programming language in a program. Use the basic object-oriented design principles in computer problem solving. Use the basic principles of software engineering in managing complex software project. Develop programs in the programming environment. The course also reinforces the students learning outcomes of the university: a) Effectively express themselves in written and oral form b) Demonstrate ability to think critically c) Locate and use information d) Demonstrate ability to integrate knowledge and idea in a coherent and meaningful manner e) Work effectively with others</p>

POLITICAL SCIENCE

Program Output-	<ol style="list-style-type: none"> 1. To define the basic concept of political science. 2. To understand the Concept and Significance of the state government their different structure. 3. To understand constitution and constitutional procedure including constitutional bodies. 4. To understand concept and thought of significant international political global scenario.
	Course Output (U.G.)
Principal of Pol. Sc.	This course aims the student to enable them to know about basic principle of political science and concept state sovereignty, Liberty e.t.c.
Modern Govt. and constitution of USA & UK	To aims is to provide the student basic understanding about forms of govt and constitution of USA and UK.
History of Political thought & world constitution	This paper aim the student to develop understanding about ancient indian and western political thinker like Kautilya, Gandhi, Plato, Aristotle e.t.c. and constitution of India, Swiss, France, China and Nepal.
Concept and ISM	To aims to provide understanding about political ideologies and modern relevant concept like political development in organization. Power, Idealism, Anarchism e.t.c.
Public Administration -	This paper aims the student to enable and developing awareness about Administration's basic concept theory, organization and budget..
2 International Relation-	To aim is to provide the basic concept about international relation indain foreign policy and major world organization.
	Course Output (P.G.)

History of Political thought	<i>This paper aim the student to develop understanding about wide speetmm of political thought which influenced attitude of student</i>
Comparative govt and Politics	<i>This paper aims to learn the theoretical understanding about the forms of govt and compare of various country govt like USA,UK, France, Swiss e.t.c.</i>
Advanced Public Administration	<i>This paper provides the student to learn and understanding about Administration's basic concept and theory, role of administration in developing countries.</i>
Indian National Movement and constitutional development	<i>This paper aims the student to develop understanding about indian national movement impact on our society and developmental procedure of constitution like Act of 1909. Act of 1919 Act of 1935, Cabinet mission cripps Plan e.t.c.</i>
Contemporary Political thought	<i>This paper aims the student to develop understanding about contemporary political thought Bentham to update like. Marx and Post Marx John Rawls M.N. Roy Karl popper e.t.c.</i>
International Politics	<i>This paper aims the student to enable and increase the awareness about world politics main concept and theory, foreign policy, nuclear policy and relation of India with neighbours and other Powerful countries.</i>
International Law	<i>This paper aims the student to develop understanding about Indian constitutional organization posts and structure and deep awareness about modern Indian political and democratic system.</i>
International Organization	<i>This paper aims the student to develop history of first and second world war, organization and function of League of Nation, United Nation, regional organization like, Saarc, Asean, ILO, WHO, UNESCO, UNICEF e.t.c.</i>

SOCIOLOGY

Outcomes of Course	Department of Sociology
	<ol style="list-style-type: none"> 1. The Sociology Department seeks to develop in students the sociological knowledge and skills that will enable them to think critically and imaginatively about society and social issues. 2. The Department encourages a commitment to social justice based on an appreciation of social and intellectual diversity and an awareness of social inequality. 2. To improve the quality of teaching, research and extensions programs. 3. To developed the department as a higher centre of excellence. 4. To improve infrastructural facilities.
Element of Sociology	<ol style="list-style-type: none"> 1. Define theory and describe its role in building sociological knowledge. 2. Apply basic theories or theoretical approaches in at least one area of social reality. 3. Apply the sociological imagination, sociological principles and concepts to her/his own life. 4. Describe how sociology differs from and is similar to other social sciences, and give examples of these differences.
Indian Social Institutions	<p>Social institutions play a significant role in the functioning of a society by regulating the activities of the individuals and fulfilling their needs. Though they are universal to every society, they are not uniform in their characteristics and in terms of the norms they prescribe. They vary from society to society and across cultures. The present paper is designed to introduce to the students the basic social institutions which are fundamental to the lives of the people and significant to the functioning of the society.</p>
Social Control and Social change	<ol style="list-style-type: none"> 1. The concept of social control has been around since the formation of organized sociology. 2. The term social control keep individuals bound to conventional standards as well as the use of formalized mechanisms. 3. The concept of social control is related to the notion of social order that identified as existing in the following areas of society like system, Policing and the law, Social, welfare state and working environment.
Social disorganization	<p>This paper is designed to impress upon a student the concept of deviant behavior leading to social disorganization, forms, theoretical foundations and criminal activities which he encounters in real life situations</p>

