

Department of Botany

Course Outcomes

I-Semester Paper –I – Microbial Diversity and Lower Plants

CO1- Develops understanding of diversity, identification, classification & economic importance of lower plants.

CO2-Understanding the diversity among algae, their useful & harmful activities.

CO3-Understanding the diversity and economic importance of Fungi.

CO4-Understanding the morphological diversity of Bryophytes & Pteridophytes and their evolutionary patterns.

II-Semester Paper-II- Gymnosperms, Taxonomy of Angiosperms & Ecology

CO1-Develops the basic understanding of important characteristics, anatomy, reproduction & evaluation along with ecology
Importance.

CO2-Acquire the knowledge of classification of plants, types of classifications and the comparison, origin and evolution of
angiosperms. Understands the recent developments in plant systematic & phylogenetics.

CO3-Understand various angiosperm families emphasizing their morphology distinctive features and biology.

CO4-Understand the plant communities and ecological adaptations in plants. Learn about conservation of biodiversity ,
non- conventional Energy & pollution.

III Semester Paper-III – Plant Anatomy & Embryology

CO1-Understand the scope & importance of anatomy and Embryology, Know various tissue systems.

CO2-Understand the normal and anomalous secondary growth in plants and their causes.

CO3-Understand the history & importance of Embryology, understand the structure and development of microsporangium,
male gametophyte, mega sporangium, female gametophyte

CO4-Know the morphology of pollen, pollination types, fertilization, development of endosperm and embryogeny.

IV Semester Paper-IV- Cell Biology and Plant Physiology

CO1-Gain the knowledge of cell science, understand cell wall, plasma membrane and cell organelles.

CO2-Understand the morphology and Organization of nucleus, DNA, RNA extra chromosomal DNA & cell division.

CO3-Know the importance and scope of plant physiology, understand the plant cells in relation to water, the phenomenon of transpiration and enzyme kinetics.

CO4-Understand the process of photosynthesis, C₃, C₄ & CAM pathways, respiration with an emphasis on aerobic respiration ,

Understand the process of Nitrogen metabolism and its importance, process of synthesis of proteins and role of genetic code in polypeptide formation, understand the role of phytohormones and their implications in real life.

V Semester Paper-V-Biodiversity and Conservation

CO1-Understanding the basics of science of biodiversity in an ecological context, Learn tools techniques to monitor of biological diversity , know the levels of biodiversity and agro biodiversity.

CO2-Learn to estimate the loss of biodiversity in all levels, and understand the management of plant biodiversity and particularly agro biodiversity, know the organizations associated with biodiversity and legislation of conservation-summarizing the courses and consequences.

CO3-Learn to conserve the ways and means of conservation of biodiversity, know the principles of conservation.

CO4-Understand the role of plants in relation to Human welfare importance of forestry.

VI Semester Paper-VI Plant Molecular Biology

CO1- Plant molecular biology focuses on exploration of molecular basis of plant life. It enlighten mainly on DNA, RNA, protein, molecular systems and regulation of gene expression in prokaryotic and eukaryotic organisms.

CO2-Students are able to understand the function of cells at molecular level. Understand the DNA and its functions central dogma of life and salient features of genetic code.

CO3-Understand the process of transcription in prokaryotes and eukaryotes, M-RNA processing , editing and its transport.

CO4-Understand the transcription and translation process in prokaryotes and eukaryotes. Recall and understand the different mechanism working together to regulate the lac operon.

Department of History

Course Outcomes

The main focus in the History course at the UG levels on the stages growth human civilization and the evolution of social systems on cultural and scientific development. The main aim outlined for History teaching is:

DSC SEM –I HISTORY AND CULTURE OF INDIA (FROM EARLIEST TIMES TO 700 AD)

1. Perceive various sources to study of Ancient India.
2. Know about the development and the achievement of man in the Stone Age.
3. Understand the glory of Indian history in the age of Harappa civilization
4. Comprehend the history of Vedic period
5. Understand the philosophy of Jainism and Buddhism.
6. Understand the history of Mouryan, Satavahana, Gupta and Pusyabhuti, Sunga, Kushan and Hunas dynasties.
7. Comprehend the Gupta period.
8. Know about the Sangam age.

DSE SEM –II HISTORY OF INDIA (700 -1526 AD)

1. Perceive various local dynasties.
2. Understand the Arab conquests and results.
3. Know about the Ghaznavids and Gores.
4. Understand the early difficult of sultan dynasty.
5. Grasps about the Bhakti and Sufi movements.
6. Know about the Kakatiyas, Yadavas, Hoyasalas and Pandyas.
7. Understand the about the Vijayanagara.
8. The brief history of Bahamanis.

