

Programme Outcomes (POs) & Course Outcomes (COs) for the courses offered in this institute
(Session 2022-23)

Program Outcome- Bachelor of Science (B.Sc.)

- To provide knowledge of scientific aspects of Botany, zoology and chemistry.
- To develop Scientific temperament.
- To develop critical thinking.
- To build confidence, better communication skills and creativity
- To enrich the problem solving capability and understanding of concept herein.
- To develop writing, teaching and presentation skills.
- To promote group activities, team work, social values.
- To motivate the students for being an active learner.
- To familiar with ethical approaches within concerned subjects and make them a good citizen.

Program Outcome- Bachelor of Arts (B.A.)

- To develop Scientific temperament.
- To develop critical thinking.
- To build confidence, better communication skills and creativity
- To enrich the problem solving capability and understanding of concept herein.
- To develop writing, teaching and presentation skills.
- To promote group activities, team work, social values.
- To motivate the students for being an active learner.
- To familiar with ethical approaches within concerned subjects and make them a good citizen.

Program Outcomes- Bachelor of Commerce (B.Com)

- (1) Develop Managerial skills
- (2) Commercial Sense.
- (3) Budgeting Policy.
- (4) Enterpreunial Skill.
- (5) Human Resource Management.
- (6) Develop Numerical ability.
- (7) Well versed with business regulatory framework.

Programme Outcome - M.Sc. Botany

- PO1 – To develop critical thinking and scientific temperament.
- PO2- Students will be able to enhance research and problem solving skills.
- PO3- Understand and apply knowledge of Botany in day to day activities.
- PO4- To develop collaborative, team work, ethical skills and become a lifelong learner.
- PO5- identify issues relevant to environment.


Principal

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Program specific outcome – B.Sc. -I Zoology

- PSO1 – Students will able to understand basic concept of cell biology and immunology.
- PSO2 – Students will have idea of animal diversity
- PSO3 – Students will able to charecterise and classify non chordate animals.
- PSO4 – Students will be able to understand charecters and classification of chordates.
- PSO5 – Students will be able to understand adoptive features of higher animals
- PSO6 – Students will be able to understand embryonic development of animals.

Course outcome – B.Sc. I, Zoology, Paper-1 (Cell biology and Non-chordata)

- CO1 – Students will able to understand organization of cell.
- CO2 – Students will be able to know Structure and function of cell organelles.
- CO3 – Students will be able to understand cell division.
- CO4 – Students will have elementary idea of cancer biology, cell transformation and immunology.
- CO5 – Students will be able to characterize and classify protozoans, porifers and coelenterates.
- CO6 – Students will be able to understand defining features (type study), physiology and life cycle of paramaecium, sycon and obelia.
- CO7 – Students will be able to characterize and classify nematodes, annelids and arthropods.
- CO8 – students will be able to study fasciola, ascaris, pheretima and palaemon as type.
- CO9 – Students will be able to charectesrise and classify molluscs and echinoderms.
- CO10 – Students will be able to study pila and starfish as type.

Course outcome – B.Sc. I, Zoology, Paper-2 (Chordata and Embryology)

- CO1 – Students will be able to classify hemichordates and study balanoglossus as type.
- CO2 – Students will able to classify chordates and study amphioxus as a protochordate type.
- CO3 – Students will be able to understand petromyzon and myxine.
- CO4 – Students will be able to study skin, migration and parental care in fishes.
- CO5 – Students will get idea on neoteny and parental care in amphibians.
- CO6 – Students will be able to understand poison apparatus and differentiate between poisonous and non poisonous snakes.
- CO7 – Students will be able to study extinct reptiles.
- CO8 – Students will understand adaptive features and migration in birds.
- CO9 – Students will be able to characterize and compare features in mammals.
- CO10 – Students will be able to Describe adaptations in aquatic mammals.
- CO11 – Students will be able to understand embryonic development of animals.
- CO12 – Students will be able to describe early embryonic development in chick and frog.
- CO13 – Students will be able to explain placenta in mammals.



प्रधान
नयक नित्यानन्द साई गवर्नमेन्ट महाविद्यालय
आरा, जशपुर

Programme Outcomes (POs) & Course Outcomes (COs) for the courses offered in this institute
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Program Specific Outcome – B.Sc. 2 , Zoology

- PSO1 – Students will able to describe anatomy and physiology of different systems in vertebrates.
- PSO2- Students will able to understand functioning of animal body in vertebrates.
- PSO3 – Students will able to study endocrinology of vertebrate.
- PSO4 – Students will able to explain reproductive biology in vertebrates.
- PSO5 – Students will able to understand evolution and behavior of animals.
- PSO6 – Students will able to apply knowledge of aquaculture, sericulture, poultry and pest control for economic wellbeing.

Course Outcomes – Zoology B.Sc.-2 Paper-1 (Anatomy and Physiology)

- CO1 – Students will be able to understand and compare Integumentary system and derived structures such as scales , hair and feathers.
- CO2 – Students will be able to understand and compare digestive system of vertebrates.
- CO3 – Students will be able to understand respiratory organs in vertebrates.
- CO4 – Students will be able to study Endoskeleton, circulatory system and excretory system in vertebrates.
- CO5 – students will be able to explain evolution of heart and aortic arches in vertebrates.
- CO6 – Students will be able to understand nervous system.
- CO7 – Students will be able to study structure and function of Eye and ear.
- CO8 – Students will understand anatomy of gonads and genital ducts.
- CO9 – Students will be able understand physiology of digestion.
- CO10 – Students will be able to understand physiology of heart and explain cardiac cycle and ECG.
- CO11 – Students will be able to understand blood coagulation.
- CO12 – Students will be able to understand mechanism and control of breathing
- CO 13 – Students will be able to understand physiology of excretion and osmoregulation.
- CO14 –Students will learn about physiology of muscle contraction and nerve impulse conduction.

Course outcome – B.Sc. 2 Zoology Paper -2 (Vertebrate endocrinology, Reproductive Biology, Behavior, Evolution and Applied Zoology)

- CO1 – students will be able to learn about endocrine glands, hormone receptor and biosynthesis of hormones.
- CO2 – Students will be able to understand endocrine disorders related to some endocrine glands.
- CO3 – Students will be able to understand reproductive cycle in vertebrates and hormonal regulation herein.

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- CO4 – Students will be able to describe organic evolution.
- CO5- students will be able to understand theories of organic evolution.
- CO6- students will be able to explain variation, Mutation, isolation and natural selection.
- CO7 – Students will be able to explain evolution of Horse.
- CO8 – Students will be able to understand different types of animal behavior.
- CO8- Students will understand effect of hormone and Drugs on behavior.
- CO9 – students will study aquaculture, sericulture, apiculture, poultry farming and pest control and apply its concepts for economic prospect.

Program Specific Outcomes – B.Sc. – 3 Zoology

- PSO1- students will be able to understand Ecology and environment and its interaction with living beings.
- PSO2- Students will be able to study aquaculture, sericulture, apiculture, poultry farming and pest control and apply its concepts for economic prospect.
- PSO3- Students will be able to understand energy flow in living world.
- PSO4 – Students will learn about toxicology, animal poison and food poisoning.
- PSO5- Students will be able to understand microbiology and medical zoology.
- PSO6- Students will learn about advanced field of biology such as Genetics, Biochemistry, cell physiology and Biotechnology.