<p>Perspectives in Sociology</p>	<p>This paper grasps how sociology uniquely contributes to an understanding of the social world and human experience. It apply a sociological perspective and sociological concepts and principles to substantive areas addressed by sociologists to understand how patterns of thought and knowledge are influenced by social, political, economic structures.</p>
<p>Social Anthropology</p>	<p>Student should develop a understanding and appreciation of human biological, linguistic, and cultural diversity, especially those features that separates humans from other species. An appreciation and awareness of the origin of both cultural and human biological diversity through time. It provide a positive appreciation of the diversity in contemporary and past societies and cultures to understand the three main anthropological approaches to the study of humanity like cross-cultural comparison, holism, and evolutionary theory, and the uses of each.</p>
<p>Sociology of Movement of India</p>	<p>Movements reflect the voices raised against the prevailing practices of a society. Every society witnesses social movement in some form or the other. Movements bring social change and transformation. It is a collective effort that is driven by particular issues and brings forth changes. The present paper tries to provide a rudimentary impression to the students about the concept, nature and types of movements with a thrust on the movements witnessed by Indian society</p>
<p>History of Social Thought</p>	<p>The role of <i>theory</i> in sociology, such that the student will be able to define the theory and describe its role in building sociological knowledge and also compare and contrast basic theoretical orientations. This paper show how theories reflect the historical context of the times and cultures in which they were developed. It also differentiates theoretical approaches that would explain current social phenomena.</p>
<p>Methods of Social Research</p>	<ol style="list-style-type: none"> 1. To dentify basic methodological approaches and describe the general role of methods in building sociological knowledge. 2. Compare and contrast the basic methodological approaches for gathering data. 3. Design a research study in an area of choice and explain why various choices were made. 4. Use computers and statistical procedures in gathering, analyzing and interpreting data.

	<p>5. Critically assess a published research report and explain how the study could have been improved.</p> <p>6.To Understand ethical codes that govern the conduct of sociologists and how sociological knowledge may be applied to people and lives.</p>
Sociology of Development	<p>Development sociology is the study of the causes and consequences of economic change in society. The study of development has been one of the fundamental aspects of sociology since the beginnings of the discipline. Development Sociology investigates the practices and processes of social change. In this sense the sociology of development addresses pressing intellectual challenges: internal and international migration, transformation of political regimes, changes in household and family formations, technological change, sustainable (and unsustainable) population and economic growth, and the production and reproduction of social and economic inequality.</p>
Sociology and Culture in contemporary India	<p>This paper is expected to bring familiarity in a student about Indian society. It will present a comprehensive, integrated and empirically based profile of Indian society. It is hoped that the structure and processes operative in the society, the change agents operating in Indian society presented in this course will also enable students to gain a better understanding of their society.</p>
Emile Durkheim	<p>Functionalist sociologist Emile Durkheim saw Education as performing two major functions in advanced industrial societies transmitting the shared values of society and simultaneously teaching the specialised skills for an economy based on a specialised division of labour.</p>
Advanced course in sociological Theory	<p>Sociological theories help us to understand and predict events in the world. It is a framework from which we analyse the diverse selection of social phenomena of humans found throughout the world. It is useful because it not only aids our perception of reality but also provides us the ability to see things we have never known. To demonstrate competency in social theory students will at the micro, meso and macro levels</p>

Rural Society and community development	The student can have a grip on the grass roots of Indian society. This will enable the student to understand the society in a better manner to note the heterogeneities in culture, institutions and their functions, changes the contrasts found between the rural urban societies and the problems faced by the people.
Urban Sociology	The very aim of this paper is to acquaint the students with the process of urbanization, to give an impression about the pattern of evolution of cities, urban institutions, their contrasts with rural institutions, urban problems and the responses developed to arrest them.
Criminology and Penology	Criminology is the study of the making, breaking and society's reaction to the breaking of laws. To demonstrate competency in the area of criminology and deviance students will at the micro, meso, macro levels of analysis. the term penology which means punishment for criminals. Sociology has many branches in which there is a criminology branch which studies the actions and thought the process of a criminal mind. We provide the students with a learning experience that will help instil deep interest in the subject, develop broad, balanced knowledge and understanding of key criminological concepts, principles and theories and equip students with the appropriate tools of analysis to tackle problems in the field. It develop students' ability to understand the modus operandi of crimes and the variations involved in it the approaches required to handle these circumstances and to draw appropriate inferences from them. It also Provide the students with the knowledge and skill base that would enable them to undertake further studies in Criminology and related areas or in multi-disciplinary areas.

STATISTICS

Department of Statistics

Program output	<ol style="list-style-type: none"> 1. To define the basic laws involved in Statistics. 2. To understand the concept and significance of the various statistical phenomena. 3. To carry out experiments to understand the laws and concepts of statistics.
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Course Output

Course	Output
<i>Probability Theory</i>	This course aims to provide basic concept of probability, discrete and continuous random variables, expectation of random variable and its properties and distribution.
<i>Descriptive Statistics</i>	This course aims to provide presentation of data and analysis of different types of data.
<i>Numerical Methods and Programming in C</i>	This course aims to provide numerical analysis of data and use of different method and also basic knowledge of programming with C.
<i>Statistical Methods</i>	This course aims to provide properties of estimators, method of estimation, theory of testing of hypothesis and large sample test.
<i>Distribution Theory</i>	This course aims to provide transformation of random variable, discrete, continuous and sampling distribution. Also understand the concept of order statistics.
<i>Sampling and Design of Experiments</i>	This course aims to provide collection and scrutiny of data, sample surveys, analysis of variance and design of experiments.
<i>Applied Statistics</i>	This course aims to provide demographic method, statistical process and product control, principles of acceptance sampling, index number and time series.
<i>Industrial Statistics and Operations Management</i>	This course aims to provide reliability concept. Convex sets and function, linear programming, transportation problem and assignment.
<i>Linear Regression and Data Analysis</i>	This course aims to provide concept of linear regression and data analysis. Stochastic simulation, transportation problem and non-parametric methods.
<i>Statistical Inference</i>	This course aims to provide introduction of parametric models and problems of statistical inference, hypotheses testing, confidence estimation and sequential analysis.

