

## PROGRAMME OUTCOMES, PROGRAMME SPECIFIC OUTCOMES, AND COURSE OUTCOMES

### B.Com.– 3 years Undergraduate programme

#### Programme Outcomes (PO)

PO1. The students after the completion of this programme will be enabled to overcome the challenges and cash in the opportunities in the field of commerce.

PO2. The students after the completion of this programme will become well prepared to take up various professional assignments, engagements, and jobs in medium to large scale business establishments, industries, commercial set-ups and other public/private commercial sectors like banking, stock exchange, insurance, NBFCs as accountants, investment bankers, business analysts, finance officers, business / financial advisors, etc.

PO3. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO4. The students will be able to communicate effectively through speaking, reading, writing, and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people, media and technology.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to demonstrate compassionate social concern and act with cognizant awareness of issues to contribute in civic life by volunteering impartially towards national development and thereby deliver effective citizenship.

PO7. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO8. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long-term environmental sustainability.

PO9. The students will be able to engage themselves in life-long self-determining and learning in the comprehensive background of socio-technological changes for continued self-directed and life-long learning.

#### Programme Specific Outcomes (PSO)

PSO1. The students after the completion of this programme will become well versed in financial accounting.

PSO2. The students after the completion of this programme will become well versed in business communication.

PSO3. The students after the completion of this programme will be able to understand business mathematics.

PSO4. The students after the completion of this programme will be able to understand the business regulatory framework.

PSO5. The students after the completion of this programme will be able to identify a business environment.

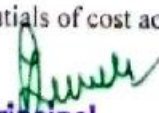
PSO6. The students after the completion of this programme will be able to understand the economics of a business.

PSO7. The students after the completion of this programme will be able to understand the essentials of corporate accounting.

PSO8. The students after the completion of this programme will be able to understand the essentials of company law.

PSO9. The students after the completion of this programme will be able to understand the essentials of cost accounting.



  
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PSO10. The students after the completion of this programme will be able to understand the principles of business management.

PSO11. The students after the completion of this programme will be able to understand the essentials of business statistics.

PSO12. The students after the completion of this programme will be able to understand the fundamentals of entrepreneurship.

PSO13. The students after the completion of this programme will be able to understand the principles of direct taxation – income tax.

PSO14. The students after the completion of this programme will be able to recognize the procedures of auditing.

PSO15. The students after the completion of this programme will be able to understand the essentials, principles and procedures of indirect taxation and GST.

PSO16. The students after the completion of this programme will be able to understand the essentials of management accounting.

PSO17. The students after the completion of this programme will be able to understand the fundamentals of insurance.

PSO18. The students after the completion of this programme will be able to understand the essentials of banking and money management.

### Course Outcomes (CO)

#### **Course 1: Financial Accounting**

CO1. The students after the completion of this course will be able to impart knowledge of various accounting concepts.

CO2. The students after the completion of this course will be able to instill knowledge about accounting procedures, methods, and techniques & develop skills for computerized Accounting.

#### **Course 2: Business Communication**

CO1. The students after the completion of this course will be able to understand the concept, process, and importance of communication.

CO2. The students after the completion of this course will be able to develop awareness regarding new trends in business communication.

CO3. The students after the completion of this course will be able to recognize various media of communication.

#### **Course 3: Business Mathematics**

CO1. The students after the completion of this course will be able to prepare for competitive exams.


CO2. The students after the completion of this course will be able to improve their calculating power & skills.

CO3. The students after the completion of this course will be able to understand the concept of simple interest, compound interest & concept of EMI.

#### **Course 4: Business Regulatory Framework**

CO1. The students after the completion of this course will be acquainted with the basic concepts, terms & Provisions of mercantile & Business Laws.



  
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CO2. The students after the completion of this course will be able to develop awareness regarding laws affecting business, trade & commerce.

#### **Course 5: Business Environment**

CO1. The students after the completion of this course will become aware of the Business Environment.

CO2. The students after the completion of this course will be able to create entrepreneurial awareness.

CO3. The students after the completion of this course will be able to motivate themselves for taking up entrepreneurship as a career.

#### **Course 6: Business Economics**

CO1. The students after the completion of this course will be able to use various economic theories.

CO2. The students after the completion of this course will be able to apply economic reasoning to problems of business.

CO3. The students after the completion of this course will be able to understand the basic micro economic concepts.

#### **Course 7: Corporate Accounting**

CO1. The students after the completion of this course will be enabled to develop awareness about corporate accounting with the provisions of the companies Act & Accounting as per Indian Accounting Standards.

CO2. The students after the completion of this course will be enabled to develop the conceptual aspect of corporate accounting & develop skills about accounting standards.

#### **Course 8: Company Law**

CO1. The students after the completion of this course will be able to impart the knowledge of fundamentals of company law.

CO2. The students after the completion of this course will be able to update the knowledge of provisions of the companies Act of 2013.

#### **Course 9: Cost Accounting**

CO1. The students after the completion of this course will be enabled with the knowledge of Basic cost concepts, Elements of cost, Ascertainment of materials & costing.

CO2. The students after the completion of this course will be able to understand various methods of costing & their applications.

#### **Course 10: Principal of Business Management**

CO1. The students after the completion of this course will be able to understand business management concepts.

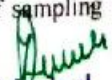
CO2. The students after the completion of this course will be able to understand about various functions of business management.

#### **Course 11: Business Statistics**

CO1. The students after the completion of this course will be able to understand & apply the concepts of mean, mode & median.

CO2. The students after the completion of this course will be able to apply various methods of sampling & probability measurement.



  
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### **Course 12: Fundamentals of Entrepreneurship**

CO1. The students after the completion of this course will be able to create entrepreneurial temper.

CO2. The students after the completion of this course will be able to take up the cause of entrepreneurship.

### **Course 13: Income Tax**

CO1. The students after the completion of this course will be able to understand the basic concept & acquire knowledge about computation of Income.

CO2. The students after the completion of this course will be enabled to submit Income Tax Returns, Advance Tax & Tax deducted at source

CO3. The students after the completion of this course will be able to identify the procedures of Tax collection authorities under Income Tax Act.