Course Outcomes B.Sc. – 3 Zoology Paper 1 (Ecology, Environmental biology, Toxicology, Microbiology and Medical Zoology)

- CO1- Students will be able to understand aims and scope of ecology and major ecosystems of world.
- CO2- Students will be able to explain population, communities and its characters.
- CO3- students will be able to understand biogeochemical cycles, pollution and ecological succession.
- CO4 – Students will be able to learn laws of limiting factor and energy flow within ecosystem.
- CO5- Students will be able to learn about conservation of natural resources and Environmental Impact Assessment.
- CO6- Students will be able to understand concept of Toxicology.
- CO7- Students will be able to learn Heavy Metal toxicity, animal poisons and food poisoning.
- CO8- Students will be able to understand pathogenic microorganisms, protozoans, nematodes and diseases associated with it.
- CO9- Students will be able to understand vector insects.

Course Outcomes B.Sc. 3 Zoology Paper – 2 (Genetics, Cell physiology, Biochemistry, Biotechnology and Biotechniques)

- CO1 – Students will be able to understand linkage, linkage maps and sex determination.
- CO2- Students will be able to learn about Gene interactions and Mutation.

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CO3- Students will be able to understand chromosomal alteration syndromes and single gene disorders with reference to humans.

CO4- Students will be able to learn about pH and Buffer.

CO5- Students will be able to understand transport across membrane and Enzyme's classification and action.

CO6- Students will be able to explain structure and function of amino acids and protein.

CO7- Students will be able to understand metabolism of Carbohydrate, lipid and protein.

CO8- Students will be able to learn Recombinant DNA technique, gene cloning and application of biotechnology. CO9- Students will be able to understand functioning of pH meter, colorimeter, microscope, centrifuge, chromatography and electrophoresis.

Course Outcomes - Chemistry

B.Sc.I year Inorganic chemistry

Subject-Chemistry

Class-B.Sc-I

1. **Course Description:-** This course covers fundamental principles and law of chemistry. Topic including Bohr's theory, atomic spectrum of hydrogen, quantum theory, electronic configuration, shape of atomic orbital just like s,p,d,f periodic properties, some properties of periodic element ex. Atomic and ionic Radii, Ionization energy, electro negativity etc.
2. **Chemical bonding-I:** – Including topic Ionic solid, Ionic, Structure, co-ordination number, Born-Haber cycle.
3. **Chemical bonding-II:** – Including topic-Lewis Structure, VBT, hybridization VSEPR Theory.
4. **S-Block element**– Including topic general concept on group relationship and gradation properties.
5. **Chemical of Noble gases**-Including topic chemical properties of Noble gases, chemistry of xenon, bonding in xenon com.

Course Outcomes:-

1. To understand the concept of electronic configuration.
2. To understand the structure of atoms.
3. To understand the spectrum of Hydrogen.
4. To understand the bonding nature in atoms.
5. To understand the fundamental properties of periodic table.
6. To understand the concept of Hybridization.
7. To understand Chemical properties of noble gases.

Course Outcomes for B.Sc.I year Organic chemistry

Subject-Chemistry

Class-B.Sc-I

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Programme Outcomes (POs) & Course Outcomes (COs) for the courses offered in this institute
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Course Description:-

1. **Basic of Organic chemistry:-** Including topic, Hybridization, Shape of organic molⁿ. Electrophilic and nucleophilic Reaⁿ.
2. **Introduction of Stereochemistry:-** Optical Isomerism, geometrical isomerism, enantiomer.
3. **Conformation analysis of Alkenes:-** Conformation Analysis of Alkenes, ethane, butane, cyclonhexen.
4. **Chemistry of Aliphatic Hydrocarbons:-** Including topic- Chemistry of Alkenes, Formation name Reaⁿ.
5. **Chemistry of Aliphatic Hydrocarbons:-** Including topic- Aromaticity, Huckle Rule Cyclick carbocation and heterocyclic.

Course Outcomes:-

1. To understand the chemical Reaⁿ.
2. To understand the dipole moment.
3. To understand the stereochemistry of Organic molecule.
4. To understand Carbon-Carbon a bond.
5. To understand Aromaticity and electrophonic and Nucleophilic Reaⁿ.

Course Outcomes for B.Sc.I year Physical Chemistry

Subject-Chemistry

Class-B.Sc-I

Course Description:-

1. **Mathematical concept for chemist:-** Including topic- Logarithmic Relations. linear graph.
2. **Gases State Chemistry:-** Including topic- Kinetic molecular model, Maxwell distribution degree of freedom.
3. **Liquid State Chemistry:-** Including topic- Intermolecular force, structure of liquid.
4. **Solid State Chemistry:-** Including topic-nature of solid, Bragg equation.
5. **Chemical Kinetics:-** Including topic- Rate of Reaⁿ, zero, first, second order Reaⁿ.

Course Outcomes:-

1. To understand Rate of Reaction.
2. To understand Structure of Solid.
3. To understand Solvation of liquid.
4. To understand some basic Mathematic concept.
5. To understand Ideal gases.
6. To understand mean free path.
7. To understand colloidal state.
8. To understand properties of gel, micelles and emulsion.

Course Outcomes for B.Sc.II year Inorganic chemistry

Programme Outcomes (POs) & Course Outcomes (COs) for the courses offered in this institute
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Course Description:-

1. Chemistry of element of first transition series.
2. Chemistry of element of Second and Third transition series.
3. Oxidation and Reduction.
4. Chemistry of Lanthanide.
5. Acid and Bases.

Course Outcomes:-

1. To understand characteristic properties of d-block element.
2. To understand coordination number and geometry of d-block element.
3. To understand Redox Reaction.
4. To understand Valence bond theory.
5. To understand concept of Acid and base.
6. To understand non-aqueous solvent just like NH_3 , SO_2
7. To understand electronic configuration of d-block element, Actinide Lanthanides.

Course Outcomes B.Sc.II Organic Chemistry:-

Course Outcomes:-

1. To understand formation and chemical Reaction of glycol and glycerol.
2. To understand coordination number and geometry of d-block element.
3. To understand Redox Reaction.
4. To understand Valence band theory.
5. To understand concept of Acid and base.
6. To understand non-aqueous solvent just like NH_3 , SO_2
7. To understand electronic configuration of d-block element, Actinide, Lanthanides.

Course Outcomes B.Sc. II Physical Chemistry

1. Students will be able to understand concepts of thermodynamics and thermochemistry.
2. To study concepts Chemical, Ionic and Phase equilibrium.
3. To study Photochemistry related concepts.

Course Outcomes B.Sc. III Inorganic Chemistry

1. Students will be able to know metal ligand bonding in transition metal complexes and their magnetic properties.
2. To develop understanding on Organometallic compounds and Bioinorganic chemistry.
3. To study Hard and Soft acids and bases, Inorganic Polymers.

Course Outcomes B.Sc. III Organic Chemistry

1. Students will study about heterocyclic compounds, organometallic reagents.
2. To understand organic synthesis via enolates.
3. Able to know Biomolecules such as carbohydrate, amino acids, proteins and nucleic acids.
4. Students will be able to understand synthetic polymers and synthetic dyes.
5. Types and functioning of infra-res spectroscopy, UV- visible spectroscopy and NMR spectroscopy.