EDUCATION DEPARTMENT

PROGRAM OUTPUT	DEPARTMENT OF EDUCATION
	<p>Learning outcomes are statements that describe the knowledge or skills students should acquire by the end of a particular assignment, class, course or program and help students understand why that knowledge and those skills will be useful to them.</p>
COURSE	<i>OUTPUT</i>
Education and Society	<ul style="list-style-type: none"> • Nature and scope of education • Aim of education and function of education • The roll of freedom and discipline in education. • Meaning of curriculum and principle of its construction. • The roll of state and religion in education. • The roll of education in national integration.
History of Indian Education	<ul style="list-style-type: none"> • To understand the development of education in India in historical perspective. • To understand the silent features of Indian education, Ancient, Medieval and Modern period.
Educational Psychology and Statistics	<ul style="list-style-type: none"> • The meaning ,scope and uses of psychology in education • Human growth and development upto the stage of adolescence • The concept of intelligence and its measurement. • Meaning and purpose of elementary educational statistics.
Educational Thought and Practices	<ul style="list-style-type: none"> • To enable the student to develop an understanding of basic school of educational Philosophy. • To obtain an understanding of the philosophical concepts given by Indian and Western educational thinker.

Innovation in Education	<ul style="list-style-type: none"> ▪ Have the knowledge of the Meaning, scope and need of innovation in education. ▪ Be acquainted with the new trends in educational system in India. ▪ Evaluate the impact of innovations on educational system.
Continuing Education	<ul style="list-style-type: none"> • Understand the concept and significance of continuing education and its need. • Know about the various programmes of continuing education. • Understand the importance of continuing education in the process of social change • Know about the role of state and voluntary agencies in continuing education.
Problems of Indian Education	<ul style="list-style-type: none"> • Understand the major problems of Indian education. • Appreciate the difficulties involved in the improvement of educational facilities. • Visualize and seek solutions to these problems.

HISTORY

B.A. First Year First Paper	यूरोप का इतिहास, पुनर्जागरण, धार्मिक सुधार आन्दोलन, इंग्लैंड की शासन व्यवस्था संसदीय व्यवस्था, मार्टिन लूथर का धर्म सुधार, सप्तवर्षीय युद्ध, तीस वर्षीय युद्ध, पोलैंड का विभाजन, फ्रांस व स्पेन का संघर्ष, पोप का पाखण्ड
B.A. First Year Paper	मध्यकालीन भारत का सामाजिक आर्थिक व सांस्कृतिक इतिहास 12वीं से 16वीं सदी के धर्म सुधार आन्दोलन, कबीर, रैदास, तुलसीदास, मीराबाई इत्यादि, राष्ट्रवाद का विकास, अन्ध विश्वास, पाखण्ड का वरोध, छत्रपति शिवाजी व महाराणा प्रताप की राष्ट्रवादी शासन की व्याख्या

B.A.	आधुनिक यूरोप में पुनर्जागरण,नेपो लयन का एकीकरण, वस्मार्क(जर्मनी) का एकीकरण मेटरनिख की प्रति क्रयावादी नीति तथा नेपो लयन त्रितीय,प्रथम वश्व युद्ध, दितीय वश्व युद्ध के परिणाम रास्ट्र संघ, संयुक्त रास्ट्र की भूमिका, उपनिवेशो की समाप्ति
B.A.	पेशवाओं का उत्थान,हिन्द स्वराज की स्थापना, प्लासी का युद्ध व बक्सर का युद्ध के परिणाम व महत्व, ईस्ट इण्डिया कम्पनी का बंगाल से शासन प्रारम्भ, प्रथम आंग्ल व दितीय,त्रितीय व चतुर्थ आंग्ल - मैसूर युद्ध, प्रथम,द्वितीय,त्रितीय एवं चतुर्थ मराठा - आंग्ल युद्ध, प्रथम,द्वितीय,त्रितीय सक्ख युद्ध, लार्ड कार्नवालिस व लार्ड वेलेजली, लार्ड कर्जन,लार्ड रिपन, लार्ड लटन की नीतियां, बंगाल वभाजन, असहयोग आन्दोलन क्रप्स मशन, इत्यादि स्वतंत्रता प्राप्ति
B.A.	12वीं सदी से 16वीं सदी तक सामाजिक सुधार आन्दोलन, रेलवे का विकास, बैंक का विकास, अकाल आयोग, भूमि सुधार, डाक तार व्यवस्था की स्थापना, कृषि में सुधार,आदिवासी जन-जातियों में सुधार
B.A.	1857 ई० का स्वतंत्रता संग्राम, 1857 ई० भा० रा० कांग्रेस की स्थापना, उदारवादी व उग्रवादी युग, क्रांतिकारी युग, होम रूल आन्दोलन,असहयोग आन्दोलन, साईमन कमीशन, पूना पैक्ट, तीन गोलमेज सम्मेलन, क्रप्स मशन, कैबिनेट मशन, माउंट बेटन योजना, भारत छोड़ो आन्दोलन
B.A. Third Paper	पेरिस शांति सम्मेलन, वर्साय की संधि, फ्रांस की सुरक्षा, हिटलर का शासन, मुसोलिनी का शासन, दितीय वश्व युद्ध, तुर्की का उत्थान मुस्तफा कमाल पाशा, संयुक्त राष्ट्र संघ

