GOVERNMENT DEGREE COLLEGE

HUZURNAGAR

POs, PSOs and COs

Programme Outcomes, Programme Specific Outcomes

S. No.	Programme	Programme Outcomes	Programme Specific Outcomes
1	**B.A.(EHP)** Economics History Political Science	➢ Outcome of the Programme is to give Students for multi-Disciplinary approach that helps them build their social Analytical Skills and in Pursuing Multi-Tasking Courses and Professions there are all ex-outcomes of the programme expected	➢ This course has high potential which enables a student to mold according to the career path / higher studies options at Indian Council for Historical Research, New Delhi, India / National Archives//Good Governance/Centre for Gender Studies and Development
2	**B.Sc.** **Physical Sciences** (M.P.C & MPCs)	➢ Possess a sound understanding of the theoretical foundations of various core subjects. ➢ Acquire analytical and logical thinking skills necessary to pursue higher education. ➢ Gain employment at entry level positions based on program curriculum.	➢ Master a broad set of knowledge concerning the fundamentals in the basic areas of Physics and Mathematics added with the necessary hands-on experience in various practical aspects of problem solving /programming/ experimentation. ➢ The program imparts students with an understanding of the basics of Computer Science, to develop proficiency in the practice of computing, and to prepare them for continued professional development. ➢ The combination integrating all Basic Science courses lays a strong foundation and prepares the learner for Post-Graduation research in respective disciplines.

3	**B.Sc.** **Life Sciences**	➢ Expertise in the basic sciences provides the students with opportunities to go for Higher Education and employment opportunities in industries, diagnostics, quality control and research.	➢ Master fundamental skills to function effectively as professionals and continue learning within the field of Biology Provides an understanding of an exploration of how animals have evolved, how they function, and the ways in whichthey interact with their environment. ➢ An awareness of the impact of chemistryon the environment, society, appraise roleof green chemistry in environment sustainability.
4	**B. Com.** (General)	➢ To build a strong foundation indifferent areas of Commerce. ➢ To develop the skill of applying concepts and techniques used in Commerce. ➢ To develop an attitude for working effectively and efficiently in a business environment. ➢ To integrate knowledge, skill and attitude that will sustain an environment of learning and creativity among the students. ➢ To develop student's entrepreneur skills. ➢ To enable a student to be capable of making decisions at personal and professional.	➢ Understand application of knowledge of commerce in business service sector, industry, marketing, finance, entrepreneurship development etc. ➢ Develop communication skills and computer awareness and practical application of income tax.
	B. Com. (Computer Applications)	➢ To provide an in-depth knowledge in Commerce and Computer Application courses. ➢ To provide a strong	➢ Become ethically and socially responsible commerce graduates with computer application knowledge. Students can

		foundation for higher education. ➢ To train the students in the application of computers in various business operations. ➢ To nurture the students with the intellectual, personal, and societal skills for a holistic education. ➢ To inculcate initiative in students for better industry acceptance with necessary skills.	play roles of businesswomen, entrepreneurs, managers, and consultants which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.

DEPARTMENT OF ECONOMICS

ECONOMICS – COURSE OUT COMES

MICROECONOMICS

1. Understands the Economic behavior and methodology of microeconomics.
2. Analyses the Consumer behavior and his preferences based on his utility.
3. Understand Market Demand and factors affecting price and demand.
4. Understands objectives of a business firm and nature of Production.
5. To understand the Concept of price income and substitution
6. To understand production analysis. concepts of short run pay, long run pay production
7. To understand cost and revenue, total cost, total fixed cost, total variable cost, Total revenue average revenue marginal revenue. Revenue and Cost of a firm and its equilibrium.
8. To understand market structure monopoly, duopoly, and oligopoly markets Know the types of Markets and its price determination under different time.
9. To understand business firm, profit, and pricing strategies. factors of production and its characteristics and pricing

MACRO ECONOMICS

1. To understand scope and importance of macroeconomics. concept of circular Flow of incomes.
2. Examines the behavior of the Economy as whole and Understands different methods for the measurement of national income.
3. The study of Classical and Keynesian theories of employment and unemployment makes to understand the increasing and decreasing of money supply and demand.
4. It shows capital preservation remains a real priority for most investors and student understand how the investor decides his investment portfolio will be overweight.
5. Understands the fluctuations in business cycles and causes of inflation. measures to control inflation.

QUANTITATIVE METHODS FOR ECONOMIC ANALYSIS

1. Enables the student about the development of means of carrying out transactions involving the study of physical money such as coins and paper money. This study makes the student how to apply it, including the idea that an increase in the money supply leads to inflation in the long run relationship between inflation, the money supply, real output, and prices.
2. Understand concepts of statistics, population and sample, frequency, . Methods of collecting Data. Census and smoking methods
3. Understands the methods of central Tendency and Dispersion. Absolute and Relative measures of Dispersion
4. Understand Correlation Regression. Karl's persons correlation, Co-efficient. Spearmen's Rank Correlation, concept of Regression
5. After studying this the student would be able to Describe the Index number and Time series Analysis.

PUBLIC FINANCE AND INTERNATIONAL ECONOMICS

1. Student to understand the Public Revenue, Public finance and Taxes system in various countries.
2. Understands effects of public expenditure on economic growth by using various growth model, and Public expenditure and Public debt.
3. To understanding about Indian tax system, public expenditure, public debt system, Indian federal finance system, Centre-state financial relations, Indian Budget system.
4. Understands about International trade, Exports, and Import's system in India.
5. To understand about Balance of payments, Exchange rates. Equilibrium and Disequilibrium in Balance of payments.