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Course Outcomes B.Sc. III Physical Chemistry

1. Students will be able to explain concepts of quantum mechanics , vibrational spectroscopy and Raman Spectrum.
2. Students will learn about concepts related to Electrochemistry

Class- B.A.-I
Subject-Sociology-I
Introduction to Sociology

Program specific outcome:-

- Acquaintance with social Transactions Social Relations, Social formation, Social control, social value and culture.
- Knowing the signification of social institution caste system Religion, Nationalism integrity equality and justice.
- Getting the knowledge of the work of social reforms all over the nations.
- Ability to follow new stream of though and theories of social thinkers.
- Getting the deep knowledge about various social groups like tribal community woman bulk etc.
- Ability to deal with research in sociology.

Course Outcomes


By the end of the course students will be able to reflect on following concepts-

1. The meaning of sociology- The sociological perspective sociology and social science the basic concept, society, community, institution association, group social structure, status and Role.
2. Institution family and kinship the religion, education, politics, the individual and society culture and socialization.
3. Social stratification and mobility meaning forms and theories.
4. Social change- meaning and type evolution and progress factor of social change.
5. The use of sociology introduction to applied sociology and social problem and social change the development of sociology and profession.

Class- B.A.-I
Subject-Sociology-II
Contemporary Indian Society

Program specific outcome:-

- Introduction to the basic concept of sociology subject matter and importance of sociology and origin and development of sociology.
- Understanding in brief the knowledge of human society and sociology.
- Introduction to the various scientific methods in the students.
- Understanding various segment and unity of the Indian society.
- Understanding the social aspects of tribes in India.
- Introduction the Indian rural social structure.



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- Understanding the nature of village studies conduct by different audiology given by various Indian sociologists.
- Understanding the economic and developmental of tribes in India.

Course Outcomes

By the end of the course students will be able to reflect on following concepts-

1. View about Indian society – The classical view Varna, Ashram, Karma and Dharma, field view M.N.Shriniwas and S.C.Dubey.
2. The structure and composition of Indian society village, town, cities and Rural Urban tribes Dalits, woman and minorities.
3. Basic institution of Indian society caste system kinship, family marriage, changing dimension.
4. Family problem Dowry, domestic violence, divorce, conflict problems of elderly.
5. Social problems- surrogate motherhood, leave in relationship, castism, Regilionism, Communalism, corruption, youth unrest.

Class- B.A.-II

Program specific outcome:-

- Introduction to the basic concept of sociology subject matter and importance of sociology and origin and development of sociology.
- Understanding in brief the knowledge of human society and sociology.
- Introduction to the various scientific methods in the students.
- Understanding various segment and unity of the Indian society.
- Understanding the social aspects of tribes in India.
- Introduction the Indian ruler social structure.
- Understanding the nature of village studies conduct by different audiology given by various Indian sociologists.
- Understanding the economic and developmental of tribes in India.

Course Outcomes

Paper 1 – Sociology of Tribal Society

Students will show knowledge on-

1. Tribes and Caste
2. Classification of tribal people
3. sociocultural profile of tribal society
4. Tribal sensitization
5. Problems of tribal people.

Paper – 2 Crime and Society

1. Conception and type of crime yearly explanation classical, positive, physiological.
2. Social structure and anomic, suicide organized crime, white color, cases terrorism.

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3. Indian social problem- nature of social change and crime in India, social disorient an Alcoholism, Drug Addiction, beggary.
4. Correctional process- Role of police and judiciary in India, Development of jail reform in India sociology of prison.
5. Punishment- Objectives and forms major theories of punishment, modern correctional concept, probation, parole, open prison.

Class- B.A.-III

Paper 1 – Sociology of Tribal Society

Students will show knowledge on-

1. Tribes and Caste
2. Classification of tribal people
3. sociocultural profile of tribal society
4. Tribal sensitization
5. Problems of tribal people.

Paper 2 Social Research Methods

Students will be able to know research in sociology-

1. Meaning and significance of research.
2. Hypothesis formation
3. Scientific methods
4. types of research
5. Techniques and data collection
6. Representation and analysis of data

B.A.Part-1 Economics

Course Outcome Paper-1

1. To understand fundamental concept of economics.
2. To understand consumer behavior like cardinal and ordinal utility analysis.
3. To understand indifference curve analysis in deriving Demand curve ,Price effect, Income effect and substitution effect .
4. To understand Basic concept of micro economics such as law of Demand and supply and elasticity etc.
5. To understand Theory of production, Production function ,Production decisions, Isoquant ,returns to scale, Law of variable proportion, Concept of cost .
6. The decision making process in different market situations such as Perfect competition, Monopoly, Monopolistic competition, Duopoly and Oligopoly Markets.
7. To deal with the theoretical issue and their practical application of distribution theories.
8. To understand Various aspects of consumer behavior and economic welfare.

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9. To understand Theory of Rent, Wage, Interest and Profit.
10. To understand Market equilibrium of firm and market.

B.A.Part 1-Economics

Course outcome Paper-2

After successful completion of this course student will be able to understand the Indian Economy –

1. Planning in pre and post Indian economy ,Planning commission and Niti Aayog.
2. To understand Economic Reforms, Liberalization, Privatization, Globalization.
3. To understand Indian economic problems (Poverty, Inequality ,Unemployment).
4. Population and human development, Demographic trends and issues of Education, Health, Nutrition and Migration.
5. To understand Role of Agriculture in economic development including land reforms, green revolution, Rural credit, Agricultural marketing. New agriculture strategies, Natural resources,
6. Infrastructure development-Performance, problem and policies, MUDRA YOJANA.
7. To understand industrial growth and productivity, Industrial policies and reforms, Growth and problems of small and cottages scale industries.
8. To understand role of foreign trade, Trends in exports and imports, directions of india's foreign trade, Exports promotion measures. New trade policies.
9. To understand Recent macro economic scenario:- National Income. Investment, Savings and inflation.
10. Current macro economic policies and their impact Fiscal policies, Monetary policies.

B.A.Part 2 Economics

Course outcome Paper -1

After completion of this course the students will be able to-

1. Define and explain process of calculating National Income Identify it's Components demonstrate circular flow of income, concept of social accounting, green accounting.
2. Understand Say's law of market ,Classical theory of employment and Keynes Objection to the classical theory. Demonstrate the principle of effective demand and Income determination.
3. Explain the concept of consumption function. relationship between APS and MPS Keynes's psychological law of consumption. determinants of the consumption Function.
4. Understand the relationship between investment and saving. Demonstrate Investment multiplier and concept of MEC and MEL.

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5. Explain the nature and characteristics of trade cycle and various theories of trade Cycle. analyze the control of trade cycle.
6. Identify the basic difference between inter regional and international trade and Various international trade theory Comparative advantage theory, Opportunity Cost theory and Heckscher Olhin theory. International trade and their contribution to Economic development.
7. understand Tariffs & import quotas , optimum tariff. Balance of trade & balance of Payment, Equilibrium & disequilibrium in BOP. Merit and demerits of devaluation Foreign trade multiplier.
8. Evolution of IMF, World Bank ,WTO, International monetary reforms and India.
9. Foreign trade in India, recent change in composition and direction of foreign trade. India's balance of payment, Export promotion and import substitution in India .multi National Corporation and India.