DSC SEM –III HISTORY OF INDIA (1526-1857 AD)

1. Understand the political stand situation of India on the eve of Babar's invasion.
2. Grasp territorial expansion of Mogul Empire.
3. Understand the emergence consolidation of Shershah
4. Understand the administration setup of mugal.
5. Grasp the mughal concept of divine theory of kinship state.
6. Acquaint himself with significant events leading to establish of the rule of East India Company.
7. Understand the renaissance and reforms in India.

DSE SME – IV HISTORY OF INDIA (1858-1964)

1. Understand the leadership & the events which lead to the growth of nationalism in India.
2. Acquaint himself with major events of freedom struggle under the leadership of Mahatma Gandhi.
3. Explain the contribution of revolutionaries left movements and Indian national army.
4. Know about the communalism and the causes and efforts of the partition of India
5. Understand the evolution the Indian foreign policy.

DSE SEM – V HISTORY OF MODERN WORLD (1453-1815AD)

1. Understand the Geographical Discoveries, Reformation, Renaissance, and nation states.
2. Glorious revolution, American Revolution, French revolution.
3. Understand the unification movements in Europe.
4. Vienna congress 1815.
5. Know about the Industrial revolution.

DSE SEM - V(a) HISTORY AND CULTURE OF TELANGANA (from earliest to 1724)

1. Perceive various sources to study of Pre History of Telangana.
2. Understand the culture of the Telangana.
3. Know about the brief history of Satavahana, **Ikshavakas**, and Vishnukundinis.
4. Know about the Kakatiyas to Qutubshahis.
5. Understand the fairs and festivals, arts, food and folk songs.

DSE SEM-VI HISTORY OF MODERN WORLD (1815-1945)

1. Know about the Vienna congress 1815.
2. Bismarck and his diplomacy –system of alliances.
3. Russian revolution 1917, Fascism in Italy and Nazism in Germany the world war I
4. To understand the origin of the World War I&II all the issues are incorporated in this paper.

DSE SEM - VI (a) HISTORY MODERN TELANGANA (1724-2014)

1. Know about the brief information about the Asafjahi Dynasty.
2. Understand the Salajung reforms.
3. Know about the modernization of Hyderabad.
4. Explain the anti- nizam, anti feudal movement.
5. Explain the agitation for Telangana separate state.
6. Grasp about the formation of Telangana state June 2, 2014

Programme outcomes

Programme outcomes of prose

- To make students enough proficient's in the use of four language skills
- To study intensively the subject matter
- To make the students recognize characteristics of English sounds and significance of stress and intonation
- To make the students get the meanings of the words, phrases and sentences

Programme outcomes of poetry

- To give pleasure to the class
- To enable the students to understand the beauty of thought and to improve the power of imagination
- To awake in the students the aesthetic qualities of appreciation
- To enable the students to read poems effectively with proper pronunciation , rhythm, intonation and feeling
- To enable the students to locate picture words and figures of speech
- To enable the students to understand mood of the poem

Programme specific outcomes

- To familiarize students with the spoken and written forms of foreign language
- To enrich the learners` active vocabulary

- To develop the imaginative power of students
- To help learners read and understand words, sentences and passages
- To prepare the students to acquire good command over English language

Department of Hindi

Course Outcomes

In the Under Graduate level, student can choose Hindi as Second Language. In this condition the main target of Hindi Teaching is ,student at the end of the course ,would be able to use Hindi for normal communication, abele to do further studies and they can choose any profession ,where Hindi is the main tool to do work. Here some main Course Outcomes of Hindi Teaching.

- Students can speak Hindi, with minimum fluency.
- Develop writing, reading, understanding, communication skills in Hindi.
- Improve the Hindi grammar for use standard language.
- Students can work anywhere in India, with Hindi language. Hindi is official languages as well as second language. So they can easily be employed in India.

- As they are practicing translation forms of technical terms of Hindi and English, they can become translators in many Central Govt. Offices in India.
- By having good communications skills and command over language one can become a good speaker, teacher, mentor, interpreter etc.
- Identify the dialects of Hindi language and family.
- Identify the origin of Hindi language and family.
- Understand the origin, classifications, concept and trends of Hindi Literature.
- Students can get the ethics and moral from the various literature trends.
- Understand the eminent work of Hindi poets and writers.
- Identify the origin of Hindi prose of Hindi language.
- The student can gain knowledge about social, cultural, political issues of India from 10th century.

Department of Commerce

This program could provide knowledge on Finance, Industries, Banking Sectors, Insurance Companies, etc. After completing graduation, students can also get the practical skills to work as accountant, audit assistant, tax consultant, & computer operator. As well as other financial supporting services. The following are the Course outcomes of B.Com

1. Students can get thorough knowledge of finance and commerce.
2. The knowledge of different specialization in Accounting, costing, banking and finance with the practical exposure helps the students to stand in organizations.
3. Students can independently start up their own Business.
4. Students will prove themselves in different professional exams like C.A, C.S, CMA.MPSC, and UPSC.
5. Students will acquire the knowledge, skill in different areas of communication, decision making, innovations and problem solving in day to day business activities.
6. Students will gain thorough systematic and subject skills within various disciplines of finance, auditing and taxation, accounting, management, communication, computer.
7. Students can also get the practical skills to work as accountant, audit assistant, tax consultant and computer operator. As well as other financial supporting services.
8. To enable the students to learn principles and concepts of Accountancy.
9. Students are enabled with the Knowledge in the practical applications of accounting.
10. The student will get thorough knowledge on the accounting practice.