DEPARTMENT OF ELECTRONICS (B. Sc)

PROGRAM OUTPUT	<ol style="list-style-type: none"> 1. To define the basic laws involved in Electronics. 2. To understand the concepts and significance of the various phenomena of Electronics. 3. To carry out experiments to understand the laws and concepts of Electronics. 4. To apply the theories learnt and the skills acquired to solve real time problems.
COURSE OUTPUT	
COURSE	OUTPUT
PAPER I : CIRCUIT ELEMENTS AND NETWORK ANALYSIS	<p>(a) Passive Circuit Elements : Ideal resistors, capacitors and inductors and their characteristics; Dielectric, eddy current and hysteresis losses, skin effect; Practical circuit elements, their equivalent circuits and behavior at low and high frequencies; Measurement of resistance, capacitance and inductance using AC. Source; Design consideration of circuit elements.</p> <p>(b) Transient Analysis and AC. Circuits : LCR circuit connected to D.C. source and its application; Vector impedance and admittance; Phase angle and power factor; Series and parallel LCR circuits, their electrical impedance and admittance; Half power points and Q of the circuit; Idea of polyphase circuit.</p> <p>(c) Network Analysis : Different types of circuit elements; Network definitions; Generalized Kirchoff's laws; Mesh equations and matrix elements; T and \otimes network and their equivalence; The bridged T-network, symmetrical network.</p> <p>(d) Network Theorems : Theorem for the reduction of a passive network into T and \otimes network; Superposition; Reciprocity; Norton and Maximum power transfer theorems and their applications.</p>
PAPER II : COUPLED CIRCUITS AND MEASURING INSTRUMENTS	<p>(a) Filter : Input and transfer impedances; Symmetrical T and \otimes networks and their characteristic impedances and propagation constant; Basic theory of filters; Different kind of filters, their pass and attenuation bands and characteristic impedances; Constant k, m-desired and matching L - section filters and their analysis; Design of low and high pass filter sections (constant k, m-desired and matching L -sections).</p> <p>(b) Attenuators : Attenuator and its purpose, Types of attenuator; Fixed attenuator; L, T and \otimes pads; Variable attenuator; Symmetrical bridged T attenuator; Lattice type attenuator; Ladder attenuator.</p> <p>(c) Coupled Circuits : Basic features of magnetically</p>

	<p>coupled circuits, leakage flux and leakage inductances; Equivalent T network of magnetically coupled circuits; Design consideration.</p> <p>(d) Transformer : Transformer and their classification; Ideal transformer; Audio transformer, Output and input transformer and their phase and frequency response; Radio frequency transformer; Single and double tuned; Selectivity consideration and general analysis of doubly tuned RF transformers; Overcoupling; Design consideration of AF and RF transformers.</p> <p>(e) Measuring Instruments : Introductory idea of measuring instruments; AC. Ammeter, Voltmeter, VTVM, Multimeter and CRO; Testing of circuit elements using multimeter and CRO.</p>
<p>PAPER III : PHYSICAL ELECTRONICS</p>	<p>(a) Electronic Emission and Tubes : Potential energy of electrons in metals, work function, thermionic emission; Space charge; Physics of vacuum tubes; Effect of gas in tubes; Glow tubes and ignition.</p> <p>(b) Semiconductor Physics : Elementary idea of energy bands; Difference between semiconductors, metals and insulators; Intrinsic and extrinsic semiconductors, Minority and majority charge carriers; Drift and diffusion currents; Recombination and generation; Continuity equations.</p> <p>(c) Junction : Metal-metal junction, and contact potential; Metal-semiconductor junction; P-N junction; Barrier formation; Barrier potential; Width and capacitance of depletion region; Current flow in biased p-n junction; Junction breakdown; Zener and avalanche phenomenon; Zener and Varactor diodes, Photo diode; LED and solar cell.</p> <p>(d) Transistor : BJT, n-p-n and p-n-p transistors; Transistor operation and Eber-Moll model; Current flow in transistor; Characteristics in all three configurations; A, B and hybrid parameters; Structure, operation, characteristics and parameters; FET and MOSFET; Photo transistors; SCR and UJT.</p>
<p>PAPER I : ELECTRONIC CIRCUITS I : REGULATED POWER SUPPLY AND AMPLIFIERS</p>	<p>(A) Regulated Power Supply : Common requirements and sections</p> <p>(a) Rectifier Circuit : Half, full and bridge rectifier circuits with resistor load, their output waveforms, output DC voltage and power, rectifier efficiency and ripple factor; Design consideration and rating; Voltage multiplying rectifiers; Doubler, tripler and quadrupler.</p> <p>(b) Filter Circuits : Series inductor, shunt capacitor, L-section, π-section and R-C filter circuits; Evaluation of output D.C. voltage and ripple factor when they are fed with AC full wave rectifier; Design consideration.</p> <p>(c) Regulated Circuits : Load and line regulation,</p>