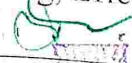
B.A. Part- 2 Economics

Course outcome Paper-2

After successfully completion of this paper a students will be able to

Understand -:

1. Meaning and functions of money, Gresham's law .illustrate various versions of quantity theory of money.
2. Illustrate the Inflation ,deflation, and reflation types, causes and effects on Different sectors of the economy. Demand pull and cost push inflation. Measures to control inflation. Philip's curve, Demonetization .
3. Banking- meaning, types and function of commercial banks, credit creation, Liabilities and assets of banks, Evolution of commercial banking, Function of central bank, Role and function Reserve bank of India. Objective and Limitation of Monetary policy with special reference to India.
4. Understand the meaning and scope of public finance. distinction between private And public finance, Public and private goods ,principle of maximum social advantage Demonstrate the role of government in economic activities.
5. Meaning, classification and principles of public expenditure, trends in public Expenditure and causes of growth of public expenditure in India.
6. Sources of public revenue, taxation- Meaning, canons and classification of taxes. Division of tax burden. Impact and incidence of taxes. Taxable capacity, Effects of Taxation, equity and justice in taxation, Major trends in tax revenue of the central And state Government in India.
7. Public debt and financial administration, sources of public borrowing, Effects of Public debt, Methods of debt redemption.



Principal
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8. The public budget, kind of budget, classification of budget, preparation and passing of Budget in India.

B.A.Part -3 Economics

Course outcome- paper-1

After successful completion of this paper a students will be able to understand:-

1. Economic growth and development factor affecting economic growth, developed and under developed economy, different concept of poverty.
2. Marxian and Mahalanobis model of economic growth, Balanced and unbalanced growth.
3. To make the students aware of the population, growth pattern of population. Theory of demographic transition, population, poverty and environment.
4. And Able to understand schumpeter's theory of economic growth, theory of big push, Nelson theory of low level income equilibrium trap, theory of Critical minimum effort.
5. Theory of economic growth- Harrod and domar model, Solow model, Meade's Neoclassical model, Mrs. Joan Robinson's growth model, A Lewis Theory of unlimited supply of labor.
6. Environment-Environmental and use, environmental disruption as an allocation, problem, valuation of environmental damages.
7. Prevention control and abatement of pollution, environmental legislation, indicators of sustainable development, environmental accounting.
8. Concept of intellectual capital: Food, Security, Education, Health & Nutrition.
9. Role of agriculture in economic development including land reforms Efficiency & productivity in agriculture.
10. New technology & sustainable agriculture. Globalization & agriculture growth, the choice of technique appropriate technology & employment.

B.A.Part-3 Economics

Course outcome Paper-2

After successful completion of this paper a student will be able to understand:-

1. Definition and limitation of statistics, importance of statistics in economics, statistical investigation, census and sampling, methods of statistical investigation, statistical data collection of data, primary & secondary data.
2. Basic concept of statistics such as measure central tendency, measure of skewness, basic concept of probability.

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3. Dispersion :Meaning and method of measuring dispersion: Range ,Quartile deviations, Mean deviation, coefficient of mean deviation, standard deviation.
4. Correlation analysis, meaning and types of correlation, degree of correlation, coefficient of correlation- karl pearson's method, spearman's Rank Difference Method, probable and standard Error.
5. Method of constructing index Number, Fisher's method, Dorbish- Bowles method ,paasches method ,Laspeyres Method, Consumers price index numbers, Reversal test ,circular test.
- 6 . Time series analysis- Meaning and component of time series ,measurement of long term trend by Average Method.

वीए भाग 1 भूगोल

प्रथम प्रश्न पत्र

विद्यार्थी इस कोर्स में निम्नलिखित पहलुओं का अध्ययन करेंगे –

- इकाई 1 – भू-आकृति विज्ञान की प्रकृति, अर्थ, परिभाषा, भौतिक भूगोल की प्रकृति, परिभाषा तथा भू आकृति विज्ञान का भौतिक भूगोल में स्थान का अध्ययन करेंगे।
- इकाई 2 – इसके अंतर्गत भू-संतुलन, वेगनर का महाद्वीपीय विस्थापन सिद्धान्त, प्लेट विवर्तनिकी, ज्वालामुखी और भूकंप से संबंधित जानकारी प्राप्त करेंगे।
- इकाई 3- इसके अंतर्गत चट्टानों की उत्पत्ति, प्रकार, अपक्षय, अपरदन आदि पढ़ेंगे।
- इकाई 4 -इस इकाई में पटल विरूपण, अपरदन चक्र, बालू, नदी, वायु, चूने से बनने वाली स्थलाकृतियों के बारे में पढ़ेंगे।
- इकाई 5 – भू आकृति विज्ञान का जलवायु विज्ञान, खनिज इंजीनियरिंग, आपदा प्रबंधन तथा नगरीकरण में महत्व तथा योगदान के बारे में पढ़ेंगे।

द्वितीय प्रश्न पत्र


- इकाई 1 – इसके अंतर्गत भूगोल के अर्थ, प्रकृति, क्षेत्र, अन्य विज्ञानों में भूगोल के स्थान और उसके योगदान को पढ़ेंगे।
- इकाई 2 – इसमें भूगोल को पर्यावरण के अध्ययन के रूप में पढ़ेंगे। पर्यावरण एवं परिस्थितिकी, द्वैतवाद, सम्यवाद, एकरूपतावाद के बारे में अध्ययन करेंगे।
- इकाई 3 – मानव भूगोल के महत्व, विश्व में पायी जाने वाली मानव प्रजातियों जैसे – बुशमैन, पिग्मी, एस्कीमो, गोड़, मसाई और नागा का अध्ययन करेंगे।
- इकाई 4 – जनसंख्या वृद्धि, जनसंख्या के वितरण, विश्व जनसंख्या प्रतिरूप, अधिकतम और न्यूनतम जनसंख्या के सिद्धान्त, अधिवास प्रतिरूप आदि पढ़ेंगे।
- इकाई 5 -भूगोल के ऐतिहासिक भारत के संदर्भ में, भूगोल में भविष्य तथा रोजगार के अवसर के बारे में पढ़ेंगे।

वीए भाग 2 भूगोल

प्रथम प्रश्नपत्र

इस कोर्स में विद्यार्थी –

- इकाई 1 -मौसम और जलवायु के तत्व, वायुमंडलीय तापमान, आर्द्रता, पवन, तापमान का ऊर्ध्वाधर और क्षैतिज वितरण पढ़ेंगे।
- इकाई 2 – वायुमंडलीय आर्द्रता विक्षोभ और चक्रवात प्रति चक्रवात के बारे में पढ़ेंगे।
- इकाई 3 -कोपेन का जलवायु वर्गीकरण, जीव जंतुओं की विशेषताएँ, वितरण और प्रकार के बारे में पढ़ेंगे।


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नायक नित्यानंद साई गवर्नमेंट महाविद्यालय
आरा, जिला-जशपुर (छ.ग.)