### **Course 14: Auditing**

CO1. The students after the completion of this course will be able to acquaint themselves with concept & principles of Auditing, Audit process, Assurance standards & Tax Audit, and Audit of the computerized system.

CO2. The students after the completion of this course will be able to prepare Audit Reports.

### **Course 15: Indirect Taxes with GST**

CO1. The students after the completion of this course will be able to understand and apply the concept of GST.

CO2. The students after the completion of this course will be able to understand and apply the concept of Excise duty, CENVAT.

CO3. The students after the completion of this course will be able to understand and apply the knowledge of Registration under GST including its procedures & the liable person for GST registration.

### **Course 16: Management Accounting**

CO1. The students after the completion of this course will be able to understand and apply the basic knowledge of management accounting & its relevance in a business organization.

CO2. The students after the completion of this course will be able to understand and apply managerial behavior & control structures prevalent under varied business environment.

### **Course 17: Fundamental of Insurance**

CO1. The students after the completion of this course will be able to understand and apply the fundamentals of insurance.

CO2. The students after the completion of this course will be able to understand and apply the knowledge of life Insurance, Fire Insurance & Marine Insurance.


CO3. The students after the completion of this course will be able to understand and apply the functions of Insurance agent.

### **Course 18: Money and Banking**

CO1. The students after the completion of this course will be able to understand and apply the fundamentals of banking.

CO2. The students after the completion of this course will be able to understand and apply the banking business & practices.



  
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PO3. The students after the completion of this course will be able to understand and apply the new concepts introduced in the banking system.

### **B.Sc. (Bio Group) – 3 years Undergraduate programme**

#### **Programme Outcomes (PO)**

PO1. The undergraduate programme in Zoology / Botany / Microbiology is aimed at providing the student's necessary inputs to set forth the task of bringing about new and innovative ideas/concepts so that the formulated model curricula in Zoology / Botany / Microbiology becomes in tune with the changing scenario and incorporate new and rapid advancements and multi-disciplinary skills, societal relevance, global interface, self-sustaining and supportive learning.

PO2. The undergraduate programme in Zoology / Botany / Microbiology besides teaching the basic concepts of Zoology / Botany / Microbiology should, in addition, have a broader vision for students so that the students, therefore, be exposed to the societal interface of Zoology / Botany / Microbiology and the role of Zoology / Botany / Microbiology in the development of biological sciences.

PO3. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO4. The students will be able to communicate effectively through speaking, reading, writing, and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people, media, and technology.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to demonstrate compassionate social concern and act with cognizant awareness of issues to contribute to civic life by volunteering impartially towards national development and thereby deliver effective citizenship.

PO7. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO8. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long-term environmental sustainability.

PO9. The students will be able to engage themselves in life-long self-determining and learning in the comprehensive background of socio-technological changes for continued self-directed and life-long learning.

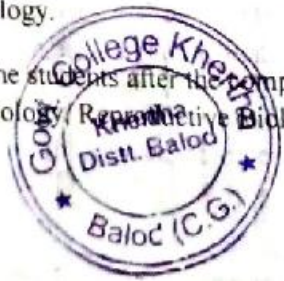
#### **Programme Specific Outcomes (PSO)**


PSO1. The students after the completion of this programme will be able to understand and apply the knowledge of Cell Biology & Invertebrates.

PSO2. The students after the completion of this programme will be able to understand and apply the knowledge of Vertebrates & Embryology.

PSO3. The students after the completion of this programme will be able to understand and apply the knowledge of Anatomy & Physiology.

PSO4. The students after the completion of this programme will be able to understand and apply the knowledge of Vertebrate Endocrinology, Reproductive Biology Behavior, Evolution, and Applied Zoology.



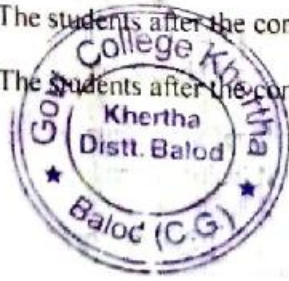
  
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- PSO5. The students after the completion of this programme will be able to understand and apply the knowledge of Ecology, Environmental biology; Toxicology; Microbiology, and Medical Zoology.
- PSO6. The students after the completion of this programme will be able to understand and apply the knowledge of Genetics, Cell Physiology, Biochemistry, Biotechnology, and Bio-techniques.
- PSO7. The students after the completion of this programme will be able to understand and apply the knowledge of the General Diversity of Microbes and Cryptogams.
- PSO8. The students after the completion of this programme will be able to understand and apply the knowledge of Cell Biology and Genetics.
- PSO9. The students after the completion of this programme will be able to understand and apply the knowledge of the Diversity of Seed Plants and their Systematics.
- PSO10. The students after the completion of this programme will be able to understand and apply the knowledge of Structure Development and Reproduction in Flowering Plants.
- PSO11. The students after the completion of this programme will be able to understand and apply the knowledge of Plant Physiology, Biochemistry, and Biotechnology.
- PSO12. The students after the completion of this programme will be able to understand and apply the knowledge of Ecology and Utilization of Plants.
- PSO13. The students after the completion of this programme will be able to understand and apply the knowledge of General Microbiology.
- PSO14. The students after the completion of this programme will be able to understand and apply the fundamentals of Biochemistry and Immunology.
- PSO15. The students after the completion of this programme will be able to understand and apply the fundamentals of Microbial Physiology and Genetics.
- PSO16. The students after the completion of this programme will be able to understand and apply the fundamentals of Principles of Bioinstrumentation and Techniques.
- PSO17. The students after the completion of this programme will be able to understand and apply the fundamentals of Molecular Biology and Genetic Engineering.
- PSO18. The students after the completion of this programme will be able to understand and apply the fundamentals of Environmental and Medical Microbiology.

### Course Outcomes (CO)

#### **Course 1: Cell Biology & Invertebrates**

- CO1. The students after the completion of this course will be able to understand Prokaryotic & Eukaryotic Cells.
- CO2. The students after the completion of this course will be able to understand Cell divisions (Mitosis & Meiosis).
- CO3. The students after the completion of this course will be able to understand the general characteristics & classification of invertebrates.
- CO4. The students after the completion of this course will be able to understand Helminthes & Annelida.
- CO5. The students after the completion of this course will be able to understand Mollusca, Protochordata.