INDIAN ECONOMY

1. To understand Basic structure and features of Indian Economy, Population policy in India. Development of social economic infrastructure, Education and Health
2. To understand National Income, Poverty and Unemployment in India
3. Understands the Agriculture sector developments and policies followed by the Govt. Agriculture reforms, Green revolution.
4. Makes to analyze the Growth and development of industrial policy and contribution to Indian Economy. Industrial policies of 1948,1956, and 1991. Analyses the Growing Importance of Service sector in Indian Economy.
5. To understand about Planning and Public policy in India. Review of 5 years plans, NITI Aayog. Economic reforms of L., P., G. impact of GATT, WTO on Indian Economy.

ECONOMICS OF DEVELOPMENT AND PLANNING

1. Makes to understand the importance of Economic Development and Growth.
2. Understands the Determinants of Economic Development. Economic factors of Property rights, National income, Population, Education, Health, Urbanization, Migration, political factors.
3. To understand the theories of Economic Development. Nurkse's, Hirsch man's, Lewis, Rodin, theories.
4. Understands the Concept, Objectives, Process, Types of Planning.
5. Understand, Planning for underdeveloped Countries. Objectives of Economics Development-Social, Cultural, Religious, Market condition factors.

TELANGANA ECONOMY

1. Understand about Economic History of Telangana, Demographic features of Telangana.
2. To understand about, Gross Demotic Product, Poverty and Unemployment in Telangana. Poverty Alleviation, Employment generation, other Welfare Programs in Telangana.
3. Understanding about, Growth of Agriculture in Telangana Economy- Agriculture productivity, Cropping pattern, Land reforms, Irrigation sources of Mission Kakatiya.
4. To understand about Telangana Industrial policy, SEZ, SSI's, MSME. Industrial finance systems.
5. Understand about Service and Industrial sector Development in Telangana: Transport, Energy, Communication and Information technology, Science and Bank and Insurance, Tourism Development in Telangana.

ECONOMICS OF RURAL DEVELOPMENT

1. To understand about Nature, scope, and importance of Rural development
2. Role of NGO's, Agriculture, Allied sector, Non-Agriculture sector in Rural development
3. To understand about Measurements of Rural Development, Some measures of Rural poverty.
4. Understand about Some Paradigms of Rural development. Redan’s theory, Lilienstein’s thesis, Myrdal’s thesis, Gandhian Model of Rural development.
5. Understand about, Approaches to Rural development programmes. CDP, IADP, SFDA, MFALA, DPAP, DDP, IRDP, DWACRA, SGSY, SHG's.

DEPARTMENT OF HISTORY

HISTORY – COURSE OUT COMES

HISTORY OF INDIA (FROM EARLIEST TIMES - 700 CE)

- It provides a base for understanding theIndian history.
- Helps the student to understand the history of early India from theprehistoric times to the age of the Maurya's.
- Emphasizes on the factors and forces behind the rise, growth and spread of civilization and culture of India along with the dynastic history.
- To help the students to understand the contribution of Early Indians to polity, philosophy, literature, art, religion and science and technology.

HISTORY OF INDIA(700-1526 CE)

- Students will come to know consequences of the foreign invasions, particularly on the polity, society, economy and art and architecture.
- Students can acquire the knowledge on Arab Conquest, foundation of Delhi Sultanate and Growth of Education and Literature – and the decline of Delhi Sultanate.

HISTORY OF INDIA(1526-1857 CE)

It provides the knowledge to understandthe following:

- Establishment of Mughal Dynasty
- Rise of Regional Powers - Marathas,Sikhs.
- Rise of Princely States –Hyderabad – Avad - Junagarh – Mysore –Kashmir.
- Advent of European Powers
- Decline of Rural Cottage Industries and Urban Handicrafts
- 1857 Revolt – Nature, Causes andResults.

HISTORY OF INDIA (1858-1964 CE)

It provides the knowledge to understandthe following:

- Queen's Proclamation.
- Socio-Religions Reform Movements.
- Factors for the Rise of Nationalism.
- Revolutionary Movement.
- Emergence of Communal Politics.
- Jawaharlal Nehru and His Policies.

HISTORY OF THE MODERN WORLD (1453 CE - 1815 CE)

It provides the knowledge to understandthe following:

- Decline of Medieval Socio-Political,Religious, Economic conditions.
- Rise of Capitalism.

HISTORY AND CULTURE OF TELANGANA (EARLIEST TIMES - 1724 CE)

It provides the knowledge to understandthe following:

- Pre-History of Telangana.
- Brief Political Survey of Satavahanas, Ikshvakus, Vishnukundins,
- Medieval Telangana from Kakatiya's to QutbShahis.

HISTORY OF THEMODERN WORLD (1815 - 1950 CE)

- To understand the contemporary world in the light of its background History.
- To become conversant with political history of Modern World.
- To provide knowledge about the main developments in the Contemporary World (To understand to important development in 20th century World.)
- To gain knowledge about world concepts.
- To enable students to understand theeconomic transition in World duringthe 20th Century and create awareness about the principles, forces, processes and problems of the recent times.
- To impart the students with growth of various political movements that shapedthe modern world.
- To bring to light the rise and growth of nationalism as a movement in different. parts of the world.

DEPARTMENT OF POLITICAL SCIENCE

POLITICAL SCIENCE – COURSE OUT COMES

CONCEPTS AND THEORIES OF POLITICAL SCIENCE & POLITICAL THEORY

- Explaining the approaches to the Political Science.
- Assessing the theories of state. (Origin, nature,functions)
- Concept of state sovereignty.
- Understanding basic concepts of liberty, equality,rights, law and justice.
- Analyzing Marx's concept of freedom,democracy, and revolutions.

GOVERNMENT AND POLITICS IN INDIA

- Introducing the Indian Constitution
- Examining the fundamental rights and duties ofIndian citizens with a study of the signification and status of directive principles
- Analyzing the important institution of IndianUnion: - President, Prime Minister, Council of Ministers, Governor, Chief Minister, Legislature and Judiciary.
- Critically evaluating the Indian party system.Evaluating the role of various forces on Indian politics.
- Evaluating electoral process in India with focuson the election commission.