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इकाई 4 – समुद्र विज्ञान का जलवायु विज्ञान और भू विज्ञान के साथ संबंध, महासागरीय तली का उच्चावचन, महाद्वीपीय विस्थापन एवं सागर तली प्रसरण, सागरीय जल का संघटन, महासागरों में तापमान का वितरण, महासागरों में लवणता, घनत्व एवं जल राशियों के बारे में पढ़ेंगे।

इकाई 5 – महासागरों की गतियों, धाराएँ, तरंगें, ज्वार भाँटा और महासागरों का मानव जीवन पर प्रभाव का अध्ययन करेंगे।

द्वितीय प्रश्नपत्र

इस कोर्स में विद्यार्थी

इकाई 1 – उत्तरी अमेरिका की प्रादेशिक विशेषताएँ, उत्तरी अमेरिका की भौतिक संरचना, मिट्टी, जलवायु आदि के बारे में पढ़ेंगे।

इकाई 2 – वनों के वितरण और खनिज उत्पादन पढ़ेंगे।

इकाई 3 -महत्वपूर्ण फसलें – कृषि पेटियाँ, डेयरी फार्मिंग के बारे में अध्ययन करेंगे।

इकाई 4 – उत्तरी अमेरिका में उद्योग, उद्योगों का विकास, उत्पादन, औद्योगिक प्रदेश, जनसंख्या और परिवहन का अध्ययन करेंगे।

इकाई 5 -कैलिफोर्निया घाटी, न्यू इंग्लैंड प्रदेश, घाटी प्रदेश, झील प्रदेश, अलास्का प्रदेश, सैंट लॉरेंस घाटी का विस्तृत अध्ययन करेंगे।

बीए भाग 3 भूगोल

प्रथम प्रश्न पत्र

इकाई 1 – संसाधन का अर्थ, परिभाषा, प्रकार, पर्यावरण अर्थ परिभाषा, संसाधनों का अध्ययन (जल, मिट्टी, वन, कृषि, खनिज, पशु आदि) पढ़ेंगे।

इकाई 2 – जल, वन, शक्ति संसाधनों का उपयोग एवं वितरण, संसाधनों का आर्थिक विकास एवं संसाधन प्रबंधन, मिट्टी के प्रकार एवं वितरण, मृदा का वितरण, मृदा वितरण का अध्ययन करेंगे।

इकाई 3 – जनसंख्या – वृद्धि, वितरण एवं घनत्व, जनसंख्या एवं संसाधनों का उपयोग का अध्ययन करेंगे।

इकाई 4 -पर्यावरण का अर्थ, परिभाषा और मानव पर्यावरण संबंध पढ़ेंगे।

इकाई 5 – भू मंडलीय तापन, जैव विविधता संरक्षण, संतुलन विकास, जनसंख्या विस्फोट, खाद्य सुरक्षा जैसे महत्वपूर्ण मुद्दे पढ़ेंगे।

द्वितीय प्रश्न पत्र

इकाई 1 – भारत के भौतिक विभाग, प्रवाह प्रणाली, जलवायु प्रदेश, मानसून की उत्पत्ति का अध्ययन करेंगे।

इकाई 2 -भारत के प्रकृतिक संसाधन, मिट्टी के प्रकार, वितरण एवं विशेषताएँ, खनिज संसाधन का वितरण एवं प्रकार पढ़ेंगे।

इकाई 3 – सांस्कृतिक तत्व – कृषि उद्योग, जनसंख्या -वृद्धि, वितरण, घनत्व, सामाजिक तत्व – साक्षरता, लिंगानुपात, नगरीकरण, परिवहन एवं पर्यटन का अध्ययन करेंगे।

इकाई 4 -छत्तीसगढ़ – भौतिक विभाग, भू-राशिक संरचना, जलवायु, मिट्टी, प्रकृतिक संसाधन, विकास के बारे में पढ़ेंगे।

इकाई 5 – छत्तीसगढ़ की सांस्कृतिक संरचना – कृषि, उद्योग, जनसंख्या – वृद्धि, वितरण, घनत्व, सामाजिक तत्व – साक्षरता, लिंगानुपात, नगरीकरण, जनजातियाँ, परिवहन एवं पर्यटन और व्यापार के बारे में पढ़ेंगे।

B.Com-I

Course Outcome

- To provide adequate basic understanding about accounting principle among the students.
- To train the students in (Business) communication skills effectively.
- To aware about the basic knowledge of national/domestic business law.
- To deliver knowledge about the principles of business economics which are applicable in business.
- To inculcate mathematical ability as is applicable to business.
- To prepare students with the emerging issues in business at the national and international level in the light of new business policies.

Course Outcome

1. Financial Accounting:-

- To enable the students to learn principles and concept of accounting.

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- To enable the students to learn the basic concept of partnership accounting and allied aspects of accounting.
 - To find out the technical expertise in the maintaining the books of accounts.
 - To encourage the students about maintaining the books of accounts for further reference.
 - Getting working knowledge of generally accepted auditing procedure techniques and skills.
2. **Business Communication:-**
- To develop spoken communication and written communication.
 - To understand the concept process and important of communication.
 - To provide knowledge of various media of communication.
 - To develop awareness regarding new trends in business communication.
 - To develop business communication skills through the application and exercises.
3. **Business Mathematics:-**
- To understand the concept of simple interest, Compound interest and the concept the ratio and proportion.
 - To understand the application of matrix in business.
 - To understand the linear programming and problem relating to two variables.
 - To understand the concept of commission brokerage discount and profit and loss.
 - To know the valuation of simple loans and debentures as well as problem relating to sinking funds.
4. **Business Regulatory Framework:-**
- To know the students with the basic concept terms & provisions of mercantile and business laws.
 - To develop the awareness among the students regarding this loss affecting trade business and commerce.
 - To develop well verse in basic provisions regarding legal framework governing the business world.
 - Knowing the rights and liability of every citizen regarding consumer protection act.
 - To provide understanding about Negotiable Instruments and law of contract.
5. **Business Environment:-**
- Understand business environment at national and international level.
 - Knowing the impact of liberalization, Privatization and Globalization (LPG) in Indian business/Economy.
 - To know the economic problems like growth, poverty, Unemployment and Industrial sickness.
 - To Understand the International Environment and International Economic groupings WTO, UNCTAD, IMF and GATT etc.
 - Knowing about agricultural development Industrial development and service sector development in India.
6. **Business Economics:-**
- The objective of the course is to familiarize the students the basic concept of macro and macro economics.

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- To stimulate the students interest by showing the relevance use of the various economic theories.
- To apply economic understanding to problems of business.
- Justifying the demand function and production function.
- Understanding the link between business economics and business decision.

B.COM-II

(Program Outcomes)

- Students can get through knowledge of finance and accounting.
- Students can independently start up their own business.
- Capability of the students to make decision at personal as well as professional level will increase.
- Students will gain through systematic and subject skills within various disciplines of corporate accounting law, Cost Accounting, Management and entrepreneurship.
- Students will be able to do their higher education and can make research in the field of finance and commerce.

Course Outcomes

1. **Corporate Accounting:-**

- This course aims to enlighten the students on the accounting procedures followed by the companies.
- To make the students about the valuation of goodwill and shares.
- To Impart Knowledge about the amalgamation, absorption and holding company account.
- To provide adequate understanding about final accounts of companies spare companies act 2013.
- To know accounting entries regarding issue forfeitures and Re-issue of shares.

2. **Company Law:-**

- To impart students the provision and procedures under company act.
 - To provide knowledge of capital management and rules and procedure of appointment of director.
 - To acquaint the students with the company meetings.
 - To update the knowledge of provisions of winding up and majority powers and minority rights.
 - To aware students regarding kinds of companies and promotion and incorporation of companies.

3. **Cost Accounting:-**

- To understand basic cost concept, elements of cost and cost sheet.
 - Ascertainment of material and labour cost.
 - To develop understanding to apply theoretical knowledge in practical situation.
 - To provide knowledge about cost Ascertainment and cost Records.
 - To impart knowledge about the concept and principles application of overheads.