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### Course 2: Vertebrates & Embryology

- CO1. The students after the completion of this course will be able to understand the origin and classification of Chordates.
- CO2. The students after the completion of this course will be able to understand Fishes, Amphibia & Reptilia.
- CO3. The students after the completion of this course will be able to understand Aves & Mammals.
- CO4. The students after the completion of this course will be able to understand Gametogenesis, Fertilization & Parthenogenesis, and the Development of frogs up to the formation of three germ layers.
- CO5. The students after the completion of this course will be able to understand the development of Chick up to the formation of three germ layers, Extra embryonic membranes, Placenta in mammals.

### Course 3: Anatomy & Physiology

- CO1. The students after the completion of this course will be able to understand the anatomy of various organ systems of vertebrates - Integument and its derivatives, structure of scales, hair, and feathers; the Alimentary canal and digestive glands in vertebrates; Respiratory Organs, Gills and lungs; Air-Sac in birds.
- CO2. The students after the completion of this course will be able to understand endoskeleton-limbs, girdles, and vertebrae; Circulatory System - Evolution of heart and aortic arches; Urogenital System - Kidney and excretory ducts.
- CO3. The students after the completion of this course will be able to understand the nervous system - general plan of the brain and spinal cord; Endocrine glands - classification and histology; Gonads and genital ducts.
- CO4. The students after the completion of this course will be able to understand digestion and absorption of dietary components; physiology of heart, cardiac cycle and ECG; blood coagulation; respiration mechanism and control of breathing.
- CO5. The students after the completion of this course will be able to understand physiology of excretion, osmoregulation; physiology of muscle contraction; physiology of nerve impulse; synaptic transmission; ear and eye - structure and function.

### Course 4: Vertebrate Endocrinology, Reproductive Biology Behavior, Evolution, and Applied Zoology

- CO1. The students after the completion of this course will be able to understand general characters of hormones, hormone receptors, biosynthesis and secretion of thyroid, adrenal, ovarian, and testicular hormones, an endocrine disorder due to hormones and other glands.
- CO2. The students after the completion of this course will be able to understand the reproductive cycle in vertebrates, menstruation, lactation and pregnancy, mechanism of parturition, hormonal regulation of gametogenesis, extraembryonic membrane.
- CO3. The students after the completion of this course will be able to understand evidence of organic evolution, theories of organic evolution, variation, mutation, isolation and natural selection, the evolution of the horse.
- CO4. The students after the completion of this course will be able to understand ethology, patterns of behavior taxes, reflexes, drives and stereotyped behavior, reproductive behavioral patterns, hormones, drugs, and behavior.
- CO5. The students after the completion of this course will be able to understand aquaculture, sericulture, apiculture, pisciculture, poultry keeping, elements of pest control - chemical control & biological control.

### Course 5: Ecology, Environmental biology; Toxicology; Microbiology and Medical Zoology

- CO1. The students after the completion of this course will be able to understand the aims and scopes of ecology, major ecosystems of the world, population- characteristics and regulation of densities, communities and ecosystems, biogeochemical cycles, air and water pollution, ecological succession.



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CO2. The students after the completion of this course will be able to understand environmental biology, laws of limiting factors, food chain in a freshwater ecosystem, energy flow in ecosystem-trophic levels, conservation of natural resources, environmental impact assessment.

CO3. The students after the completion of this course will be able to understand toxicology, the definition of toxicity, the classification of toxicants, the principle of systematic toxicology, toxic agents and their action metallic and inorganic agents, animal poisons - snake-venom, scorpion, and bee poisoning, food poisoning.

CO4. The students after the completion of this course will be able to understand microbiology, general and applied microbiology, the microbiology of domestic water and sewage, microbiology of milk and milk products, industrial microbiology.

CO5. The students after the completion of this course will be able to understand medical microbiology, a brief introduction to pathogenic micro-organisms, rickettsia, spirochaetes and bacteria, brief account of lifehistory and pathogenicity of the following pathogens with reference to man; prophylaxis and treatment - pathogenic protozoans - entamoeba, trypanosoma, and giardia, pathogenic helminths-schistosoma, nematode pathogenic parasites of man, vector insects.

#### **Course 6: Genetics, Cell Physiology, Biochemistry, Biotechnology and Bio-techniques**

CO1. The students after the completion of this course will be able to understand genetics, linkage and linkage maps, varieties of gene expression - multiple alleles; lithogenesis; pleiotropic genes; gene interaction; epistasis, sex-chromosome systems, and sex-linkage, mutation and chromosomal alterations; meiotic consequences, human genetics - chromosomal and single gene disorders (somatic cell genetics).

CO2. The students after the completion of this course will be able to understand cell physiology, general idea about pH and buffer, transport across membrane - cell membrane; mitochondria and endoplasmic reticulum, active transport and its mechanism; active transport in mitochondria and endoplasmic reticulum, hydrolytic enzymes - their chemical nature, activation and specificity.

CO3. The students after the completion of this course will be able to understand biochemistry, amino acids and peptides - basic structure and biological function, carbohydrate and its metabolism - glycogenesis; gluconeogenesis; glycolysis, glycogenolysis; Kreb's cycle, lipid metabolism - oxidation of glycerol; oxidation of fatty acid, protein metabolism - deamination, transamination, transmethylation; biosynthesis of protein.

CO4. The students after the completion of this course will be able to understand biotechnology - scope and importance, recombinant DNA and gene cloning, cloned genes and other tools of biotechnology, applications of biotechnology in the pharmaceutical industry, and food processing industry.

CO5. The students after the completion of this course will be able to understand biotechniques principles and techniques of pH meter, colorimeter, microscopy-light microscopes, phase contrast and electron microscopes, centrifugation, separation of biomolecules by chromatography and electrophoresis, biochemical methods for determination of protein, lipids, and carbohydrates.

#### **Course 7: General Diversity of Microbes and Cryptogams**

CO1. The students after the completion of this course will be able to understand Viruses and Bacteria: General account of viruses and mycoplasma; bacteria structure; nutrition, reproduction and economic importance; general account of cyanobacteria.