WESTERN POLITICAL THOUGHT

- Ancient Greek political thought on Aristotle andPlato.
- Examining the features of medieval politicalthought of reformation and Machiavelli.
- Critically examining Bodin theory of sovereignty, Hobbes,Locke, Rousseau.
- Examining the Bentham's utilitarianism and J.S.Mill views on liberty and Hegel's views on civil society and Non Marxist socialism.

INDIAN POLITICAL THOUGHT AND MOVEMENTS

- Tracing evaluation of Indian Political Thoughtfrom ancient India to modern India.
- Analyzing nationalist thoughts of Raja RamMohan Roy, Vivekananda and Tagore.
- Discussing the nationalism of Gandhi, M.N.Roy ,Narendra Deva and Syed Ahmed Khan.

INTERNATIONAL RELATIONS

- Explaining the scope and subject matter ofinternational relations as on autonomous academic discipline.
- Examining the issues under development, terrorism, regionalism, and integration that characterizes the post second world war order.
- Explaining globalization in contemporary world order.
- Examining Indian foreign policy and workingof UN and its organs. Peace keeping function and human rights.

DEPARTMENT OF ENGLISH

GENERAL ENGLISH – COURSE OUT COMES

SEMESTER-I AND II

(English for Enhanced CompetenceEdited by Sumita Roy, A. Karunakar, K. Aruna Priya)

- To enhance language through a task-based & learner – centric syllabus.
- To familiarize with various aspects of our new state of Telangana.
- To carry out LSRW skills.
- To channelize energy through soft skills and Value orientation.
- To help them to learn good English to prosper in professional and personal lives.
- To make them proficient in English for global competency.

SEMESTER-III AND IV

(English for Enhanced CompetenceEdited by A. Karunakar, K. Aruna Priya)

- To learn the use rather than usage of English.
- To develop their critical thinking capabilities focused through the course as an important need.
- To expose to a range of contexts where the language is used to meet a variety of real life communication needs.
- To equip with the practical, emotional, intellectual, and creative aspects of language by integratingknowledge and skills.
- To focus on readability, teach-ability, and testability - to think beyond the text.
- The students can successfully pass the semester 3 exam at the undergraduate level by the Mahathma Gandhi University, Nalgonda.
- To enhance practice in objective and subjective writing.
- To make them aware of British and American Vocabulary.

DEPARTMENT OF TELUGU

TELUGU – (SECOND LANGUAGE) – COURSE OUT COMES

SEMESTER-I AND II

(Sahithi Manjeera)

- To inculcate respect to mother tongue in general and Telugu in specific among the students.
- To educate the students about Telangana history, culture, language and literature.
- To inculcate human values, women empowerment and to improve imagination power among the students.
- To give a perfect outlook about classical, neoclassical, modern, post-modern trends in Telugu Literature.
- To motivate to write poetry, stories, literary essays etc.
- To expose the students to the structural aspects, of the language through grammar.

SEMESTER-III AND IV

(Sahithi Kinnera)

- To enlighten the students about the writers of the Telangana region who have been neglected in the past.
- To inculcate moral values and spiritual outlook through literature.
- To expose the students to literature created for the upheaval of the suppressed classes, especially Dalits.
- To explain the glory of the Telangana by texts related to the heroes of Telangana, history of the regionand cultural uniqueness of Telangana.
- To educate the students about the ill effects of modern culture.
- To inculcate passion for reading.
- To introduce the beauty of prosody in the language.

DEPARTMENT OF BOTANY

BOTANY – COURSE OUT COMES

SEMESTER – I

- Study the significance of Biodiversity with reference to Industrial, medical, environmental and agriculture microbes and fungi.
- A brief account on bacterial classification, occurrence, size, shape and genetic recombination of bacteria and mycoplasma.
- Understand the concept of Cyanobacteria such as Anabaena, Spirulina and Scytonema
- Explain the occurrence, structure, reproduction and life cycle of Chlamydomonas, Hydrodictyon, Oedogonium Chara, Sargassum and Polysiphonia.

SEMESTER – II

- General account on occurrence, organization, reproduction and classification of Fungi Albugo, Peziza, Puccinia and Cercospora and its medical, agricultural and Industrial uses.
- Brief account on Pathogen etiology, mode if action and symptoms of fungal diseases of plant and abrief discussion of Biopesticides.
- Discussion on characteristics, classification, structure and reproduction of Bryophytes (Marchantia,Anthoceros and Funaria).
- Study on the classification of plant tissues with a brief account on Dicot secondary growth andAnomalous Secondary growth.

SEMESTER – III

- A study on diversity of some important Bryophytes – Psilotum, Selaginella, Lycopodium andMarsilea.
- Brief explanation on contribution of Paleobotany with emphasis on Paleizoic and Mesozoic Era.
- Scope of Ecological factors, Edaphic factor, soil erosion, reclamations and conservation, Biotic factor, Ecological Succession and Ecological adaptation of Environment.
- explanation on ecosystem management, conservation of plant diversity and phytogeography.

SEMESTER – IV

- A detailed knowledge on character, classification, morphology, structure and economic importanceof Gymnosperms.
- A review on embryological features of Angiosperms studied by Indian botanist like P Maheshwari and BGL Swamy.
- A Detailed Study of Structure of Pistil, Mega sporangium, double fertilization, and endosperm. Definition and application of Embryogenesis, Palynology and Experimental embryology.

SEMESTER – V (Paper-V)

- Explanation on the aim and scope of taxonomy, Binomial system, chemotaxonomy, cytotaxonomy,numerical taxonomy and application of computers.
- Explain Engler and Prantle system of classification and their economic importance.
- Study of different characteristic of plants like Cucurbitacece, Apiaceae, Rubiaceae, Asteraceae, Ascclepidiaceae, Acanthaceae and Lamiaceae, including monocotyledoneae families.