4. **Principles of Business Management:-**

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- To enable student understand Principles, functions and different management theories.
 - To impart knowledge about various functions of management.
 - To provide knowledge about leadership and managerial control.
- 5. **Business Statistics:-**
 - To know use of frequency distribution to make decision.
 - To use correlation and regression analysis to estimate the relationship between two variables.
 - To understand the concept and techniques of the different types of index numbers.
 - To understand the measures of dispersion and skewness.
 - Making familiar with statistical tools which are relatively used in business.
- 6. **Fundamentals of Entrepreneurship:-**
 - Developing entrepreneurship skill among the students.
 - Enable students to acquire the skill to be an entrepreneur.
 - Creating awareness among students about self-employment.
 - Providing various innovative business ideas to the society.
 - Developing entrepreneurial behavior and social responsibility among students.

B.COM- III

Program Outcome

The objective of the programme shall be to provide sound academic base from which an advanced carrier in accounting/finance can be developed.

Conceptual grounding in accounting usages as well as its practical business application will be provided.

Course Outcomes

- To enables the students to know the basics of income tax act and its implications.
- Students are imparting knowledge about the principles and methods of auditing and their applications.
- To impart basic knowledge about GST and apply the provision of GST law to various situations.
- To provide the students an understanding of the application of accounting techniques for management.
- The objective of this is to help students understand the conceptual framework of financial management.
- This is aims at acquainting the students with the working of financial market in India.

Subject Specific Outcome

1. Income Tax :-

- Knowing the procedure of calculation of income tax.
- Acquiring the knowledge about general deduction from income.
- Obtaining the knowledge about tax free incomes.
- Exposure to income tax planning.
- Getting known with application of principles and provision of direct tax laws in

Computation of taxable income under various heads of income.

2. Auditing:-

- Knowledge about auditing principles and techniques of auditing.

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- Getting knowledge of vouching of cash and credit transactions.
- Knowing the appointment procedure of auditor.
- Acquiring the skills of audit program of co-operative societies and banks.
- Knowledge about writing of audit reports.

3. Indirect Taxes with GST

- Students will able to compute the assessable value of transactions related to goods and services for levy and determination of duty liability.
- Students will able to understand the basic principles underlying the indirect taxation statutes.
- Students will able to identify and analyze the procedural aspects under different applicable statutes related to GST.
- Students will able to understand tax liability and taxable entities.
- Student will able to examine the method of tax credit. Inflow and outflows. Outflows: tax imposition, tax exemption, tax deduction.

4. Management Accounting

After completion of this course the student would be able to-

- Explain the financial concept used in making accounting management decision.
- Use business finance terms and concept when communicating.
- Use effective communication skills to promote respect and relationship for financial deals.
- Demonstrate a basic understanding of accounting management.
- Utilize information by applying a variety of business and industry software and hardware to major financial functions.

5. International Marketing :

1. Have developed an understanding of major issues related to international marketing
2. Have developed skills in researching and analyzing trends in global markets and in modern marketing practice
3. Be able to assess an organization's ability to enter and compete in international markets.

6. Principal of Marketing :-

This paper provides knowledge about what is Marketing and how it's used ,Identify the primary marketing activities of an organization, Determine market segments and target customers. Apply principles of ethics and social responsibility in marketing.

चौथा आद्यक्रम

बीए/ बीएससी/ बी कॉम – भाग -I हिन्दी भाषा आधार पाठ्यक्रम

1. प्रथम वर्ष के विद्यार्थी हिन्दी भाषा में आधार पाठ्यक्रम में प्रथम इकाई में पल्लवन, पत्राचार, पारिभाषिक शब्दावली और अनुवाद के बारे में सीखेंगे ।
2. दूसरी इकाई में शब्द, वाक्य शुद्धि, पर्यायवाची, विलोम अनेकार्थी, अनेक शब्दों के एक शब्द और सामाजिक जीवन में प्रयोग होने वाले मुहावरों, लोकोक्तियों के बारे में पढ़ेंगे ।
3. तीसरी इकाई में देवनागरी लिपि क्या है, इसकी विशेषताएँ एवं वर्तनी का मानक रूप के महत्व के बारे में सीखेंगे ।
4. चौथी इकाई में विद्यार्थी कम्प्यूटर में हिन्दी के अनुप्रयोग करना सीखेंगे और हिन्दी में पदनाम के बारे में पढ़ेंगे ।
5. पाँचवी इकाई में अपठित, संक्षेपन के बारे में सीखेंगे ।

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बीए/ बीएससी/ बी कॉम – भाग -2 हिन्दी भाषा आधार पाठ्यक्रम

1. द्वितीय वर्ष में खंड 'क' में विभिन्न लेखकों के निबंध जैसे – महात्मा गांधी जी द्वारा लिखा गया निबंध 'सत्य और अहिंसा', विनोबा भावे (ग्राम सेवा), आचार्य नरेंद्र देव (युवकों का समाज में स्थान), हरी ठाकुर (डॉ खूब चंद बघेल), वसुदेव शरण अग्रवाल (मातृभूमि), भगवत शरण उपाध्याय (हिमालय की व्युत्पत्ति) आदि पढ़ेंगे।
2. खंड 'ख' में हिन्दी भाषा और उसके विविध रूप जैसे कार्यालयीन भाषा, मीडिया की भाषा, वित्त एवं वाणिज्य की भाषा, मशीन की भाषा के विषय में विस्तार से अध्ययन करके इसके महत्व को जानेंगे।
3. खंड 'ग' में संज्ञा, सर्वनाम, विशेषण, क्रिया विशेषण, समास, संधि एवं संक्षिप्तियाँ पढ़ेंगे।

बीए/ बीएससी/ बी कॉम – भाग -3 हिन्दी भाषा आधार पाठ्यक्रम

1. तृतीय वर्ष में विद्यार्थी सुमित्रानंदन पंत द्वारा लिखित कविता "भारत माता" के बारे में पढ़ेंगे। परशुराम की प्रतीक्षा, रामधारी सिंह दिनकर, बहुत बड़ा सवाल, मोहन राकेश का नाटक, कथन की शैलियों के बारे में पढ़ेंगे।
2. विकासशील देशों की समस्याओं, प्रौद्योगिकी एवं नगरीकरण का अध्ययन करेंगे।
3. पर्यावरण प्रदूषण और धारणीय विकास एवं कार्यालयीन पत्र के महत्व की जानकारी प्राप्त करेंगे।
4. भारत के संदर्भ गरीबी तथा बेरोजगारी के प्रकारों के बारे में जानकारी प्राप्त करेंगे और इन्हें दूर करने के प्रयासों के बारे में पढ़ेंगे।
5. अनुवाद करने और अनुवादक के गुणों के बारे में सीखेंगे।
6. ऊर्जा के अर्थ व महत्व के बारे में सीखेंगे तथा घटनाओं, समारोहों आदि का प्रतिवेदन और विभिन्न प्रकार के निमंत्रण पत्रों को लिखना सीखेंगे।

UG Class- I,II,III (English Foundation Course)

Goals, Objectives and Learning outcomes

Course Outcomes

By the end of this course students will be able to:-

- Interact with academic content Reading, Listening and Speaking.
- Demonstrate ability to think critically.
- Demonstrate behavior and attitudes appropriate to a university environment.