CO2. The students after the completion of this course will be able to understand Algae: General characters, classification and economic importance; important features and life history of Chlorophyceae-Volvox, Oedogonim, Coleochaete; Xanthophyceae- Vaucheria; Phaeophyceae- Ectocarpus, Sargassum; Rhodophyceae- Polysiphonia.



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CO3. The students after the completion of this course will be able to understand Fungi: General characters, classification and economic importance; important features and life history of Mastigomycotina Pythium, Phytophthora; Zygomycotina- Mucor, Ascomycotina-Saccharomyces, Eurotium, Chaetomium, Peziza; Basidiomycotina- Puccinia, Agaricus; Deuteromycotina- Cereospora, Colletotrichum; general account of Lichens.

CO4. The students after the completion of this course will be able to understand Bryophyta: Amphibians of plant kingdom displaying alternation of generations; structure, reproduction and classification of Hepaticopsida (e.g. Riccia Marchantia); Anthocerotopsida (e.g. Anthoceros), Bryopsida (e.g. Funaria) CO5. The students after the completion of this course will be able to understand Pteridophyta: The first vascular plants; important characteristics of Psilopsida, Lycopsidea, Sphenopsida and Pteropsida; structure, Reproduction in Rhynia, Lycopodium Selaginella, Equisetum, Pteris and Marsilea.

### Course 8: Cell Biology and Genetics

CO1. The students after the completion of this course will be able to understand the Cell: Envelope; Plasma membrane; bilayer lipid structure; functions; the cell wall, Ultra structure and function of nucleus: nuclear membrane; nucleolus and other organelles: Golgi bodies, ER, peroxisomes, Vacuoles.

CO2. The students after the completion of this course will be able to understand Chromosome organization: Morphology; centromere and telomere; chromosome alterations; deletions, duplications, translocations, inversions; variations in chromosome number aneuploidy, polyploidy; sex chromosomes, Cell division: Mitosis; meiosis.

CO3. The students after the completion of this course will be able to understand DNA the genetic material: DNA structure; replication; DNA- protein interaction; the nucleosome model; genetic code; satellite and repetitive DNA, Extra nuclear genome: Presence and function of mitochondrial and plastid DNA; plasmids.

CO4. The students after the completion of this course will be able to understand Gene expression: Structure of gene; transfer of genetic information; transcription, translation, protein synthesis; tRNA; ribosomes; regulation of gene expression in prokaryotes and eukaryotes; proteins - 1D, 2D and 3D structures.

CO5. The students after the completion of this course will be able to understand Genetic Variations: Mutations, spontaneous and induced; transposable genetic elements; DNA damage and repair; Genetic inheritance: Mendelism; laws of segregation and independent assortment: linkage analysis; allelic and non-allelic interactions.

### Course 9: Diversity of Seed Plants and their Systematics

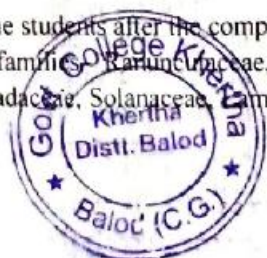
CO1. The students after the completion of this course will be able to understand characteristics of seed plants; evolution of the seed habit; seed plants with (angiosperms) and without (gymnosperms) fruits; fossil and living seed plants, general features of gymnosperms and their classification; evolution and diversity of gymnosperms; geological time scale, fossilization and fossil gymnosperms.

CO2. The students after the completion of this course will be able to understand morphology of vegetative and reproductive parts; anatomy of roots, stem and leaf, reproduction and life cycle of Pinus, Cycas and Ephedra.

CO3. The students after the completion of this course will be able to understand angiosperms: origin and evolution, some examples of primitive angiosperms, angiosperms taxonomy: brief history, aims and fundamental components; identification, keys taxonomic literature, botanical nomenclature: principles and rules; taxonomic ranks; type concept; principle of priority.

CO4. The students after the completion of this course will be able to understand classification of angiosperms; salient features of the systems proposed by Bentham and Hooker and Engler and Prantl, major contributions of cytology, phytochemistry and taxometrics to taxonomy.

CO5. The students after the completion of this course will be able to understand diversity of flowering plants: general account of the families Ranunculaceae, Brassicaceae, Malvaceae, Rutaceae, Fabaceae, Apiaceae, Acanthaceae, Apocynaceae, Asclepiadaceae, Solanaceae, Coniaceae, Chenopodiaceae, Euphorbiaceae, Liliaceae and Poaceae.



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### Course 10: Structure Development and Reproduction in Flowering Plants

CO1. The students after the completion of this course will be able to understand the basic body plan of a flowering plant: modular type of growth, diversity in plant form in annuals, biennials and perennials; convergence of evolution of tree habit in gymnosperms, monocotyledons and dicotyledons; trees-largest and longest-lived organisms.

CO2. The students after the completion of this course will be able to understand the shoot system: the shoot apical meristem and its histological organization; vascularization of primary shoot in monocotyledons and dicotyledons; formation of internodes, branching pattern; monopodial and sympodial growth canopy architecture; cambium and its functions; formation of secondary xylem, a general account of wood structure in relation to conduction of water and minerals; characteristics of growth rings, sapwood and heart wood; role of woody skeleton; secondary phloem – structure, function, relationships, periderm.

CO3. The students after the completion of this course will be able to understand leaf: origin, development, arrangement and diversity in size and shape; internal structure in relation to photosynthesis and water loss; adaptations to water stress; senescence and abscission, the root system: the root apical meristem; differentiation of primary and secondary tissues and their roles; structural modification for storage, respiration, reproduction and for interaction with microbes.

CO4. The students after the completion of this course will be able to understand flower: a modified shoot; structure, development and varieties of flower, functions, structure of anther and pistil, the male and female gametophytes; types of pollination; attractions and rewards for pollinators; pollen-pistil interaction, self incompatibility, double fertilization, formation of seed-endosperm and embryo; fruit development and maturation.

CO5. The students after the completion of this course will be able to understand significance of seed: suspended animation; ecological adaptation; unit of genetic recombination and replenishment, dispersal strategies, vegetative reproduction: vegetative propagation, grafting, economic aspects.