SEMESTER – V (Paper-VI)

- Explain the discovery, chemical nature and replication of genetic material, genetic engineering and Biotechnology.
- Define and explain the uses of microbes in industry and agriculture with reference to production of ethanol and antibiotics.
- Study on application of vital and physical forces theories on plant physiology most preferably ascent of sap, transpiration, mineral nutrition in plants and phloem transport.

SEMESTER – VI (Paper-VII)

- A study on importance and organisation of call as fundamental unit of life, explanation on eukaryotic chromosomes, biarmed and heliocentric types.
- Application of Mendellian genetical experiments and sex determination.
- Historical account and objectives of evolution and Plant breeding- Vegetative propogation, hybridization, maintenance of germplasm, pollen bank and quarantinemethod.

SEMESTER – VI (Paper-VIII)

- A brief account on the nomenclature, classification, composition and mechanism of action of enzymes.
- Introduction and explanation of Photosynthesis, photo respiration and respiration.
- Definition and application of plant growth hormones in agriculture and horticulture, with plantmovements, photobiology, and plant defense mechanism.

DEPARTMENT OF CHEMISTRY

CHEMISTRY – COURSE OUT COMES

SEMESTER – I

- Define and analyze problems related to logarithms, parabolic curves, differentiations, Integration and probability.
- Explain velocity distribution curves, Andrew's isotherm and define collision number, rms velocity,Application of Joule Thomson effect.
- State laws of photochemistry, Distribution law. Define and demonstrate Surface tension, miscible liquids.
- Explain periodic properties and classify elements according to properties.
- Analyze errors,Calculate equivalent weights.
- Understand the concepts of basic organic Chemistry. List and study the alkanes, alkenes and Alkynes.

SEMESTER – II

- Describe and apply Schrodinger equation and quantum numbers.
- Exemplify chemicalbonding and describe the bonding.
- Classify silicates, noble gases, d& f block elements and study their properties.
- Discuss the nomenclature, properties and mechanisms of Aromatic hydrocarbons such as alkenyl benzenes, Alkyl halides, Aryl halides.

SEMESTER – III

- Explain the theories of reaction rates and laws of thermodynamics.
- Deduce the relationships related to Gibbs free energy.
- Select reducing agents from Ellingham's diagrams and discuss the types of alcohols, its preparation and their physical and chemical properties.
- Understand chemical reactions of phenols, ethers and epoxides on the basis of their functional groupsand classify fertilizers with examples.

SEMESTER – IV

- Describe phase rule and its application in one component and two component systems anddefine the terms involved in Solid state chemistry.
- Explain the methods involved in treatment of water for different purposes by selective methods andappreciate the use of radio isotopes in various fields.
- Illustrate different methods of producing carbon steel.
- Understand the various factors affecting the acidity of carboxylic acids and their reactions. Alsosuggest and adopt strategies for control of environmental pollution.

SEMESTER – V (Paper-V)

- Defining the terms related to stereochemistry and applying CIP rules for determining the nomenclature.
- Classify heterocyclic compounds and demonstrate their specific preparation methods. Differentiatevarious sugars in carbohydrates and to identify their structures.
- Summarize the basic principles of various spectroscopic methods and solve problems. To list theprinciples of green chemistry and its applications.

SEMESTER – V (Paper-VI)

- Understand the quantitative aspects of electrolysis in terms of Faraday's laws.Discuss the types of electrodes and exemplify the applications of buffers.
- Differentiate the magnetic properties of various systems.
- Explain the principles, mathematical expressions and applications of Vibrational, Raman andElectronic spectroscopy.

SEMESTER – VI (Paper-VII)

- Classify ligands and to describe the theories of structure and bonding.
- Summarize the applications of Co-ordination complexes.
- Describe the industrial materials in detail.
- Interpret the importance of trace elements in biological systems.
- Outlining the chemistry of Conducting polymers, Super conductors, Fullerenes etc.

SEMESTER – VI (Paper-VIII)

- Summarizing the contributions of scientists to field of biochemistry and illustrating the structure ofvarious biomolecules in carbohydrates
- Comparing the types of proteins and demonstrating the components present in nucleic acids.Discuss the enzyme kinetics, interactions and inhibitions.
- Explain the metabolisms of carbohydrates, fats and proteins.

DEPARTMENT OF MATHEMATICS

MATHEMATICS – COURSE OUT COMES

SEMESTER – I

DIFFERENTIAL AND INTEGRAL CALCULUS

- Define ordinary and partial differential equation.
- Understand Euler's theorem for homogeneous function of two variable.
- Evaluate the volume of solids using cross sections.
- Determine solutions to angle of intersection of two curves.
- Understand the basic knowledge of Circle, radius and Centre of Curvature.
- Calculate the length of an arc of a curve when whose equations are given in parametric and polar form.

SEMESTER-II

DIFFERENTIAL EQUATIONS

- Define differential equation and understand the order, degree of the differential equation.
- To find complete solution of non-homogeneous differential equations as linear combination of complementary function and particular solution.
- To solve the partial differential equations using Lagrange's method.
- Define Cauchy-Euler equation and solve them.
- Students will have a working knowledge of Legendre's linear equations.

SEMESTER-III: REAL ANALYSIS

- Explain the idea about sequences and monotone property.
- Acquire the basic knowledge of convergence and divergence.
- Demonstrate an understanding of limits and how they are used in sequences, series.
- Understand theorems associated with differentiability.
- Gain knowledge of L'Hospital Rule and evaluation of limits.
- Understand Integrability and theorems on integrability.
- Develop acknowledge about Riemann Integration and applies into problems.

SEMESTER-IV: ALGEBRA

- Acquire the basic knowledge and the structure of Group, Subgroup and Cyclic Groups.
- Use Lagrange's Theorem to analyze the cyclic subgroups of a group.
- Prove Cayley's theorem and understand its applications.
- Understand homomorphism, inner automorphism and their properties.
- Understand Quotient Rings, Ideals and their existence with examples.
- Familiarize with Rings, Integral Domains, Fields and Divisors of Zero.
- Familiarize with the concepts of Ideals and factor rings and homeomorphisms and factor rings.