Department of Economics

Programme Outcomes:-

- **Critical Thinking:** Take informed actions after identifying the assumptions are accurate and valid and looking at our ideas and decisions from different perspectives.
- **Effective Communication:** Speak, read, write and listen clearly in person and through electronic media in English and in one Indian language and make meaning of the world by connecting people ideas, books, media and technology.
- **Effective Citizenship:** Demonstration empathetically social concern and equity centered, national development and the ability to act with in informed awareness of issues and participate in civic life through volunteering.
- **Social Interaction:** Elicit views of others mediate, disagreements and help to reach conclusions in group settings.
- **Ethics:** Recognize different value systems including your own understand the moral dimensions of your decisions and accept responsibility for them.

Programme Specific Outcomes:-

- **Knowledge of Economic System:** An ability to understand economic theories and functioning of basic micro economics and macro economics.
- **Statistical and Mathematical Skills:** Acquaint with collection, organization, tabulation and analysis of empirical data. Ability to use basic mathematical and statistical tools to solve real economic problems.
- **Econometric Applications:** Acquaint with basic and applied econometric tools and methods used in economics. The aim of this course to provide a foundation in applied econometric analysis and develop skills required for empirical research in economics. It also covers statistical concepts of hypothesis testing, estimation and diagnostic testing of simple and multiple regression models

Course Outcomes:-

- Demonstrate the ability to employ the “Economic way of Thinking”.
- Discuss the application of Marginal Analysis.
- Explain the use of benefit/cost Analysis.
- Explain the contribution of economics to analysis of non-market social issues.
- Asses the role of domestic and international institutions and norms in shaping economics.
- Distinguish between normative and positive economics.
- Identify the limits of economic analysis.
- Compare and contract efficiency and equity.

Skill Area

- Present economic arguments in non- quantitative form.
- Synthesize the arguments found in both academic and popular economic media.
- Discuss economic concept in an articulate manner in a class room.

Department Of Computer Science & Applications

Programme Outcome:-

- As Information Technology has become an integral part of education and life style the department focuses on preparing young minds for the globally challenging opportunities in the IT field of digital era.
- To prepare students to undertake careers involving problem solving using computer science and technologies.
- Students will develop professional skills that prepare them for immediate employment and for life-long learning in advanced areas of computer science and related fields.
- Develop ability to pursue advanced studies and research in computer science.
- To produce entrepreneurs who can innovate and develop software product.
- Create, select, and apply appropriate techniques, resources, and modern computing and IT tools including prediction and modeling to complex scientific activities with an understanding of the limitations.
- Apply the knowledge of mathematics, science, and computing to the solution of complex scientific problems.

Programme Specific Outcomes:-

- To attain knowledge and understanding the principles of programming for applying in broad range of languages and open source platforms.
- To improve the ability of imparting knowledge in various domains and solve real world problems with modern technological tools.
- Providing a technical training, through a range of educational activities, to develop a range of transferable skills applicable to employment.
- To make the students familiar with basics of Network, Internet and related concepts.
- To enable students to develop their own web site.

Course Outcomes:-

COURSE OUTCOMES

Fundamentals of Computer & Programming in C

1. Bridge the fundamental concepts of computers with the present level of knowledge of the

students.

2. Familiarise operating systems, programming languages, peripheral devices, networking, multimedia and internet.
3. Understand binary, hexadecimal and octal number systems and their arithmetic.
4. Understand how logic circuits and Boolean algebra forms as the basics of digital computer.
5. Demonstrate the building up of Sequential and combinational logic from basic gates.

Object Oriented Programming with C++

1. Understand the difference between the top-down and bottom-up approach.
2. Describe the object-oriented programming approach in connection with C++.
3. Apply the concepts of object-oriented programming .
4. Illustrate the process of data file manipulations using C++ .
5. Apply virtual and pure virtual function & complex programming situations.

Object Oriented Programming using JAVA

1. To Understand the concept and underlying principles of Object Oriented Programming.
2. To Understand how object-oriented concepts are incorporated into the Java programming language.
3. to acquire and improve problem-solving and programming skills using OOP concept.
4. To become familiar with the fundamentals and acquire programming skills in the Java language.

MDBMS

1. Describe DBMS architecture, physical and logical database designs, database modelling, relational, and hierarchical and network models.
2. Identify basic database storage structures and access techniques such as file organizations, indexing methods including B-tree, and hashing.
3. Learn and apply structured query language (SQL) for database definition and database manipulation
4. Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.
5. Understand various transaction processing, concurrency control mechanisms and database protection mechanisms.