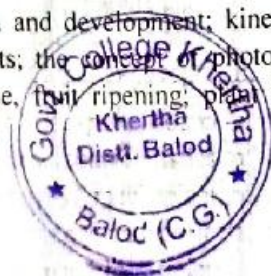
### Course 11: Plant Physiology, Biochemistry and Biotechnology

CO1. The students after the completion of this course will be able to understand plant-water relations: importance of water to plant life; physical properties of water; diffusion and osmosis; absorption, transport of water and transpiration; physiology of stomata, mineral nutrition: essential macro and micro-elements and their role; mineral uptake; deficiency and toxicity symptoms.

CO2. The students after the completion of this course will be able to understand transport of organic substances: mechanism of phloem transport; source-sink relationship; factors affecting translocation, basic of enzymology: discovery and nomenclature; characteristics of enzymes; concept of holoenzyme, apoenzyme, coenzyme and cofactors; regulation of enzyme activity, mechanism of action, photosynthesis: significance; historical aspects; photosynthetic pigments; action spectra and enhancement effects; concept of two photosystems; Z-scheme; photo-phosphorylation; Calvin cycle; C4 pathway; CAM plants; photorespiration.

CO3. The students after the completion of this course will be able to understand respiration: ATP - the biological energy currency; aerobic and anaerobic respiration; Kreb's cycle, electron transport mechanism (chemi-osmotic theory); redox potential; oxidative phosphorylation; pentose phosphate pathway, Nitrogen and lipid metabolism: Biology of nitrogen fixation; importance of nitrate reductase and its regulations; ammonium assimilation; structure and function of lipids; fatty acid biosynthesis; Betaoxidation; saturated and unsaturated fatty acids; storage and mobilization of fatty acids.

CO4. The students after the completion of this course will be able to understand growth and development: definitions; phases of growth and development; kinetics of growth, seed dormancy, seed germination and factors of their regulation; plant movements; the concept of photoperiodism; physiology of flowering; florigen concept; biological clocks; physiology of senescence, fruit ripening; plant hormones auxins, gibberellins, cytokinins, abscisic acid and ethylene, history of their



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discovery, biosynthesis and mechanism of action; photomorphogenesis; phytochromes and cryptochromes, their discovery, physiological role and mechanism of action.

CO5. The students after the completion of this course will be able to understand genetic engineering: tools and techniques of recombinant DNA technology; cloning vectors; genomic and DNA library; transposable elements; techniques of gene mapping and chromosome walking, biotechnology: functional definition; basic aspects of plant tissue culture; cellular totipotency, differentiation and morphogenesis; biology of Agrobacterium; vectors for gene delivery and marker genes; salient achievements in crop biotechnology.

### Course 12: Ecology and Utilization of Plants

CO1. The students after the completion of this course will be able to understand plants and environment: atmosphere (gaseous composition), water (properties of water cycle), light (global radiation, photosynthetically active radiation), temperature, soil (development, soil profiles, physico-chemical properties), and biota, Morphological, anatomical and physiological responses of plants to water (hydrophytes and xerophytes), temperature (thermoperiodicity), light (photoperiodism, heliophytes and sciophytes) and salinity.

CO2. The students after the completion of this course will be able to understand community ecology: community characteristics, frequency, density, cover, life forms biological spectrum; ecological succession, ecosystems: structure, abiotic and biotic components; food chain, food web, ecological pyramids, energy flow; biogeochemical cycles of carbon, nitrogen and phosphorus.

CO3. The students after the completion of this course will be able to understand population ecology: growth curves; ecotypes; ecads, biogeographical regions of India, Vegetation types of India: Forests and grasslands.

CO4. The students after the completion of this course will be able to understand utilization of plants food plants: rice, wheat, maize, potato, sugarcane, fibers: cotton and jute, vegetable oils: groundnut, mustard and coconut, general account of sources of firewood, timber and bamboos.

CO5. The students after the completion of this course will be able to understand Spices, Medicinal plants, Beverages- Tea and coffee, Rubber.

### Course 13: General Microbiology

CO1. The students after the completion of this course will be able to understand unity of microbial world, scope of microbiology, microbiology and human health, beneficial and harmful microbes, development of microbiology (contributions and pioneers).

CO2. The students after the completion of this course will be able to understand diversity of microbial world: principle of classification, classification of viruses, bacteria (including cyanobacteria) algae and fungi (including yeast) and protozoa.

CO3. The students after the completion of this course will be able to understand methods of studying microorganism: origin of microbes, microscopy, pure culture techniques, sterilization, aseptic techniques, isolation of pure culture, conditions and media for growth of microorganisms in the laboratory.

CO4. The students after the completion of this course will be able to understand general organization of microbes; structural functional organization and economic importance of algae (Nostoc, anabaena, Ocillitoria), fungi (Rhizopus, Penicillium, Aspergillus), yeast and lichens.

CO5. The students after the completion of this course will be able to understand structure, functional organization and economic importance of bacteria (Gram +ve and Gram -ve), viruses (plant and animal) and protozoa (Ciliates, Flagellates and Sporozoans).

### Course 14: Biochemistry and Immunology



  
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CO1. The students after the completion of this course will be able to understand structure and properties of mono and disaccharides, amino acids and peptides, bases; purines and pyrimidines, sugars; ribose, deoxyribose and nucleoside and nucleotide; general account of lipids.

CO2. The students after the completion of this course will be able to understand the concept of macromolecules; structural and functional organization of polysaccharides (starch, glycogen, cellulose, mucopolysaccharides), proteins and nucleic acids (DNA, RNA).

CO3. The students after the completion of this course will be able to understand enzymes; historical account, classification, co-enzymes and their role, enzyme action, enzyme kinetics,  $k_m$ ,  $v_m$  and enzyme inhibition, allosteric enzyme and isoenzyme, extracellular enzymes and their role.

CO4. The students after the completion of this course will be able to understand metabolism; general concept of metabolism (anabolism, catabolism and amphibolism), glycolysis, TCA Cycle and HMP Shunt, Anaerobic catabolism of glucose; alpha, beta and gamma oxidation of fatty acids.