SEMESTER-VI (A): LINEAR ALGEBRA

- Express a system of linear equations in a matrix form. Do the elementary Row Operations for the matrices and systems of linear equations.
- Define a vector space and subspace.
- Describe the concept of a basis for a vector space.
- Represent linear transformations by matrices.
- Define the dimension of a vector space.
- Define the rank of a linear transformation.
- Define row space and column space of a matrix.
- Explain the relationship between the row space and column space of a matrix.
- Describe the concepts of Eigen value,eigen vector and characteristic polynomial.
- Define the norm, Orthogonality and orthogonal bases, orthogonal complements of vectors Explain how orthogonal projections relate to least square approximations.

SEMESTER-VI (B): ANALYTICAL SOLID GEOMETRY

- Find centre and radius of Sphere and Circles.
- Find family of spheres passing through a circle, tangent planes and normal lines to a sphere.
- Obtain equation of cone, enveloping cone, cylinder, right circular cylinder, enveloping cylinder and prove their results.
- Find equation of tangent plane, reciprocal cone of given cone.
- Understand relationship between different coordinate systems and plot the curve in spherical, cylindrical, polar coordinates.
- Find the area of triangles, quadrilaterals and circles and shapes based on these.

SEMESTER-VII (A): NUMERICAL ANALYSIS

- The theoretical and practical aspects of the use of numerical analysis.
- Solve an algebraic or transcendental equation using an appropriate numerical method.
- Evaluate a derivative at a value using an approximate numerical method.
- Proficient in implementing numerical methods for a variety of multidisciplinary applications.
- To derive numerical methods for various mathematical operations and tasks, such as interpolation, differentiation, integration in, solution of linear and non- linear equations and the solution of differential equations.

SEMESTER-VII (B): VECTOR CALCULUS

- Define vector equations for lines and planes.
- Analyze vector functions to find limits, derivatives and integrals.
- Determine gradient vector fields and find potential function.
- Apply fundamental theorem of line integral, surface integrals and volume integrals to evaluate integrals.
- Compute partial derivatives, derivatives of vector valued function and gradient functions.
- Calculate directional derivatives and gradient.

DEPARTMENT OF COMMERCE

COMMERCE – COURSE OUT COMES

SEMESTER – I

FINANCIAL ACCOUNTING-I

- Enable the students to learn principles and concepts of Accountancy.
- Students are enabled with the Knowledge in the practical applications of accounting.
- The student will get thorough knowledge on the accounting practice prevailing in partnership firms and other allied aspects.
- Find out the technical expertise in maintaining the books of accounts.
- Encourage the students about maintaining the books of accounts for further reference.

BUSINESS ORGANISATION AND MANAGEMENT

- Know to make planning, decision making, controlling, staffing, organizing etc. to understand new approaches in management
- Apply conceptual business foundation to solve practical decision making problems, both Individually and as part of teams using techniques such as case study, project and assignment.
- Recognize and address ethical issues and values and apply them in organizational settings Knowledge of social awareness.
- Develop good leaders in management area.

FUNDAMENTALS OF INFORMATION TECHNOLOGY

- 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.
- Acquire knowledge about generation of computers and types of computers.
- Know about hardware/software methods and tools.

SEMESTER – II

FINANANCIAL ACCOUNTING II

- Enable the students to learn principles and concepts of Accountancy.
- Students are enabled with the Knowledge in the practical applications of accounting.
- Enable the students to learn the basic concepts of Partnership Accounting, and allied aspects of accounting.
- The student will get thorough knowledge on the accounting practice prevailing in partnership firms and other allied aspects.
- Find out the technical expertise in maintaining the books of accounts.
- Encourage the students about maintaining the books of accounts for further reference.

BUSINESS LAWS

- The student will well verse in basic provisions regarding legal framework governing the business world.
- Know the students with the basic concepts, terms & provisions of Mercantile and Business Laws.
- Develop the awareness among the students regarding these laws affecting trade business, and commerce.

PROGRAMMING WITH 'C' & 'C++'

- Write good programs in C language.
- Understand and use C libraries.
- Effectively use of Arrays and functions.
- Ability to work with expressions and type casting.
- Develop the applications using object-oriented programming with C++.

SEMESTER – III

PRINCIPLES OF INSURANCE

- Identify what insurance is, why insurance works and how to determine insurance needs.
- Explain insurance operation, including functions of insurance, insurance markets, insurance regulations and the use of insurance as a tool to avoid losses and reduce risk.
- Familiarize themselves with major insurance products, such as life insurance, health insurance, property and liability insurance.
- Compare various kinds of insurance plans as well as the contract selection criteria from a cost-benefit point of view.

ADVANCED ACCOUNTING

- Prepare financial accounts for partnership firms in different situations of admission, retirement, death and insolvency of the partners.
- Prepare financial statements for partnership firm on dissolution of the firm.
- Preparation of financial accounts with profits before incorporation.
- Demonstrate an understanding about the profits of the company and their division.
- Understand the valuation of shares and goodwill and prepare financial statements accordingly.

INCOME TAX - I

- Develop quality consultant in taxation area.
- Encourage the students to undertake higher studies and research in taxation with new policy
- Become the ability to find various levels of taxation in income and to suggest taxpayer effectively and efficiently.
- Become proficiency in using information technology and accounting tools in taxation process.

BUSINESS STATISTICS – I

- Use and understand useful functions in business as well as the concept of EMI.
- Understand the different concept of population and sample and to make students familiar with Calculation of various types of averages and variation.
- Learn the applications of matrices in business.
- Understand the students to solve LPP to maximize the profit and to minimize the cost.
- Use regression analysis to estimate the relationship between two variables and to use frequency distribution to make decision.
- Understand the techniques and concept of different types of index numbers.