	<p>stabilization ratio, internal impedance and temperature coefficient of voltage regulation; Linear voltage regulator circuits; Non-feedback type; Series and shunt regulator; Design consideration of each circuit.</p> <p>(d) Controlled Rectification and Switch Mode Power Supply : SCR controlled half and full wave rectifier circuits and their analysis; Elements of SMPS, SCR control and stability in SMPS.</p> <p>(B) Amplifier : Basic Requirements and Principles.</p> <p>(a) Biasing and Stability : General principle of transistor amplifier; Load line and Q point, thermal stability, stability factors; Transistor biasing; Fixed bias, Collector to base bias, emitter bias and voltage divider bias circuits.</p> <p>(b) Small Signal Transistor Amplifiers : Small signal transistor amplifier circuits in different configurations and Z, Y and hybrid parameters form and their analysis; Noise and distortion in SST amplifier.</p> <p>(c) Multistage Amplifier : Cascading of amplifier and voltage gain; R-C, L-C and T-C coupled two stage amplifier circuits and their phase and frequency response and bandwidth.</p> <p>(d) Negative Feedback Amplifier : C-E amplifier with series and shunt feedback; Emitter follower; Source follower, Cascade amplifier for transistor and FET, Darlington pair.</p>
<p>PAPER II : ELECTRONIC CIRCUITS II : POWER AMPLIFIERS AND OSCILLATORS</p>	<p>(a) Power Amplifiers : Untuned power amplifier, Push-pull class A and class B amplifier; Phase inverters; Single and double tuned voltage amplifiers; Tuned class B and class C amplifiers.</p> <p>(b) Audio Oscillators : Positive feedback and Bark Hausen criteria of sustained oscillation; Phase shift and Wien bridge oscillator.</p> <p>(c) RF Oscillator : Tuned base, Tuned collector, Hartley and Colpitt oscillator circuit and their analysis; Negative resistance oscillator; Frequency stability; Crystal controlled oscillator; Pierce and Miller circuits.</p> <p>(d) Microwave Generators : High frequency generation problems; Klystron oscillator; Travelling wave tube generator; Gunn diode microwave generators; Carcinotron, Magnetron and Microwave resonators; MASERS.</p> <p>(e) Wave Shaping Circuits : Wave shaping using integrating and differentiating circuits; Clipping and Clamping circuits; Blocking oscillators.</p>
<p>PAPER III : ELECTRONIC CIRCUITS III : COMMUNICATION ELECTRONICS</p>	<p>(a) Modulators : Principles of amplitude and angle (phase and frequency) modulations; Amplitude modulation; DSB and SSB systems; Collector modulation circuit and Vander Biji modulations; Angle modulation; BJT and FET</p>

	<p>reactance modulations; Armstrong phase modulator.</p> <p>(b) Detectors : Synchronous and envelop AM detectors, FM detector; Balance slope detector; Foster seely discriminator and ratio detector.</p> <p>(c) Wide Band Amplifier : Wide band voltage amplifier, High and low frequency compensation circuits; Wide band single and double tuned amplifier; Video amplifier for television signal.</p> <p>(d) Radio Transmitter and Receiver : Qualitative description of amplitude; Frequency modulated and radio telegraph transmitters; General consideration and block diagram description of simple and superheterodyne radio receivers; Automatic volume control and magic eye; Simple radio receiver circuit for standard broadcast; Elements of frequency modulated receiver.</p> <p>(e) Television : General principle of image transmission, scanning sequence and synchronization; Television camera tubes; Elements of television and receiver circuits; Elements of color television.</p> <p>(f) Radar : Principle of radar; Elements of radar system and basic radar equations</p>
<p>PAPER I : PROPAGATION OF ELECTROMAGNETIC WAVES AND ANTENNA</p>	<p>(a) Electromagnetic Waves : Maxwell's electromagnetic field equations; Poynting theorem; Electromagnetic wave and its propagation in free dielectric media.</p> <p>(b) Transmission Lines : Current voltage relation; Transmission lines constants; Impedance and power factors; Smith chart; Matching and direction couplers; Co-axial lines.</p> <p>(c) Wave Guide : General consideration; Rectangular wave guide; Mode of propagation; TE, TM and TEM modes; Impedance matching; Directional and cavity resonators.</p> <p>(d) Free Space Propagation : Ground waves; Space waves; Space waves through troposphere, ionosphere and sky wave propagation; Skip distance and maximum usable frequency; Signal strength; Effect of earth magnetic field; Satellite communication.</p> <p>(e) Antenna : Current and voltage distribution in antenna; Distribution of field around a short electric dipole; Radiation resistance; Half and full wave antenna; Effective length, effective resistance and efficiency of antenna; Grounded antenna; Matching of antennas; Folded dipole; Antenna arrays; Television antenna.</p>
<p>PAPER II : LINEAR INTEGRATED CIRCUITS</p>	<p>(a) Difference Amplifier : Differential input and common mode input; Common mode rejection ratio; Darlington pair; Cascaded difference amplifier.</p> <p>(b) Operational Amplifier : Characteristics of operational amplifier; Inverting and non-inverting inputs; Input offset current; Input offset voltage; Slew rate and power</p>