CO5. The students after the completion of this course will be able to understand concept of immunity, innate and acquired immunity, brief account of cells and organs of immune system, antigen and antigenicity, antibody structure and function, antigen-antibody reaction.

#### **Course 15: Microbial Physiology and Genetics**

CO1. The students after the completion of this course will be able to understand plasma membrane and transport across membrane, energy transformation, physiology of bacterial growth, phases of growth, growth conditions, differentiation in bacterial cells-sporulation, germination; bacterial cell division replication of chromosome, partition of chromosome into daughter cell.

CO2. The students after the completion of this course will be able to understand primary and secondary metabolism.

CO3. The students after the completion of this course will be able to understand bacterial plasmids; structure and properties, replication, incompatibility, plasmid amplification, bacteriophages; lytic development cycle - T4; lytic and lysogenic development of phage, single stranded DNA phage, transposition; structure of bacterial transposons, types of bacterial transposons, mechanism of antibiotic resistance and spread of antibiotic resistance.

CO4. The students after the completion of this course will be able to understand genetic recombination; requirements, molecular basis, genetic analysis of recombination in bacteria.

CO5. The students after the completion of this course will be able to understand DNA repair and restriction; types of repair systems, restriction endonuclease, various types of restriction enzymes, dam and dcm methylases.

#### **Course 16: Principles of Bioinstrumentation and Techniques**


CO1. The students after the completion of this course will be able to understand colorimetry and spectrophotometry, spectrofluorimetry, turbidometry, nephelometry, luminometry, pH meter.

CO2. The students after the completion of this course will be able to understand chromatography; adsorption partition, column, gas, ion-exchange, gel filtration, and affinity chromatographies, HPLC, FPLC.

CO3. The students after the completion of this course will be able to understand centrifugation and ultracentrifugation, microscopy- light, phase-contrast, fluorescence, dark field, electron microscopy, laser, confocal, microscopy and digital image analysis.

CO4. The students after the completion of this course will be able to understand tissue culture techniques; principal and requirements of animal tissue culture, decontamination, sterilization and disinfection.



  
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05. The students after the completion of this course will be able to understand electrophoreses techniques- types and their application; electrophoresis of proteins and nucleic acids, immunoelectrophoresis sequencing of proteins and nucleic acids, radioisotope techniques; nature of radioactivity, detection measurement, counter, safety aspects, enzyme purification and assay techniques.

### **Course 17: Molecular Biology and Genetic Engineering**

CO1. The students after the completion of this course will be able to understand history of molecular biology, model systems, concepts of molecular biology, early history of genetic engineering, genetic engineering concepts, ethical issue.

CO2. The students after the completion of this course will be able to understand mutation; spontaneous and induced, base pair change, frame shift, deletion, inversion, random duplication, insertion, useful phenotypes (auxotrophs, conditional lethal, resistance), reversion vs. suppression, Ames test.

CO3. The students after the completion of this course will be able to understand function of macromolecules; early observation on the mechanism of heredity, DNA as genetic material; basic mechanism of replication, enzymes involved in replication, enzymes involved in transcription translation, genetic code, regulation of gene expression-transcription, translation and control of gene expression in microbes.

CO4. The students after the completion of this course will be able to understand DNA repair and restriction, types of repair systems, restriction modification systems, types of restriction enzymes, properties and uses, methylation, biology of plasmids, bacteriophages, lytic vs. lysogenic phages, single standard DNA phages, M 13, restriction modification systems, restriction enzymes.

CO5. The students after the completion of this course will be able to understand plasmid and phage vectors, restriction and ligation of vector and passenger DNA, transformation of host cells, selection vs. screening of recombinant colonies, analysis of recombinant clones, DNA sequencing, protein separation and identification methods.

### **Course 18: Environmental and Medical Microbiology**

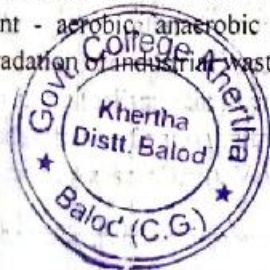
CO1. The students after the completion of this course will be able to understand aerobiology; definition, droplet nuclei, aerosol assessment of air quality, some important air borne diseases caused by bacteria (Diphtheria, Pneumonia, Meningitis), virus (Influenza, Chicken pox, Measles) and fungi (mycosis); their symptoms and preventive measures.


CO2. The students after the completion of this course will be able to understand soil microbiology: physical and chemical characteristics and micro flora of various soil types, rhizosphere, phyllosphere, brief account of microbial interactions: symbiosis, mutualism, commensalism, competition, amensalism, synergism, parasitism, and predation. biofertilizers - biological nitrogen fixation, nitrogenase enzyme, nif genes, symbiotic nitrogen fixation, and non-symbiotic nitrogen fixation (Azotobacter, Azospirillum), VAM-ecto-endo-ectendomycorrhizae.

CO3. The students after the completion of this course will be able to understand aquatic microbiology; ecosystem, fresh water (ponds, lakes, stream) and marine, water zonation: upwelling, eutrophication, potability of water - microbial assessment of water quality, brief account of water borne diseases (Typhoid, Dysentery, Cholera, Hepatitis) and preventive measures.

CO4. The students after the completion of this course will be able to understand food spoilage and food borne infections, biodegradation, xenobiotics, bioaccumulation, biopesticides and deterioration, general concept of industrial microbiology and their applications.

CO5. The students after the completion of this course will be able to understand waste treatment: types of wastes, characterization of solid and liquid waste, waste treatment solid saccharification, gasification, composting, liquid waste treatment - aerobic, anaerobic primary, secondary and tertiary methods, useful byproducts, mushroom, fuel, fertilizer, biodegradation of industrial waste.



  
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## B.A.- 3 years Undergraduate programme

### Programme Outcomes (PO)

PO1. The undergraduate programme in Hindi Literature / English Literature / Economics / Political Science / History / Sociology / Geography / Music / Home Science / Psychology / Dance / Drawing is aimed at providing the students necessary inputs to set forth the task of bringing about new and innovative ideas/concepts so that the formulated model curricula in Hindi Literature / English Literature / Economics / Political Science / History / Sociology / Geography / Music / Home Science / Psychology / Dance / Drawing becomes in tune with the changing scenario and incorporate new and rapid advancements and multi-disciplinary skills, societal relevance, global interface, self-sustaining and supportive learning.