Fundamentals of information Technology

- Learn about the components of a Computer System.
- Learn about the software and its classification.
- Understand basic concepts and terminology of information technology.
- Have a basic understanding of personal computers and their operations.
- Be able to identify issues related to information security.

PROGRAMMING IN C

- Students will acquire knowledge about: Able to implement the algorithms and draw flowcharts for solving Mathematical and Engineering problems.
- Demonstrate an understanding of computer programming language concepts. To be able to develop C programs on Linux platform.
- Ability to design and develop Computer programs, analyzes, and interprets the concept of pointers, declarations, initialization, operations on pointers and their usage.
- Able to define data types and use them in simple data processing applications also he/she must be able to use the concept of array of structures. Student must be able to define union and enumeration user defined data types.
- Develop confidence for self education and ability for lifelong learning needed for the computer language.

Relational Database Management Systems

Describe DBMS architecture, physical and logical database designs, database modelling, relational, and hierarchical and network models.

- Identify basic database storage structures and access techniques such as file organizations, indexing methods including B-tree, and hashing.
- Learn and apply structured query language (SQL) for database definition and database manipulation.
- Demonstrate an understanding of normalization theory and apply such knowledge to the normalization of a database.
- Understand various transaction processing, concurrency control mechanisms and database protection mechanisms.

WEB TECHNOLOGIES

- Familiar with client server architecture and able to develop a web application using java technologies - The client-server architecture of the World Wide Web and its communication protocol HTTP/HTTPS
- Formats and languages used in modern web-pages: HTML, XHTML, CSS, XML, XSLT, Javascript, DOM.
Programming web pages with JAVAscript/DOM (client) Good design, universal design, multi platform web applications
- Students will gain the skills and project-based experience needed for entry into web application and development careers.
- Students are able to develop a dynamic webpage by the use of java script
- Course Outcomes: Students will be able to connect a java program to a DBMS and perform insert, • Students will be able to write a well formed / valid XML document.

Department of Mathematics

Course Outcomes 2020-21

- Scientific temper will be developed in students
- Students will acquire basic knowledge practical skill and technical knowledge along with domain knowledge different subjects in the science stream.
- Student will become employable, they will be eligible for career opportunities in industry
- Student will possess basic subject knowledge required for higher studies professional applied courses like managements Studies, Law etc.
- A student should be able to recall basic facts about mathematics and should be able to display knowledge of conventions such as notations, terminology.
- A student should get adequate exposure to global and local concerns that explore them many aspects of mathematical sciences.
- Student is equipped with mathematical modelling ability, problem solving skills , creative talent and power of communication necessary for various kinds of employment.
- To learn divisibility of integers and congruence relations.
- To learn operations on polynomials, finding GCD of two polynomials and roots of polynomials.
- To learn basic properties of real numbers and its subsets which is backbone of Real Analysis.
- To be able to solve first order and first degree differential equations.
- To study the notion of Continuity and Differentiability of multivariate functions.
- To learn evaluation of double and triple integration and its application to area and volume.
- To learn the evaluation Inverse Laplace transform of functions, their derivatives and integrations , and to learn application of Convolution theorem.
- To learn to evaluate the Fourier series of various even and odd functions.
- To learn the importance of linear transformation in Physics, Engineering, Social science and various branches of Mathematics.
- To learn Inner Product spaces and Gram –Schmidt process of orthogonalization.
- To learn to find Eigen values and Eigen vectors of a matrix .
- To learn to apply the various numerical techniques for solving real life problems.
- To fit curve to the data by using 5 different methods of interpolation as well as extrapolation.
- To study various types of sets and relations, and concept of countable and uncountable..
- To learn fundamental properties and mathematical tools such as closure, identity, inverse.

Department of Political Science

Programme Outcomes

Students completing the requirements for a B.A degree in Political Science will be able to as under-

1. Write clearly and with purpose on issues of international and domestic politics and public policy.
2. Participate as a civic engaged member of society.
3. Analyse political and policy problems and formulate policies.
4. Use electronic and traditional library resources to research key, local, state national and international issues.
5. Demonstrate competency with basic tools underlying modern social science research including competency in statistics and qualitative analysis.
6. Analyse contemporary problems in the countries under consideration in light of the conceptual frameworks presented in class.
7. Develop specific ways in which contemporary challenges we face within our national and global society can be addressed peacefully.

Course Outcomes

- To understand Political theory.
- To understand comparative government and politics.
- To understand Government and politics in India.
- To understand International relations.
- To understand Western Political Thought.
- To understand Political Sociology.
- To understand Public Administration.
- To understand Formation of Telangana State.