	<p>bandwidth; Bode plot and frequency response of opamp; Voltage follower; Current follower; opamp integrating and differentiating circuits; opamp audio amplifier; Logarithmic amplifier; Active filters; Operational amplifier for PLL circuits; Opamp voltage controlled oscillator and wave shaping circuits.</p> <p>(c) Analog Circuit for Computation : Summing amplifier, opamp integrator and differentiator, Solution of simultaneous equations and differential equations using opamp; Time and amplitude scaling.</p>
<p>PAPER III : DIGITAL ELECTRONICS</p>	<p>(a) Number System : Base or radix, Decimal, binary, octal and hexadecimal system, Inter conversion of numbers from one system to the other; Binary addition, subtraction, multiplication and division; BCD and hexadecimal codes; Signed numbers; Ones and two's complement representation and their use in binary addition and subtraction.</p> <p>(b) Boolean Algebra and Logic Gates : Boolean function; Unary, null, identity and complement functions; Inverse sum, product, sheffer stroke, Pierce arrow, ring plus and ring dot operations; Corresponding logic gates NOT, OR, SUM, NAND, NOR, EX-OR, COINCIDANCE, their symbols and truth tables; Basic postulates and laws of boolean algebra; Idempotence, Absorption one and two, consensus and De-Morgan's theorems; Duality of boolean algebra; Composite boolean function and precedence of operations in algebraic simplification; Universality of NAND and NOR gates.</p> <p>(c) Combinational Logic Circuits : SOP and minterm, POS and maxterm; Design of logic circuits with multiple outputs; Karnaugh map and Karnaugh simplification; Redundant group and don't care conditions; Half adder and full adder; Encoder, decoder and BCD to seven segment decoders; Multiplexer and demultiplexer.</p> <p>(d) Elements of Logic Families : Introduction to different type of gates; RL, DL, RTL, DTL, TTL, ECL and CMOS logic gates, their circuit description and basic characteristics.</p> <p>(e) Sequential Logic Circuits : Basic sequential circuit; Types of sequential circuits; Synchronous and asynchronous; Flip-flops; RS, JK, and D flip-flops, Master slave flip-flops; Counters; Binary counter, synchronous counter, mod-10 counter, Generation of control signals; Controlled counter; Up-down counter, Shift register, Parity generator or checker, Synchronization of an asynchronous pulse.</p> <p>(f) Converters : Analog to digital and digital to analog converters.</p>

**PAPER IV :
INTRODUCTION TO
MICROPROCESSORS**

(a) Introduction and Architecture of Microprocessors : Functional block diagram of a microprocessor and its working, ROM RAM, CPU, Address bus, Data bus and Control bus. Architecture of microprocessor; General registers, Accumulator, Program counter, Stack and Stack pointer, Instruction register and Instruction decoder, Address register, Arithmetic Logic Unit, Control unit.

(b) The 8085 CPU : Functional description, Registers, Interrupts, Serial input and output, Pin description. 8085A timing process, Opcode fetch machine cycle, Read cycle timing, Write cycle timing, Interrupt acknowledge timing, Bus idle and Halt state, HOLD and HLDA state, SID and SOD signals.

(c) The 8085 Instruction Set and Assembly Language Programming : Data transfer group, Arithmetic group, Branch control group, Stack operation, PUSH, POP, XTHL, SPHL instructions, Input/ Output, Machine control instructions, Straight line programs, Looping program, Some examples of assembly language programming of the processor.

(d) Memory and I/O Addressing : Internal organization of memories, RAM and ROM memory selection and addressing, I/O post addressing by I/O mapped I/O mode and memory mapped I/O mode, Generation of chip select signal. Keyboard interface, Display interface.

(e) Comparison of Microprocessors : Comparative study of the microprocessors; 8085A, Z80 and 6800.

DEPARTMENT OF ANCIENT HISTORY

PROGRAM OUTPUT	<ol style="list-style-type: none"> 1. To give the students , knowledge about Ancient Indian History and culture 2. To know reason origin , development and decay ancient civilizations 3. To write unbiased history on basis proven facts and monument's. 4. To give knowledge about time and its calculations 5. To give knowledge about steps of development of Human civilizations.
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COURSE OUTPUT

COURSE	OUTPUT
Political history of India (600 BC to 550 AD)	<p>In this paper the students will be able to read and understand the Following:-</p> <ol style="list-style-type: none"> 1. Political condition of India during the 6th C.BC. Sixteen Mahajanpadas, Republican states. Their constitution and decline. 2. Rise of Magadha: Factors, contributions of Haryanka, Shishunaga and Nanda dynasties. 3. Sources for reconstructing the history of the Mauryas. 4. Origin of the Mauryas. 5. Dynastic history of the Mauryas: Chandragupta, Bindusara, Ashoka, successors of Ashoka. 6. Mauryan administration. 7. Causes for the Decline of the Mauryan Empire 8. Post Mauryan india : Shunga, Kanva, Mahameghavahana and Satavahana dynasties. 9. Sangam Age political, socio-economic and cultural! Life. 10. Alexander's Invasion and its impact. 11. Indo-Creek rule in India with special reference to Demetrius and Menander. 12. History of the Kushanas: Early rulers, contribution of Kanishka and his successors. 13. S'aka- Kshatrapas of western India; Kshaharat dynasty (Bhoomaka, Nahapana) Kardamaka dynastyy (Chashtana and Rudradamana), Saka-Satavahana struggie. 14. History of the Guptas : Original home, Chandragupta i, Samudragupta, Ramagupta. Chandragupta li, Kumargupta 1, Skandgupta and Buddhagupta, causes for the decline of the dynasty. 15. Vakataka dynasty and its relations with the Imperial Guptas.