PO2. The undergraduate programme in Hindi Literature / English Literature / Economics / Political Science / History / Sociology / Geography / Music / Home Science / Psychology / Dance / Drawing besides teaching the basic concepts of Hindi Literature / English Literature / Economics / Political Science / History / Sociology / Geography / Music / Home Science / Psychology / Dance / Drawing should in addition have broader vision for students so that the students therefore be exposed to societal interface of Hindi Literature / English Literature / Economics / Political Science / History / Sociology / Geography / Music / Home Science / Psychology / Dance / Drawing and the role of Hindi Literature / English Literature / Economics / Political Science / History / Sociology / Geography / Music / Home Science / Psychology / Dance / Drawing in the development of arts and social sciences.

PO3. The students will be able to think critically and make informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.

PO4. The students will be able to communicate effectively through speaking, reading, writing, and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people, media, and technology.

PO5. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.

PO6. The students will be able to demonstrate compassionate social concern and act with cognizant awareness of issues to contribute in civic life by volunteering impartially towards national development and thereby deliver effective citizenship.

PO7. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.

PO8. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability.

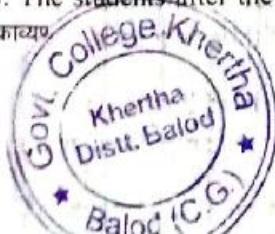
PO9. The students will be able to engage themselves in life-long self-determining and learning in the comprehensive background of socio-technological changes for continued self-directed and life-long learning.

### Programme Specific Outcomes (PSO)

PSO1. The students after the completion of this programme will be able to understand and apply the knowledge of प्राचीन हिन्दी काव्य

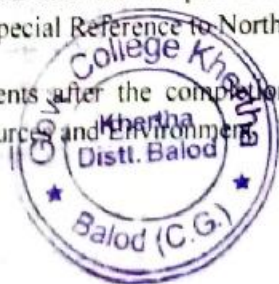
PSO2. The students after the completion of this programme will be able to understand and apply the knowledge of हिन्दी कथा साहित्य

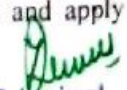
PSO3. The students after the completion of this programme will be able to understand and apply the knowledge of अर्वाचीन हिन्दी काव्य



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- PSO4. The students after the completion of this programme will be able to understand and apply the knowledge of हिन्दी निबंध  
भाषा गद्य विधाए
- PSO5. The students after the completion of this programme will be able to understand and apply the knowledge of जनपदीय  
भाषासाहित्य (उत्पीसग)
- PSO19. The students after the completion of this programme will be able to understand and apply the knowledge of Political  
Theory.
- PSO20. The students after the completion of this programme will be able to understand and apply the knowledge of Indian  
Government and Politics.
- PSO21. The students after the completion of this programme will be able to understand and apply the knowledge of Western  
Political Thought.
- PSO22. The students after the completion of this programme will be able to understand and apply the fundamentals of  
Comparative Politics and Government.
- PSO23. The students after the completion of this programme will be able to understand and apply the knowledge of  
international Politics.
- PSO24. The students after the completion of this programme will be able to understand and apply the knowledge of public  
Administration.
- PSO31. The students after the completion of this programme will be able to understand and apply the knowledge of  
Introduction to Sociology.
- PSO32. The students after the completion of this programme will be able to understand and apply the knowledge of  
Contemporary Indian Society.
- PSO33. The students after the completion of this programme will be able to understand and apply the knowledge of Society  
in India.
- PSO34. The students after the completion of this programme will be able to understand and apply the knowledge of Crime  
and Society.
- PSO35. The students after the completion of this programme will be able to understand and apply the knowledge of  
Sociology of Tribal Society.
- PSO36. The students after the completion of this programme will be able to understand and apply the knowledge of Social  
Research Methods.
- PSO37. The students after the completion of this programme will be able to understand and apply the knowledge of Physical  
Geography - Elements of Geomorphology.
- PSO38. The students after the completion of this programme will be able to understand and apply the knowledge of  
Introduction to Geography and Human Geography.
- PSO39. The students after the completion of this programme will be able to understand and apply the knowledge of Physical  
Geography - Climatology and Oceanography.
- PSO40. The students after the completion of this programme will be able to understand and apply the knowledge of Regional  
Geography with Special Reference to North America.
- PSO41. The students after the completion of this programme will be able to understand and apply the knowledge of  
Geography - Resources and Environment



  
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042. The students after the completion of this programme will be able to understand and apply the knowledge of Geography of India (with special reference to Chhattisgarh).

### Course Outcomes (CO)

#### Course 1: प्राचीन हिन्दी काव्य

- CO1. The students after the completion of this course will be able to contemplate and comprehend कबीर (कबीर-कातिकुमार जैन)
- CO2. The students after the completion of this course will be able to contemplate and comprehend जायसी-सक्षिप्तपद्मावत-यामसुंदरदासनागमतीवियोगवर्णन
- CO3. The students after the completion of this course will be able to contemplate and comprehend सूर (ध्रुवर गीतसार- स. आचार्यरामचन्द्रद्वय)
- CO4. The students after the completion of this course will be able to contemplate and comprehend तुलसी- 'रामचरितमानस'
- CO5. The students after the completion of this course will be able to contemplate and comprehend घनानन्द (घनानन्द-सर्पविश्वनाथप्रसादमिश्रद्वय)
- CO6. The students after the completion of this course will be able to contemplate and comprehend विद्यापति.
- CO7. The students after the completion of this course will be able to contemplate and comprehend रहीम.
- CO8. The students after the completion of this course will be able to contemplate and comprehend रसखान