PROGRAMMING WITH 'C'

- Understanding concept on structural Programming language, Pseudo code and Algorithm.
- Ability to work with textual information, data types, characters and strings.
- Ability to work with Looping and Branching statements practically.
- Ability to work with expressions and type casting.
- Ability to work with arrays and strings of complex objects.

SEMESTER – IV

PRACTICE OF LIFE INSURANCE

- Acquaint the candidates appearing for Licentiate Examination with the different aspects of life insurance its different applications and its detailed features.
- It gives the reader an insight into the different types of life insurance plans & products, and its variations.
- The method of premium calculation and bonus, the different types of annuity plans, group insurance plans etc., are explained in a lucid style, for an easy understanding.
- Topics on unit-linked policies, nomination and assignments, lapsation and revival of policies, surrender values and foreclosure, as also policy claims have all been brought out very well.

CORPORATE ACCOUNTING

- Student's skills about accounting standards will be developed.
- Make aware the students about the valuation of shares.
- Impart knowledge about holding company accounts, amalgamation, absorption and reconstruction of company.

INCOME TAX II

- Develop quality consultant in taxation area.
- Encourage the students to undertake higher studies and research in taxation with new policy.
- Become the ability to find various levels of taxation in income and to suggest tax payer effectively and efficiently.
- Become proficiency in using information technology and accounting tools in taxation process.

BUSINESS STATISTICS – II

- Use and understand useful functions in business as well as the concept of EMI.
- Understand the different concept of population and sample and to make students familiar with Calculation of various types of averages and variation.
- Learn the applications of matrices in business.
- Understand the students to solve LPP to maximize the profit and to minimize the cost.
- Use regression analysis to estimate the relationship between two variables and to use frequency distribution to make decision.
- Understand the techniques and concept of different types of index numbers.

OBJECT ORIENTED PROGRAMMING WITH C++

- Understand the difference between the top-down and bottom-up approach
- Apply the concepts of object-oriented programming.
- Use features of C++ like type conversion, inheritance, polymorphism, I/O streams and files to develop programs for real life problems.
- Develop the applications using object-oriented programming with C++.
- Use standard template library for faster development.

SEMESTER – V

PRACTICE OF GENERAL INSURANCE

- Describe the main features of the Australian General insurance market, including consumers, providers, intermediaries and other stakeholders.
- Understand and Analyze General Insurance and Injury Scheme products.
- Perform a reconciliation between two valuations of liabilities.
- Understand Capital Management of a General insurer, including calculation of regulatory capital.

INTRODUCTION TO INDIAN ECONOMY

- Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.
- Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.
- Understand agriculture as the foundation of economic growth and development, analyse the progress and changing nature of agricultural sector and its contribution to the economy.
- Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.

COST ACCOUNTING

- Understand knowledge of cost accounting, single output costing, material cost, labor cost and overhead.
- Basic Cost concepts.
- Elements of cost.
- Ascertainment of Material and Labor Cost.

BUSINESS LAWS

- The student will well verse in basic provisions regarding legal framework governing the business world.
- Know the students with the basic concepts, terms & provisions of Mercantile and Business Laws.
- Develop the awareness among the students regarding these laws affecting trade business, and commerce.

BANKING THEORY & PRACTICE

- Enlighten the students' knowledge on Banking Regulation Acts.
- Give a thorough knowledge on Indian Banking System and Acts pertaining to it.
- Provide understanding of nature, importance, of banking sector.
- Know the structure of finance related areas.
- Impart knowledge regarding source of finance for a business.

EXCEL FOUNDATION

- Examine spreadsheet concepts and explore the Microsoft Office Excel environment.
- Enter and edit data, Format data and cells.
- Construct formulas, including the use of built-in functions, and relative and absolute references.
- Summarize data with data analysis, Pivot Tables, and Pivot Charts.
- Create and modify charts, Preview and print worksheets.

  Increase productivity with macros, templates, and custom toolbars and menus.

COMPUTERISED ACCOUNTING

- Make students familiar with computer environment & operating systems
- Introduce students with accounting packages like tally.
- Develop skill and knowledge among students in applications of internet in education of commerce.

WEB TECHNOLOGY

- Analyze a web page and identify its elements and attributes.
- Create web pages using XHTML and Cascading Styles sheets.
- Build dynamic web pages using JavaScript (client-side programming).
- Make the web pages more dynamic and interactive.
- Create XML documents and XML Schema.
- Build web applications using PHP.

SEMESTER – VI

REGULATION OF INSURANCE BUSINESS

- The aim of the course is to introduce students to the law that governs insurance. Insurance law regulates many different aspects of the insurance activity.
- It regulates the business of insurance, the content of insurance policies and the handling of claims.
- Among all these aspects, a crucial element is the insurance contract.
- The course illustrates these aspects with a special focus on the European legal framework.

SECTORS OF INDIAN ECONOMY

- Develop ideas of the basic characteristics of Indian economy, its potential on natural resources.
- Understand the importance, causes and impact of population growth and its distribution, translate and relate them with economic development.
- Understand agriculture as the foundation of economic growth and development, analyze the progress and changing nature of agricultural sector and its contribution to the economy.
- Grasp the importance of planning undertaken by the government of India, have knowledge on the various objectives, failures and achievements as the foundation of the ongoing planning and economic reforms taken by the government.

THEORY & PRACTICE OF GST

- Know about importance of Indirect taxes in India and the journey of GST in India since the year 2004.
- List out the accounts to be maintained as per GST laws and various returns to be filed to get the input tax credit.
- Creating GST invoices etc. in Tally ERP 9 (Basic Introduction).
- Understand the reasons behind the implementation of GST in India and its effect on all the sectors of Economy.
- Practical exposure to GST in businesses.