World Civilization	<p>In this paper the students will be able to read and understand the silent features of Following:-</p> <ol style="list-style-type: none"> 1. Factors responsible for growth of civilization in river valleys. 2. Egyptian civilization - growth of civilization, political, social, economic and religious life of Egyptians. Art and Architecture, Science and Literature, Intellectual achievements. <p>Mesopotamian Civilization</p> <ol style="list-style-type: none"> 3. Sumerian Civilization- Political, social, economies and religious life of Sumerians, art and architecture, science and literature, legacy of Sumerian civilization. 4. Babylonian Civilization Political, social, economic and religious life of Babylonians: Hammurabi and his code, art and architecture, science and literature, legacy. 5. Assyrian Civilization- Administration, social, economic and religious life of Assyrians. 6. Chaldean Civilization (Nebuchadrezzar) art and architecture, science and literature. 7. Hitite Civilization - Salient features 8. Hebrew Civilization Salient features 9. Chinese Civilization-Shang dynasty, salient features of Chinese civilization, Confucius loathe. 10. Aegean Civilization, chief characteristics of Aegean civilization, Minoan culture, Crete, Mycenaean culture. 11. Greek Civilization - Homer age, classical Greece, Periclese, constitutional reforms, Socrates, Plato, Aristotle, art, architecture, science and literature of civilization. 12. Iranian Civilization, Darius, Cyrus. Characteristics of Iranian civilization Zoroaster and his teachings. 13. Harappan civilization - Origin of Harappan culture, Town planning and characteristics of civilization, trade and commerce, religious life of Harappans.
Political History of India (550 BC to 1200 AD)	<p>In this paper the students will be able to read and understand the Following:-</p> <ol style="list-style-type: none"> 1. Gupta kingdoms of India: Maukharis, Lafer Guptas and Maitrakas of Valabhi 2. History of the Pushyabhuti dynasty: Prabhakarvardhan, Rajyavardhan, Harsha: his political

	<p>and cultural achievements.</p> <p>3 Palas of Bengal Dharmapala, Devapala and their successors.</p> <p>4.Gurjara-Pratiharas : Early history, Mihir Bhoj and Mahendrapala.</p> <p>5.Rashtrakutas Early history, Dhruva I, Govinda II, Amoghvarsha I, Krishna ili</p> <p>6.Pala-Pratihara-Rashtrakutra (Tripartite) struggle.</p> <p>7.Chalukyas of Badami Early history; Pulakesin H and his successors.</p> <p>8.Pallavas of Kanchi: Early history, Mahendravarman L, Narsimhavarman and their successor's.</p> <p>9.Chalukya - Pallava struggle.</p> <p>10.Origin of the Rajaputas.</p> <p>11.History of the Chandellas with special reference to Dhanga and Vidyadhara.</p> <p>12.History of the Chahanmanas with special reference to Vigharaja IV and Prithiviraja III.</p> <p>13.History of the Gahadavalas with special reference to Govindachandra and Jayachandra.</p> <p>14.History of the Paramaras with special reference to Munja and Bhoja.</p> <p>15.History of the Cholas with special reference to Parantaka I, Rajaraja I, Rajendra I.Kulottunga</p> <p>16.Chola administration.</p>
<p>History of Indian Social Thought and Polity</p>	<p>In this paper the students will be able to read and understand the Following:-</p> <ol style="list-style-type: none"> 1. Varna Vyavastha: origin, development, duties of the four varnas. 2. Ashrama Vyavastha origin, four stages of life with special reference to Grihastha Ashrama. 3. Purusartha: Irivarga and Moksha, purusarthay as psycho-moral bases of the Ashramas. 4. Jati Vyavastha : origin and development, theories for the origin of caste, social mobility and nature of ancient Indian society. 5.Origin and development of family. 6.Position, rights and duties of the family members (father, mother, son, daughter). 7.Forms of marriages: aprasasta, prasasia. 8.Concept of Hindu marriage 9.Position of women in ancient Indian society during different historical periods