Department of Zoology

Program Outcomes

1. Students gain knowledge and skill in the fundamentals of animal sciences, understands the complex interactions among various living organisms
2. Analyse complex interactions among the various animals of different phyla, their distribution and their relationship with the environment
3. Apply the knowledge of internal structure of cell, its functions in control of various metabolic functions of organisms.
4. Understands the complex evolutionary processes and behaviour of animals
5. Correlates the physiological processes of animals and relationship of organ systems
6. Understanding of environmental conservation processes and its importance, pollution control and biodiversity and protection of endangered species
7. Gain knowledge of Agro based Small Scale industries like sericulture, fish

- farming, butterfly farming and vermicompost preparation.
8. Understands about various concepts of genetics and its importance in human health
 9. Apply ethical principles and commit to professional ethics and responsibilities in delivering his duties
 10. Apply the knowledge and understanding of Zoology to one's own life and work
 11. Develops empathy and love towards the animals

Program Specific Outcomes:

1. Understand the nature and basic concepts of cell biology, genetics, taxonomy, physiology, ecology and applied Zoology
2. Analyse the relationships among animals, plants and microbes
3. Perform procedures as per laboratory standards in the areas of Taxonomy, Physiology, Ecology, Cell biology, Genetics, Applied Zoology, Clinical science, tools and techniques of Zoology, Toxicology, Entomology, Nematology Sericulture, Biochemistry, Fish biology, Animal biotechnology, Immunology and research methodology
4. Understand the applications of biological sciences in Apiculture, Aquaculture, Agriculture and Medicine
5. Gains knowledge about research methodologies, effective communication and skills of problem solving methods
6. Contributes the knowledge for Nation building.

Course Outcomes:

Animal Diversity - Invertebrates

1. Describe general taxonomic rules on animal classification
2. Classify Protista up to phylum using examples from parasitic adaptation
3. Classify Phylum Porifera to Echinodermata with taxonomic keys
4. Describe Phylum Nematoda and give examples of pathogenic Nematodes

Ecology, Zoogeography and Animal Behaviour:

1. Distribution of fauna in different realms interaction
2. Understand Animal behaviour and response of animals to different instincts
3. Interaction of biota abiota
4. Various kinds of Animal adaptations

Animal Diversity - Vertebrates & Developmental Biology:

1. Imparts conceptual knowledge of vertebrates, their adaptations and associations in relation to their environment

2. Classify phylum Protochordates to Mammalian
3. Complex Vertebrate interactions
4. Basic concepts of developmental biology

Cell Biology, Genetics and Evolution:

1. Structural and functional aspects of basic unit of life i.e. cell concepts
2. Mendelian and non Mendelian inheritance
3. Concept behind genetic disorder, gene mutations- various causes associated with inborn errors of metabolism
4. Theories of Evolution
5. Knowledge of eras and evolution of species

Physiology and Biochemistry:

1. Seeks to understand the mechanisms that work to keep the **human body** alive and functioning
2. Physiological and biochemical understanding through scientific enquiry into the nature of mechanical, physical, and biochemical functions of humans, their organs, and the cells of which they are composed
3. Interactions and interdependence of physiological and biochemical processes

ANIMAL PHYSIOLOGY

1. Students are taught the detailed concepts of digestion respiration excretion the functioning of nerves and muscles
2. Students gain fundamental knowledge of animal physiology
3. Students will gain skill to execute the roles of a biology teacher or medical lab technicians with training as they have basic fundamentals

Animal physiology genetics and evolution

1. Students learn the concepts of endocrine systems and homeostasis a brief account of genetics and organic evolution.
2. This course helps students to gain fundamental knowledge in these topics
3. Students gain fundamental knowledge of physiology and endocrine systems
4. Students gain fundamental knowledge of physiology of homeostasis
5. Understanding of basic concepts of genetics, laws of inheritance and central dogma of biology.
6. Understanding of genetic basis of evolution, human karyotyping and speciation

Applied Zoology

1. Understands concepts of fisheries, fishing tools and site selection
2. Aqua culture systems, induced breeding techniques, post harvesting techniques
3. Understands about composition of blood, blood born diseases, autopsy and biopsy
4. Types of immunity, antigens-antibodies and their properties

Entomology:

1. Imparts knowledge of beneficial and non-beneficial insects
- 2 .Knowledge of how they interact with their environment, other species and humans
- 3.Classification of Insects
- 4 .Role of insects in spread of diseases

Sericulture:

1. Gives knowledge of silk worm rearing
- 2.Mulberry cultivation
3. Pests and diseases associated with silk worm and mulberry
4. Various process involved in silk production

Research Methodology:

1. Understanding of scientific method, concepts and steps in research
- 2: Differentiate between the Quantitative and Qualitative Research and understand different types of Research Design
- 3: Understand the various techniques of Data Collection- Observation, Questionnaire, Interview Schedule; Case Study, Social Survey, Content Analysis
- 4: Describing various types of Sampling
- 5: Elaborate on Data Processing and Data Analysis

Immunology:

- 1.Imparts in depth knowledge of tissues, cells and molecules involved in host defense mechanisms
- 2 .Understanding of types of immunity
3. Interactions of antigens, antibodies, complements and other immune components
- 4 .Understanding of immune mechanisms in disease control, vaccination, process of immune interactions

Clinical science:

- 1 Gives knowledge related to the techniques involved in detection of various diseases

- 2 Pathology associated with various diseases
- 3 Practical skills of conducting basic clinical lab experiments
- 4 Application of knowledge of clinical science and pathology to one's own life

Animal biotechnology:

- 1 Imparts the Knowledge to culture animal cells in artificial media.
- 2 Knowledge of animal cells in culture, growth of cell lines
- 3 Use in recombinant DNA technology, genetic manipulations and in a variety of industrial processes.

Aquarium fish management

- 1 Provides knowledge of ornamental fish breeding which is highly professional and attractive avenue for youth

Clinical Science and pathology:

- 1 Understands about composition of blood, blood born diseases, autopsy and biopsy
- 2 Techniques of microscopy, microtomy, biopsy, autopsy and immunological techniques
- 3 Types of immunity, antigens-antibodies and their properties
4. Understanding of pathology of diseases caused by various microorganisms such as bacteria, virus, parasites and fungus

Structural Biology [SB]

- 1 Allows the students to gain basic knowledge about various bio molecules and their role in metabolism
- 2 Classification of enzymes, enzyme kinetics
- 3 Metabolism of carbohydrates, nucleic acids and metabolic disorders
- 4 Gains understanding of cellular organization and functional biology nucleic acids

Environmental and Conservation Biology [ECB]

1. Imparts knowledge to the student regarding environment and conservation biology.
2. Gains knowledge in the areas of responses to Laws of limiting factor, Laws of minimum, Laws of Tolerance and Tragedy of commons
3. Types of ecosystem – freshwater, marine and terrestrial,
4. Population characteristics and dynamics – conceptual approach
5. Growth curves and pyramids; sigmoid curve, J curve and hyperbola; logistic equation and concepts relating to growth
6. The students will be well equipped to become very competent in research or teaching fields after completion of this course

Immunology [IMM]

1. Provides basic knowledge about immune system and allows the student to create insight as how to improve their immune system and good health.
2. Types of immunity, antigens-antibodies and their properties
3. Complement system, MHC's and immune responses
4. Understanding of types of hypersensitivity reactions and auto immune diseases
5. Ability to understand concepts of tumor immunology and transplantation immunology

Taxonomy, Systematics and Functional Anatomy of Invertebrates [TSFAI]

1. Imparts knowledge regarding the various Invertebrates species and the regulatory processes to safeguard them
2. With the study of this paper students gain knowledge in the areas of responses to Systematic position, general organization and affinities of Ctenophora and Nemertea
3. Rhynchozoa; Systematic position, general organization and affinities of Rotifera; Systematic position, general organization and affinities of Hemichordata
5. The students will be well equipped to become very competent in research or teaching fields after completion of this course

Tools, Techniques and Biostatistics [TTB]

- 1 Students gain knowledge about various tools & techniques used in biological systems and gives them insight about their use in research.
- 2 Biostatistics teaches them to use the best data analysis methods in their research projects
- 3 Students gains knowledge about statistical methods like measures of central tendencies, Probability
- 4 Learns about hypothesis testing and inferential statistics
- 5 Learns the problem-solving methods

Animal Physiology [AP]

- 1 Imparts knowledge about various metabolic and physiological mechanisms of the human body.
2. Understands about neurophysiology and receptors
- 3 Gain knowledge about hormones and bioluminescence
- 4 Understanding of stress physiology and endocrine mechanisms will allow them to control their stress and emotions there by diverting their energy towards the positive nation building activities

Molecular Genetics and Developmental Biology [MGDB]

- 1 Knowledge about genetics, developmental biology and organogenesis
- 2 Application of DNA technology and molecular biology for research
- 3 Gains knowledge about gametogenesis, cleavage mechanisms, gastrulating and role of hormones in metamorphosis and regeneration
- 4 Provides students insight into maintaining healthy relationships with their opposite gender and allows them to make right choice about their life partner thus preventing congenital/consanguial diseases.