Reading Goals:-

- Apply the skills and strategies of a successful reader.
- Read critically.
- Students will interpret texts with attention to ambiguity, Complicity and aesthetic value.
- Students will read diverse texts within their historical and cultural contexts developing a critical understanding of how literature can both uphold and resist existing structures of power.

Course objectives for reading and Vocabulary:-

This course will develop the Students ability to:-

- Skim for main idea.
- Develop reading speed.
- Build academic vocabulary.
- Make use of contextual clues to infer meaning of unfamiliar words from context.
- Discuss and respond to context of the text orally and in writing.

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- Reflect on and evaluate learning and performance and set goals per progress.
- Demonstrate behavior and attitudes appropriate college environment.

Students learning outcomes:-

Given an academic reading passage the students will be able to:-

- Identify the main idea (s) in the text.
- Identify specific details.
- Distinguish fact from opinion.
- Make inferences and predictions based on information in the text.
- Identify author's purpose and tone.
- Produce academic vocabulary appropriately orally and in writing and summarize paraphrase information text.

Writing:-

- Understand and apply the conventions of academic writing in English.

Course objectives writing and Grammar:-

This course will develop the student's ability to:-

- Write effective and coherent paragraphs.
- Use pre-writing strategies to specific topics.
- Develop coherent content and support with relevant details.
- Give critical peer feedback.
- Use peer and teacher feedback to edit writing.
- Build academic vocabulary.
- Use a variety of accurate sentences structures.
- Use grammatical structures accurately.

Students learning outcomes:-

Give writing prompt, the students will be able to:-

- Write a paragraph with a topic sentences, support and concluding sentences.
- Produce coherent and unified paragraphs with adequate support and detail.
- Write an effective introductions and conclusion.
- Produce a well organized academic energy.
- Produce appropriate vocabulary and correct verb forms.
- Produce accurate grammatical structures, demonstrate control of mechanics.

Listening:-

Goal: – apply the skills and strategies of a successful listener.

Course objectives for listening:-

This course will develop the students ability to :

- Take organized notes on lectures and listening passage.
- Identify and distinguish main ideas from supporting details.
- Make use of contextual clues to infer meaning of unfamiliar words from context.
- Identify speaker's purpose and tone.
- Make inferences and predictions about spoken discourse.

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Speaking:-

Goal:-apply the skills and strategies of a successful speaker.

Course objectives for speaking and oral presentation:-

This course will develop the student's ability to:-

- Discuss and respond to content of a reading of listening passage.
- Use communication strategies to participate in group and class discussions.
- Select, compile and synthesize information for an oral presentation.
- Paraphrase and cite sources.
- Use vocabulary appropriately.
- Use grammatical structures appropriately.

Student learning outcomes:-

Given a topic to research and present in class the student will be able to:-

- Focus the topic.
- Apply research procedures.
- Locate and select relevant information.
- Produce appropriate vocabulary.
- Produce accurate grammatical forms.
- Give an oral presentation in class using effective delivery strategies.

Subject-Environment Studies

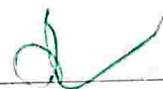
Program specific Outcomes:-

1. Understanding environmental Circumstances by the students at the undergraduate level.
2. Understanding the relationship of man with the environment and half then change his attitude and more positive eco friendly and sustainable life style.
3. Greeting information about climate change global warming, Acid rain, green house effect, ozone.
4. Cultivating attitude to safeguard the environmental built particularly with field experience.
5. Greeting information about environment protection Acts.

Course Outcomes:-

Students will be able to understand and explain following aspects relevant to environmental concern-

1. The multi disciplinary nature of environmental studies. Nature resource renewable and non renewable studies.
2. Eco system:- Concept Structure and function of an ecosystem. Biodiversity and its Conservation.
3. Cases effect and control measures of- Air, Water, Soil, Marine, Nuclear, Pollution, Solid waste Management, Disaster Management.
4. Environmental management- Environmental Protection Act.



**Programme Outcomes (POs) & Course Outcomes (COs) for the courses offered in this institute
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5. General Background and historical perspective, Human Rights UNO charter, Human Rights 1948.
6. Impact of human rights norms of India, Human rights under the constitution of India. National human rights commission, state human right commission and human right court in India.

Course Outcome (M.Sc. Botany)
Programme Outcome (M.Sc. Botany)

- PO1 – To develop decision making, critical thinking and scientific temperament.
PO2- Students will be able to enhance research, research methodology and problem-solving skills.
PO3- Understand and apply knowledge of Botany in day-to-day activities.
PO4- To develop collaborative, team work, ethical skills and become a lifelong learner.
PO5-To apply the positive approach toward sustainability goal and Identify issues relevant to environment.

Programme Specific Outcomes (M.Sc. Botany)

- PSO1- To give students exposure to recent developments and relevant to today's issues.
PSO2- Apply research methodologies and able to use instruments in plant Science
PSO3- Able to do research methodology, data collection, analyse and prepare necessary documentation of related to research work relevant to plant science.
PSO4- Able to Identify characteristic feature of higher and lower plants and classify them easily.
PSO5- Able to apply the plant science knowledge for outreach program and social issues.

Course Outcome (M.Sc. Botany)

M.Sc. 1st Semester (Botany)

Paper -1 (Microbiology)

- CO1- Students will be able to understand basic concept and dimensions of important and application of Microbes.
CO2- This course is aimed towards generating fundamental knowledge, concepts and dimensions of botany/plant science and instrumentation related to microbe culture and its multiplication.

Paper -2 (Phycology)

- CO1- Students will be able to understand fundamental knowledge, basic concept and dimension of importance and application of algae.

PO2- This course is aimed towards generating fundamental knowledge of algae morphology, diversity, nutrition, reproduction, Classification and Pigmentation.

Paper -3 (Mycology)

- CO1-Students will be able to understand basic concept of Mycology.
CO2- This course is aimed towards generating fundamental knowledge of fungi, Mode of Nutrition, general characteristics, distribution, Classification and economic importance.

Paper - 4 (Research Methodology and computer application)

- CO1- Students will be able to understand basic concept of research.
CO2- Gets acquainted with various resources for research, computer fundamentals, office software packages and become familiar with tools of research.

CO3- Gets conversant with sampling techniques, methods of research and techniques of analysis of data.

CO4- Achieves skills in various research writings.

Paper - 5 (Bryophytes and Pteridophytes)

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Programme Outcomes (POs) & Course Outcomes (COs) for the courses offered in this institute
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CO1- Students will be able to understand basic concept of dimensions of importance and application of bryophytes and pteridophytes.

CO2- This course is aimed towards generating fundamental knowledge, concepts and dimensions of botany related to affinities, fossil bryophytes and pteridophyte plants.

CO3- Students will be able to understand classification, morphology and anatomy of gametophytes and sporophyte, origin and evolution of bryophyte and pteridophytes.

Practical 1 - LBT111 Based on Paper MBT101 & MBT102

CO1- Students will be able to do practical such as identification microbe and Algae and their negative and positive effect on nature.

Practical 2 - LBT112 Based on Paper MBT103 & MBT105

CO1- Students will be able to easily identify the fungus colonies and archegoniate vegetation and their impacts on ecosystem.