COMPANY LAW

- Impart students with the knowledge of fundamentals of Company Law and provisions of the Companies Act of 2013.
- Apprise the students of new concepts involving in company law regime.
- Acquaint the students with the duties and responsibilities of Key Managerial Personnel.

MANAGERIAL ACCOUNTING

- Explain the three primary purposes of management accounting namely, inventory valuation, decision support and cost control.
- Compare traditional and contemporary costing approaches for the above purposes.
- Learn how costs are analyzed for different product costing contexts such as job-order, process or joint-product systems.
- Develop and apply standards and budgets for planning and controlling purposes.

COMMERCE LAB

- The Commerce laboratory is a new concept, wherein students practice their theoretical knowledge gained in the classroom.
- In addition students carry on more and more experiments. Mock commerce and

business activities are undertaken in laboratory.

- Teacher can develop any number of practical exercises to make the candidate understand the concepts.

E-COMMERCE

- Understand the fundamental and importance of E-commerce.
- Gain knowledge of different types in E-commerce: C2C, C2B, B2C, B2B, G2C.
- Analyze the impact of E-commerce on business models and strategy.
- Learn about the infrastructure for E-commerce.
- Learn the key features of Internet, Intranets, Extranets and web technology and how they relate to each other.
- Assess the electronic payment systems.
- Know the legal issues and privacy in E-Commerce.

RELATIONAL DATABASE MANAGEMENT SYSTEMS

- Demonstrate an understanding of the elementary & advanced features of DBMS & RDBMS.
- Describe the fundamental elements of relational database management systems.
- Explain the basic concepts of relational data model, entity-relationship model, relational database design, relational algebra and SQL.
- Design ER-models to represent simple database application scenarios.
- Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
- Improve the database design by normalization.
- Able to develop structured query language (SQL) queries to create, read, update, and delete relational database data.
- Understand the basic concepts of Concurrency Control & database security.

DEPARTMENT OF COMPUTER SCIENCE

COMPUTER SCIENCE – COURSE OUT COMES

SEMESTER-I

PROGRAMMING IN 'C'

Write a maintainable C program for a given algorithm.

- Trace the given C program manually.
- Write C program for simple applications of real life using structures and files.
- Explain role of Operating system in computer system and applications of computer networks.
- Design an algorithmic solution for a given problem
- The students will be able to enhance their analyzing and problem solving skills and use the same for writing programs in C.

SEMESTER-II

PROGRAMMING IN C++

- Explain how an existing C++ program works.
- Discover errors in a C++ program and describe how to fix them.
- Critique a C++ program and describe ways to improve it.
- Analyze a problem and construct a C++ program that solves it.
- Choose and apply the required Linux commands to develop C++ programs in a command-line environment.

SEMESTER-III

DATA STRUCTURES

- Ability to analyze algorithms and algorithm correctness.
- Ability to summarize searching and sorting techniques.
- Ability to describe stack, queue and linked list operation.

SEMESTER-IV

DATABASE MANAGEMENT SYSTEMS

- Describe the fundamental elements of relational database management systems.
- Improve the database design by normalization.
- Design ER-models to represent simple database application scenarios.
- Convert the ER-model to relational tables, populate relational database and formulate SQL queries on data.
- Familiar with basic database storage structures and access techniques: file and page organizations,
- Indexing methods including B tree, and hashing.

SEMESTER-V

PROGRAMMING IN JAVA

- Use an integrated development environment to write, compile, run, and test simple object-oriented Java programs.
- Read and make elementary modifications to Java programs that solve real-world problems.
- Validate input in a Java program.
- Identify and fix defects and common security issues in code.
- Document a Java program using Javadoc.
- Use a version control system to track source code in a project.
- Learn the basic concepts of operating systems. and about process management.
- Apply different optimization techniques for the improvement of system performance.
- Discuss various protection and security aspects.
- Apply different deadlock prevention techniques.
- Learn and apply different memory management techniques.
- Explain the objectives and functions of modern operating systems.

SEMESTER-VI

COMPUTER NETWORKS

- Independently understand basic computer network technology.
- Understand and explain Data Communications System and its components.
- Identify the different types of network topologies and protocols.
- Enumerate the layers of the OSI model and TCP/IP. Explain the function(s) of each layer.
- Identify the different types of network devices and their functions within a network.
- Understand and building the skills of subnetting and routing mechanisms.

WEB PROGRAMMING

- Students can develop a dynamic webpage using java script.
- 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 DHTML.
- Students will be able to write a server side java application called Servlet to catch update and delete operations on DBMS table.
- Students will be able to write a server side java application called JSP to catch form data sent from client, process it and store it on database.

DEPARTMENT OF PHYSICS

PHYSICS – COURSE OUT COMES

SEMESTER-I

MECHANICS

- Students after completion of this course have deep understanding of Newton's Laws to solve the problems of simple configurations.
- Understand the foundations of potential, fields, central forces and Kepler's Laws.
- Introduction to Mathematical methods make Physics to understand Gradient, Divergence and Curl in real space.

SEMESTER-II

WAVES AND OSCILLATIONS

- Learn the fundamentals of harmonic oscillator including damped and forced oscillations and grasp the significance of terms like quality factor, damping coefficient.
- Study of the Equation of Wave motion and TM Waves in stretched strings and Longitudinal Waves in Gases.

SEMESTER-III

THERMODYNAMICS

- Student is expected to understand the difference between the Reversible and irreversible process, working of Carnot Engine, calculating change in Entropy of various processes.
- Realize the importance of thermodynamic functions and applications of Maxwell's Equations.
- To get core ideas of statistical distribution and basic ideas of Boltzmann, Bose-Einstein and fermi Dirac statistics and their applications.

SEMESTER-IV

OPTICS

- Students use the principles of Wave Motion and super position to explain the physics of Polarization, interference and diffraction.
- To Understand the basics of modern optics like fiber optics and Holography.

SEMESTER-V

ELECTROMAGNETISM

The student can apply the principles of electrostatics to the solutions of problems relating to electric field and electric potential, boundary conditions.