Evolution and Functional Anatomy of Vertebrates [EFAV]

- 1 Imparts knowledge regarding the various theories of evolution, evolutionary process such as variation, speciation, natural selection, origin of primates and man
- 2 Understanding of origin and salient features of Ostracoderms to Actinopterygii, adaptive radiation of Amphibians, Reptiles, birds and Mammals
- 3 Gains knowledge of functional anatomy of vertebrates from fishes to mammals
- 4 Understanding of evolutionary significance of internal fertilization, neaten and paedogenesis
- 5 Identifies the significance of amniotic egg its structure and evolutionary significance of skeletal system

Systems Biology[SB]

- 1 Imparts knowledge regarding the various concepts of systems biology, systems approach and its application in biological systems
- 2 The structural biology paper is physiological chemistry of all the bio molecules.
- 3 The paper imparts trough knowledge in the fundamentals of biochemistry of all the bimolecular like the carbohydrates, proteins, lipids, nucleic acids, their classification structure and metabolism.
- 4 Understanding of Mammalian biological clocks, Sustainable pest and disease management and bioremediation
- 5 Develops skills of Insect outbreak models Data formats, simulation techniques, modeling tools
6. Application, characterization and interactions of nanoparticles in biological systems

Research Methodology [RM]

- 1 The course provides wide knowledge about research, experimental & sampling design,
- 2 Data collection, analysis & interpretation of data and allows student to present the research data in scientific method
- 3 Gains skill to solve problems using inferential statistical tools
- 4 Learns to collect literature collection, literature citation, and components of research report – Text, tables, figures, and bibliography.
- 5 Writing of dissertations, project proposals, project reports, research papers.
- 6 Intellectual Property Rights – Biopiracy, copyrights, patent and traditional knowledge and

plagiarism.

7. Understanding of Laboratory safety measures, laboratory good practices, animal model systems, animal ethics- animal welfare guidelines for care and use of animals.

Comparative Animal Physiology I

1. Comparative animal physiology is a comprehensive subject that gives in depth knowledge of various physiological processes in the animal kingdom

2. Students gain knowledge about the comparative physiological concepts of nutrition digestion respiration excretion metabolism and osmoregulation.

3. Course provides students comprehensive understanding about neurobiology, neurophysiology, molecular neurobiology

4. Understanding of cognitive/behavior neurobiology, thus allowing them to correlate the human behaviour under given situation.

5. It gives comprehensive understanding regarding inborn disorders and deranged metabolisms.

6. Students feel confident in teaching physiology as well as executing research projects

Comparative animal physiology- II

1. With the study of this paper students gain knowledge in the areas of responses to environment with study of receptors CNS integration of behavior

2. Understanding of the functions of effectors in all aspects as well as the circulatory physiology and reproduction and adaptations by animals to environment

3. The students will be well equipped to become very competent in research.

4. The course provides employability in teaching fields

Applied Toxicology

1. It is a discipline overlapping with biology, chemistry, medicine that involves the study of toxic agents, their mechanism of action.

2. It involves the study of the adverse effects of chemical substances on living organisms.

3. Skill development in environmental and occupational Toxicology

4. It provides opportunities for students research projects, internships in assessing the effects of toxic pollutants on the environment and in the food chain

Medical Entomology I & II

1. Medical Entomology is an integral part of applied ecology involving the study of diverse ecto and endoparasites
2. Understanding of fundamental complement of numerous diseases which have significant impact on human health
3. Understanding of Insect vector host interactions of many important diseases like Malaria, Filariasis, Dengue etc.
4. Understanding of denudation of forests its results in increased human vector contact which have become almost irreversible.
5. Course gives insight into physiology, biochemistry and reproduction of insect vectors and their control measures.
6. Students gain knowledge about the concepts of overview of Entomology
7. Source reduction and environmental methods for vector control, biological control and other Insect bites
8. Knowledge of hormones and Insects
9. Students get good insight into how Medical Entomology is acting as a promising factor for entomologist vacancies in both public and private sectors
10. Student gains knowledge regarding vector born diseases their pathology, control measures, thus aiming at 'Swach and Swasth Bharat'
11. Students feel confident in teaching Medical Entomology as well as executing research projects

Sericulture

1. Gives knowledge of silk worm rearing, mulberry cultivation, pests and diseases associated with silk worm, mulberry and various process involved in silk production.
2. It is an agro based cottage industry in India that enables them to get self-employment
3. Sericulture is a comprehensive subject that gives in depth knowledge of the study of silkworms both physiological as well as commercial purposes including the various processes involved in the formation of silk .
4. Students gain knowledge about various systems study of silkworms and cocoons, other

defective cocoons

5. Reeling and significant diseases seen in the silkworms

6. Students feel confident in teaching Sericulture as well as executing research projects

Animal Biotechnology [AB]

1. It gives insight into various cell/tissues culture techniques

2. Understanding of in vitro culturing of organisms and production of transgenic animals.

3. Understanding of cloning of mammals, large scale culture and production from recombinant microorganisms

4. Gains skills in medical, environmental biotechnology, biopesticides, Biotechnology of aquaculture and use of animals as bioreactors

5. This insight allows students to take into consideration about ethical issues involved in production transgenic animals and BT products.

Fish Biology [FB]

1. Course provides them comprehensive understanding about aquatic ecosystem and various economical important fishes.

2. Students gain knowledge in the areas of responses characterization and classification of Ostracoderms, placoderms, acanthodians, holocephali, elasmobranches.

3. Students gain knowledge of integumentary system - basic structure of skin, dermal and epidermal pigments, fins, and scales.