	<p>10. History of Indian Social Thought and Polity during the different historical periods.</p> <p>11. Salient features of early medieval society.</p> <p>12. Ancient Indian Education</p> <p>13. Female education.</p> <p>14. Prominent educational centers: Takshashila, Nalanda, Valabhi and Vikramasila.</p> <p>15. Meaning concept, aims and objectives.</p> <p>16. Educational sanskaras.</p> <p>17. Origin Development and types of state</p> <p>18. Seven elements of state (Saplanga).</p> <p>19. Republics in ancient India : history, constitution, causes for decline.</p> <p>20. Council of ministers (mantriparisada). in monarchical state and its function.</p> <p>21. Revenue system in ancient India: types of taxes, principles of taxation, revenue officials and administrative machinery.</p> <p>22. Concept of welfare state.</p> <p>23. Guilds and guild organization in ancient India.</p>
<p>Elements of Numismatics and Palaeography</p>	<p>In this paper the students will be able to read and understand the Following:-</p> <p>1. Origin and antiquity of coinage in ancient india: Niska, Sataman, Karsapana, Dinar</p> <p>2. Manufacturing techniques of coins in ancient India.</p> <p>3. Punch marked coins: technique, classification, symbols, weight standard.</p> <p>4. Local Coins: Panchala coins. Kaushambi coins.</p> <p>5. Tribal Coins: Kuninda, Yaudheya coins.</p> <p>6. Indo-Greek coins: Demetrius, Eucratides, Agathocles, Menander</p> <p>7. Saka-Pahlava coins: Maues, Azes, Azilises. Gondophernes.</p> <p>8. Salient features of Western Kshatrapa coins.</p> <p>9. Satavahan Coins: with special reference to the coins of Gautamiputra Satakarni.</p> <p>10. Kusana coins coins of Wema Kadphises and Kaniska</p> <p>11. Deities on Kushana coinage,</p> <p>12. Iconography and mythology of the deities on Kusana coins-(reek and Roman deities</p> <p>13. Persian deities, Indian deities.</p> <p>14. Relative market value of gold and silver, trade relations with the East and the West.</p>

	<p>15.Gupta coins: King-Queen Type (Chandra Gupta-Kumardevi Type), Kacha Type, coins of Samudra Gupta, coins of Chandra Gupta 11. Individual and literary merit of Gupta gold coins.</p> <p>16. Origin and antiquity of writing in India. Origin and antiquity of Brahmi.</p> <p>17.Origin of Kharosthi script.</p> <p>18.Development of Brahmi letters through different periods: Maurya-Sunga- Satavahan age.</p> <p>19.Kushana age and Gupta age.</p>
<p>Ancient Indian Art and Architecture</p>	<p>In this paper the students will be able to read and understand the Following:-</p> <ol style="list-style-type: none"> 1.Ancient Indian paintings: Origin and development. 2.Prehistoric paintings. 3.Ajanta paintings. 4.Bagha paintings. 5.Harappan architecture: Town planning, private and public buildings. 6.Mauryan architecture 7.Architecture of pataliputra. 8.Ashokan Pillars. <p>Rock-cut architecture at Barabar and Nagarjuni Stupa Architecture</p> <ol style="list-style-type: none"> 9.Origin and development. 10.Architectural features of Bharahut, Sanchi and Amaravati stupas. 11.Rock-cut Chaitya and Vihara: Chaityagrihas of Bhaja and Karle, Viharas of Mahayanic phase at Ajanta and Ellora. 12. Temple architecture 13.Gupta temples : origin and development, architectural features with special reference to temple at Devagarh. 14.Main styles: nagara, besara and dravida 15.Temples of north india: Groups of tenmples at Khajuraho (Kandariya Mahadeva) and Orissa (Konarka & Lingaraja). 16.Temples of south India: Chalukya, Rashtrakuta, Pallava and Chola temples. 17.Harappan sculptures 18.Mauryan and Shunga sculptures 19.Kusana and Gupta seulptures: origin of Buddha image. origin of Visnu image. 20.Centres of art Gandhara, Mathura and Sarnath. 21.A brief survey of terracotta art in ancient india. 22. A brief survey of Chalukya, Chandella, Pallava and

	Chola sculptures
History of Indian Religious Thoughts	<p>In this paper the students will be able to read and understand the Following:-</p> <ol style="list-style-type: none"> 1. Concept of dharma 2. Main elements of the Harappan religion. 3. Religious and philosophical ideas of the Vedas. 4. Vedic pantheon. 5. Concept of yajna and rita in the Vedas. <p>Vaisnavism</p> <ol style="list-style-type: none"> (i) Origin and development. (ii) Theory of incarnation. <p>Bhagavata and Pancharatra sects.</p> <ol style="list-style-type: none"> 6. Saivism i) Origin and development. (ii) Saiva sects : Pasupata, Kashmir Saivism and <ol style="list-style-type: none"> 7. Virasaiva, Saktism. (i) Origin and development. (i) Characteristic features. <ol style="list-style-type: none"> 8. Buddhism (i) Origin (1) life and teachings of Buddha (iii) Four Noble Truths. (iv) Main tenets of Mahayana. (v) Differences between Hinayana and Mahayana. <ol style="list-style-type: none"> 9. Jainism (i) Origin and Antiquity. ii) Twenty four Tirthankaras with special reference to Rishabhanatha and Parsvanatha. (ii) Life and teachings of Mahavira. (iV) Digambara and Svetambara sects. <ol style="list-style-type: none"> 10. Minor religious traditions (i) Sun worship. (i) Skanda Karttikeya (iii) Ganesha <ol style="list-style-type: none"> 11. Bhakti movement (i) Socio religious background of its origin. (i1) Characteristic features. ii) Alwar and Nayanarsaints. (iv) Contributions of Sankara, Ramanuja, Nimbarka, <ol style="list-style-type: none"> 12. Vallabha. Chaitanya, Ramananda. <p>Kabir and Mira.</p>