M.Sc. 2nd semester (Botany)

Paper -1 (Gymnosperm and Palaeobotany)

CO1- Students will be able to understand basic concept of palaeobotany, earth stratigraphy, gymnosperm and fossil plants includes its morphology, origin and evolution of gymnosperm, affinities, distribution, cytogenetics, Classification & economic importance and Biotechnology of gymnosperms. This course is aimed towards generating fundamental knowledge, concepts and dimensions of botany.

Paper -2 (Angiosperms: taxonomy and Embryology)

CO1- Students will be able to understand fundamental knowledge, concepts and dimension of identification, classification, importance and application of higher plants (Angiosperms).

CO2-Students will be able to understand basic concept of Taxonomic Principles, Classification System, economically important families, Numerical Taxonomy, Morphology of Flower and its development stages till fertilization and Experimental Embryology.

Paper -3 (Plant Physiology)

CO1-Students will be able to understand various concept and dimensions of importance and application of life Process of Plants.

CO2- Students will be able to understand fundamental concepts of Respiration, Photosynthesis, Plant Growth Regulators, Sensory Photobiology and water relations in plants

CO3- Students will be able to know the importance metabolic activity of plants.

Paper - 4 (Elective paper – Ecology and Phytogeography)

CO1- Students will be able to understand basic concept and dimension of importance, distribution and application of plants for healthy environment.

CO2- Students will be able to understand fundamental of ecology and vegetative organisation characteristics, ecosystem and ecosystem stability & phytogeography of Indian subcontinents.

Project Work – Skill development & Social outreach

CO1 – Students will be able to study enhance research & practical skills and engage in society through this skill development and social outreach course.

Practical 1 - LBT211 Based on Paper MBT201 & MBT202

CO1- Students will be able to identify Early land plant and Gymnosperm Naked Seed plant anatomy and morphology and how to collect specimen and mounted it.

CO2- Students will be able to understand Angio spermic families by its floral morphological and plant anatomy.

Practical 2 - LBT212 Based on Paper MBT203 & MBT205

CO1- Students will be able to understand Plant Physiology through experiment related to transpiration, respiration and photosynthesis etc.

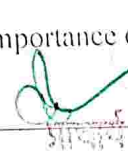
M.Sc. 3rd semester (Botany)

Paper – 1 (Algae, Environment and Human Welfare)

CO1- Students will be able to understand characteristics, classification and economic importance of algae.

Paper – 2 (Principle of Ecology)

CO1-Students will be able to understand basic concept of ecology.


नायक

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CO2- Students will be able to understand various type of environmental pollution.

Paper – 3 (Advances in Archegoniatae)

CO1- Students will be able to understand some advanced concept of bryophyte and some advanced concept of pteridophytes.

CO2- Students will be able to understand some advanced concept of gymnosperms.

Paper – 4 (other supportive course – Intellectual property, Human Rights and Environment: Basics)

CO1- Students will be able to understand basic concept of intellectual property right includes copyright and patents.

CO2- Students will be able to understand concept of human right and environment.

Paper – 5 (Evolutionary Biology)

CO1- Students will be able to understand advanced evolutionary concepts.

M.Sc.4th semester (Botany)

Paper -1 (In Vitro Technology and Industrial applications)

CO1- Students will be able to understand micropropagation of various plants.

CO2- Students will be able to understand problems in plant tissue culture system.

CO3- Students will be able to understand use of bioreactor for secondary metabolite production.

Paper -2 (Reproductive Biology of Flowering plants)

CO1- Students will be able to understand plant embryology of flowering plants.

Paper – 3 (Molecular interactions of plants with symbionts, pathogens and pests)

CO1- Students will be able to understand molecular interaction of plants with symbionts, pathogens and pests.

Paper – 4 (Agriculture ecology- principle and application)

CO1- Students will be able to understand principles and application of agricultural ecology.

Paper 5 – Dissertation Work

CO1- Through dissertation work students will be able to enhance scientific temper, research skill, critical think and analyze.

Course outcome- B.Sc. Part-I Paper-1 Botany

- CO1- Students will be able to understand life cycle of virus and viral diseases.
- CO2- Students will be able to understand types, structure and life cycle of bacteria. They will be aware about bacterial diseases.
- CO3- Students will be able to understand life cycle and importance of algae.
- CO4 -Students will be able to understand life cycle i and diseases of fungus.
- CO5- Students will be able to understand importance of cyanobacteria and lichens.
- CO6- Students will be able to understand importance of mushroom technology.

B.Sc. Part-I Paper-2 Botany

- CO1 – Students will be able to understand basic concept of bryophytes.
- CO2 – Students will be able to understand basic information of living and fossil pteridophytes.
- CO3- Students will be able to understand living and fossil gymnosperms.
- CO4- Students will be able to know evolution during different era of geological time scale.
- CO5- Students will be able to understand fossilization methods.

B.Sc. Part-I Practical Botany

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Programme Outcomes (POs) & Course Outcomes (COs) for the courses offered in this institute
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CO1 -Students will be able to study practically algae, fungi, gymnosperm, Bryophyta and pteridophyta.

B.Sc. Part -2 Paper -1 Botany

CO1- Students will be able to understand classification, binomial nomenclature, Herbarium and Botanical garden.

CO2- Students will be able to understand characteristics of some angiosperm family.

CO3- Students will know economic importance of some valuable plants.

CO4 -Students will be able to understand basic concept of anatomy in angiosperms.

CO5- Students will be able to understand basic concept of embryology in angiosperm.

B.Sc. Part -2 Paper -2 Botany

CO1- Students will be able to understand Introduction and scope of ecology- environment and ecological factors, hydrophytic and xerophytic and epiphytic plants.

CO2- Students learn about population community characteristics, Raunkiaer's life forms, ecological niches, ecosystem and biogeochemical cycles.

CO3- Plant water relation : diffusion, osmosis, types of soil, water holding, mineral, nutrition and absorption.

CO4- Photosynthesis – photosynthetic apparatus, light reaction mechanism, ATP, C3, C4, CAM pathway of carbon, Respiration : aerobic and anaerobic respiration.

CO5 -plant growth hormones : Auxin, Gibberellin, cytokinin, florigen, photoperiodism, vernalization, seed dormancy, and germination plant movement.

B.Sc. Part -2 Practical Botany

CO1- students will be able to understand and perform practical related to – plant description, plant anatomy, plant embryology, photosynthesis, respiration, diffusion and osmosis , growth hormones

B.Sc. Part -3 Paper -1 Botany

CO1- students will be able to understand plant water relations and mineral nutrition.

CO2- students will be able to understand transport of organic substances and concept of enzymology.

CO3- students will be able to understand concept of respiration, nitrogen and lipid metabolism.

CO4- students will be able to understand growth and developments in plants.

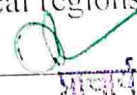
CO5- Students will be able to understand concept of genetic engineering and biotechnology.

B.Sc. Part -3 Paper -2 Botany

CO1- students will be able to understand plant and environment : atmosphere, soil, light, temperature, hydrophytic and xerophytic plants

CO2- Community ecology : community, ecology and ecosystem, biochemical cycles

CO3- Population ecology: Growth curves, ecotypes, ecades, biogeochemical regions, vegetation, types of India.


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CO4- Utilization of plants : food plan, fibres, vegetable oils.

CO5- Spices – General account on medicinal plants, beverages, rubbers

B.Sc. Part -3 Practical Botany

CO1- Students will be able to perform practical on transpiration rate in plants.

CO2- Biochemical tests.

CO3- Ecological exercise / soil analysis