4. Understanding of embryogenesis - Early development and post embryonic development

5. Understanding of fishes habits and habitats and their functional anatomy

6 .The students will be well equipped to become very competent in research or teaching fields

7 .It is one of the small scale industry which can provide the student employment opportunity.

Instrumentation and computer applications in biology

1 Understanding of basic concepts of instrumentation such as cell fractactionation,

homogenation and centrifugation

2. Students gain skills in techniques of chromatography, electrophoresis, spectroscopy and radioisotopes
3. Students gain skills in histological, immunological and electrophysiological techniques
4. Students gain skills in basics of computers, operating systems, overview of programming languages
5. Application of internet and statistical bioinformatics in research

Agricultural Nematology

1. Students gain knowledge of nematodes, their taxonomic importance, collection and fixation
2. Understanding of morphology of nematodes, life cycles, pathogenic and predatory nematodes
3. Understanding of feeding mechanisms of nematodes and nematode associations
4. Students gain skills of various kinds of nematode control measures

Biodiversity and Conservation

1. Biodiversity and conservation explore natural landscapes, species and ecosystems and acquires theories and practical methods in preserving environments and organisms.
2. Biodiversity refers not only to endangered species but also to every organism, including microbes and fungi.
3. Biodiversity and Conservation increase awareness and understanding of how human life depends on preserving animal species and natural ecosystems.
4. Biodiversity and conservation is connected to similar disciplines like environmental science, natural resources management and animal sciences.
5. Conserving biodiversity in the face of pressures such as land clearing, pest plants and animals and climate change is a challenge facing land managers and policy-makers globally.
6. Key threats to biodiversity, including habitat modification and loss, unsustainable resource use, introduced species and climate change.
7. Management actions that are used to mitigate threats to biodiversity, including selecting nature reserves, connectivity and wildlife corridors, ecosystem restoration and control of pest plants and animals.
8. Policies to conserve biodiversity including financial incentives, market-based instruments (e.g. biodiversity offsetting), ecological triage and adaptive management.

Department of Telugu

1. Sahithi Manjeera

a. Semester –I

- i. Student can enjoy all the essays and the improves literary skills
- ii. Students can learn all the grammar skills
- iii. Differentiate the methods of old and modern poetry thoughts
- iv. Understand the culture of old society and comparison with modern trends

b. Semester –II

- i. Students will be able to improve comprehensive skills as well as advanced grammar skills
- ii. Students can understand the values of literature
- iii. Differentiate the methods of old and modern poetry thoughts
- iv. Understand the culture of old society and comparison with modern trends.

2. Sahithi Kinnera

a. Semester –III

- i. The anthology contains selected literary pieces offering glimpses of life and old from different perceptive.
- ii. Students will be able to make use of grammar skills when they face competitive exams.
- iii. Differentiate the methods of old and modern poetry thoughts
- iv. Understand the culture of old society and comparison with modern trends

b. Semester –IV

- i. Students will be improve human values by following the given anthology.
- ii. Students can improve prosody and grammar skills
- iii. Differentiate the methods of old and modern poetry thoughts
- iv. Understand the culture of old society and comparison with modern trends

Department of Chemistry

Chemistry is the branch of science that deals with the study of matter, its composition, properties and reactions. It is a universal course which is essentially concerned with the production of artificial substances by utilizing natural components.

Among all the scientific disciplines, chemistry is often said to be the central part of science, as it is most extensively connected to other fields of study. Some of these fields include environmental science, medicine, biology, engineering, manufacturing, geology, astronomy and economics. To have an idea of how chemistry and its principles are used in different fields, some applications are given below.

- ❖ Principles of chemistry are used in chemical industries for manufacturing fertilizers, acids, salts, dyes, polymers, drugs, soaps, detergents, metals, alloys and other materials that contribute to the national economy.
- ❖ The techniques employed in the analysis of chemicals are used by the Geologists to identify rock samples, new minerals and oil deposits in metallurgical applications.
- ❖ Chemistry also finds its applications in tracking ocean currents, determining nutrients and measuring the rate of exchange of nutrients between layers of ocean.
- ❖ In physics, detection of new subatomic particles can be made easy by taking advantage of chemical properties of various substances.
- ❖ With a better understanding of chemical principles, it has now become possible to design and synthesize new materials which have specific magnetic, electric and optical properties. This has led to the production of superconducting ceramics, conducting polymers, optical fibers and large scale miniaturization (integration) of solid state devices.
- ❖ Chemistry plays a significant role in meeting human needs for food, health care products and other materials, aimed at improving the quality of life. This is demonstrated by insecticides for production of crop and huge variety of drugs for health care.

The modern science of chemistry is often categorized into four major areas namely inorganic chemistry, organic chemistry, physical chemistry and analytical chemistry. Each of these areas are concerned with different aspects of the properties and reactions of substances.