- Apply the principles of Magnetostatics to the solutions of problems relating to Magnetic field and Magnetic potential, boundary conditions.
- Understand the concepts of Faraday's Laws, induced EMF and Maxwell's Equations.
- Apply Maxwell's Equations to solutions of problems relating to transmission lines and uniform plane wave propagation.

ELECTIVE–A: SOLID STATE PHYSICS

- Students have a clear picture of crystal structures, clear ideas of X-Ray diffraction, knowledge of Magnetism, super conductivity.
- Students familiarize with electronic properties like Polarization, Ferroelectricity.

ELECTIVE-B: QUANTUM MECHANICS

The Student can get concept clarity of black body radiation, Photoelectric effect and Compton Effect.

- Concept of Wave Mechanics, Eigen Vectors,Eigen Functions,Eigen Values.
- Quantum mechanical axioms and the matrix representation of Quantum mechanics
- Approximate methods for solving the Schrödinger equation (the variational method, perturbation theory, Born approximations).
- Spin, angular momentum states, angular momentum addition rules, and identical particles.

SEMESTER –VI

MODERN PHYSICS

- Command elementary and intermediate quantum methods.
- Apply quantum methods in the solution of problems involving atomic spectra, blackbody. radiation, the photoelectric effect, X-ray emission, the structure of the atom, and one-dimensional potentials.
- Quantitatively defend the assertions of Modern Physics theories.
- Perform experimental work with atomic and subatomic particles and photons.

- Communicate scientific ideas and physical concepts in writing clearly and effectively.

- Define and explain at least 5 areas of cutting edge 21st century Physics and its relation to Modern Physics theories developed in the 20th century.

ELECTIVE–A: BASIC ELECTRONICS

- Study of Beams of charges, junction Diodes, Transistors, signal and noise voltages, operational Amplifiers, Analog to Digital conversion vice-versa, digital instrumentation.

ELECTIVE-B: PHYSICS OF SEMI CONDUCTOR DEVICES

- Students can describe forbidden gap, Fermi-Energy level in P-Type, N-Type material.
- Characterize semiconductors in terms of Crystal structures, charge carriers and energy bands.
- Physical Characteristics of electronic structures, optical and transport properties, current-voltage behavior.

DEPARTMENT OF ZOOLOGY

ZOOLOGY – COURSE OUT COMES

SEMESTER-I

INVERTEBRATE ZOOLOGY

- Students will be able to explain the evolutionary significance and diversification of invertebrates.
- They can investigate invertebrates in laboratory and field conditions.
- Students will study in detail the eco-friendly animals and their necessity in the ecosystem.
- Also, the parasitic organisms will be understood, prevention and treatment of the diseases
- Can be taken up for a healthy and quality life.
- Production of Pearls, silk (Sericulture), honey (Apiculture), Lac (Lac Culture) etc. can be studied.

SEMESTER-II

ECOLOGY, ZOO-GEOGRAPHY & ANIMAL BEHAVIOUR

- The students get to understand the significance of balanced ecosystem maintenance of animal associations.
- Control of pollution and conserve wildlife for a better future.
- Also, identify the faunal peculiarities in response to the climate all over the globe.

. Know the intrinsic behavioral patterns of many animals.

SEMESTER-III

ANIMAL DIVERSITY- VERTEBRATES AND DEVELOPMENT BIOLOGY

- Understanding the significance of the physiology and life cycle stages of various vertebrates.
- Differentiation of poisonous snakes from non- poisonous ones, first aid to snake bite.
- Birds taught us to fly in an aero plane, to study the evolution through embryological evidence as Seen in developmental biology.

SEMESTER-IV

CELL BIOLOGY, GENETICS & EVOLUTION

- A thorough understanding of the components, including the hereditary molecular understanding, sex determination in animals and the various theories and evidence of evolution.

SEMESTER-V

PHYSIOLOGY & BIOCHEMISTRY

- By studying the physiological aspects, we understand our body's response to various substances that enter and move out of our bodies and thus impeccably regulated.
- To maintain the hormonal balance, thus avoiding many health complications, we can know which food is beneficial and the energy production details due to break down of biomolecules.

ENTEMOLOGY

- We get an overall view of insects.
- Their uses like in apiculture, sericulture, Lac culture etc.
- We get to know the harm they cause to animals and plants, as they act as vectors for many parasites and cause crop damage.
- Venomous insects are studied, the social life of insects teaches us how to live successfully in society

MICROBIOLOGY & HUMAN HEALTH

- By studying about Microbiology, we get to know how to get rid of the harmful ones and utilize the useful ones for the prosperity of mankind.
- We learn how to treat various diseases caused by microorganisms and how to prevent them.

SEMESTER-VI

IMMUNOLOGY & ANIMAL BIOTECHNOLOGY

- The study of components and the working of the complete immune system in our body is accomplished here for the development of better resistance to various diseases, the significance of immunization is well understood.
- The various applications of Biotechnology like cloning, animal cell culture, RDNA technology, transgenesis and stem cell applications are thoroughly understood and applied to human use.

AQUATIC BIOLOGY

- The students get an indepth knowledge of freshwater ecosystems like lakes, wetlands, streams and rivers, Estuaries, intertidal zones, oceanic pelagic zone, marine benthic zones etc.
- The beautiful coral reefs are familiarized. The lake as an ecosystem and its morphometry are understood.
- The Causes and effects of aquatic pollution are well understood.

APPLICATIONS OF BIOTECHNOLOGY

- The students learn how to improve crop yield with less investment, learn the procedures in Industrial microbiology to produce pharmaceuticals, beverages, hormones, enzymes etc.
- They also learn the significance of genetically modified plants and animals which cater to the needs of mankind.
- Gain knowledge about stem cells, transgenesis, Bioremediation, Biopesticides and Biofertilizers.
- The means of protecting against them through immunizations.