#### Course 2: हिन्दी कथा साहित्य

- CO1. The students after the completion of this course will be able to contemplate and comprehend प्रेमचंदगबन
- CO2. The students after the completion of this course will be able to contemplate and comprehend प्रेमचंद-कफन
- CO3. The students after the completion of this course will be able to contemplate and comprehend जयशंकरप्रसाद-आकाशदीप
- CO4. The students after the completion of this course will be able to contemplate and comprehend फणीशंकरदास-ठेस
- CO5. The students after the completion of this course will be able to contemplate and comprehend मेहनराकेश-मलवेकामालिक
- CO6. The students after the completion of this course will be able to contemplate and comprehend भीष्मसाहनी-चीफकीदावत
- CO7. The students after the completion of this course will be able to contemplate and comprehend राजेन्द्र यादव-बिरादरीबाहर
- CO8. The students after the completion of this course will be able to contemplate and comprehend रागेय राघव-गदल
- CO9. The students after the completion of this course will be able to contemplate and comprehend उपेन्द्रनाथअशक, 2 बालशाौरिरेडडी 3, शिवनी

#### Course 3: अर्वाचीन हिन्दी काव्य

- CO1. The students after the completion of this course will be able to contemplate and comprehend मैथिलीशरणमुक्त-भारत-भारती की कविताए
- CO2. The students after the completion of this course will be able to contemplate and comprehend सूर्यकांत त्रिपाठीनिराली-सखि बसन्तआया,वर दे, वीणाप्रदिवोवर दे हिन्दी के सुमनों के प्रति पत्र,तोडती-पत्थर,राजे ने अपनी रखवालीकी।
- CO3. The students after the completion of this course will be able to contemplate and comprehend सुमित्रानंदनपंत-बादल,परिवर्तन,खिली, इधर,उधर,मला घन,आजकादुख कलकाआल्हाद,ताज,अज्ञा मैनीम,भारतमाता।



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04. The students after the completion of this course will be able to contemplate and comprehend  
माखनलालबठुवर्दी-बलिपथीसे साझाऔर

#### **Course 19: Political Theory**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature and scope of political theory.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the concept of state, nation and civil society.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the meaning of organs of government and theory of separation of power.

#### **Course 20: Indian Government and Politics**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the salient features in making of Indian Constitution.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize and appreciate the fundamental rights and duties and the directive principle of state policy.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize and evaluate the evolution, functioning and consequences of political parties in India.

#### **Course 21: Western Political Thought**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature, methods and significance of political thought.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize and appreciate various social and political ideas of political thinkers.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize and demonstrate the knowledge of political thinkers and political concepts.

#### **Course 22: Comparative Politics and Government**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess presidential and parliamentary system.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the difference between federal and unitary systems of government.

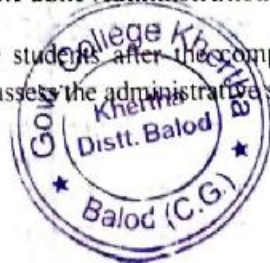
#### **Course 23: International Politics**


CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess the international political system.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the relations of India with neighboring countries.

#### **Course 24: Public Administration**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize and critically assess the administrative system of the nation.



  
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CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize various concepts in public administration.

### **Course 31: Introduction to Sociology**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the nature and scope of sociology.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the basic concepts of society, community, institution, association etc.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize different social groups.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize various social processes.

### **Course 32: Contemporary Indian Society**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the classical view about Indian Society and Varna Vyavastha.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the structure and composition of Indian society. Course

### **Course 33: Society in India**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize various social problems like Casteism, Regionalism, and Communalism etc.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize various social problems like Dowry, Domestic Violence, Divorce etc.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize basic Institutions of society. Course

### **Course 34: Crime and Society**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize social structure and anomalies.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize meanings, causes, consequences and remedies of Terrorism.


### **Course 35: Sociology of Tribal Society**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize classification of tribal people.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize socio cultural profile of tribe.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize various tribal problems.



  
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04. The students after the completion of this course will be able to contemplate and comprehend and recognize various tribal movements.

### **Course 36: Social Research Methods**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize & apply social survey and research.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize & apply research design.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize & apply techniques of data collection and statistics.

### **Course 37: Physical Geography - Elements of Geomorphology**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the effect of rotation and revolution the earth.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the interior structure of the earth.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize theory regarding of origin of continents and oceans.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the formation of rocks.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the work of internal and external forces and their associated land forms.

### **Course 38: Introduction to Geography and Human Geography**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the relationship of man and environment.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the races of man kinds.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the modes of life of pigmy, Bushman, Eskimos, Masai, Gond and Nagar.

### **Course 39: Physical Geography - Climatology and Oceanography**


CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the weather and climate.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the atmospheric moisture.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the air masses and fronts.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the surface configuration of the ocean floor.



  
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CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the circulation of oceanic water.

CO6. The students after the completion of this course will be able to contemplate and comprehend and recognize the marine deposits, coral reefs.

#### **Course 40: Regional Geography with Special Reference to North America**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the regional concept, bases of regionalization.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the structure, relief, climate and soils of North America.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the mineral and energy resources, Forests and North America.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the Agriculture belts, line stock and dairy farming in North America.

CO5. The students after the completion of this course will be able to contemplate and comprehend and recognize the Industries and Regions of North America.

#### **Course 41: Geography - Resources and Environment**

CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the resources: meaning, nature and components.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the distribution and utilization of resources.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the man environment interrelations.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the environmental conservation and management.

#### **Course 42: Geography of India (with special reference to Chhattisgarh)**


CO1. The students after the completion of this course will be able to contemplate and comprehend and recognize the geo-physical features of India.

CO2. The students after the completion of this course will be able to contemplate and comprehend and recognize the drainage, climate of India.

CO3. The students after the completion of this course will be able to contemplate and comprehend and recognize the resources, geo-cultural features of India.

CO4. The students after the completion of this course will be able to contemplate and comprehend and recognize the geo-physical features, geo-cultural features of Chhattisgarh.



  
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Course Outcomes (CO) of the Courses common to all the UG Programmes mentioned above

**Course: Foundation course English Language**

- CO1. The student will be able to write a paragraph with a topic sentence, support, and concluding sentence.
- CO2. The student will be able to produce appropriate vocabulary and correct word forms.
- CO3. The student will be able to use grammatical structures accurately.
- CO4. The student will be able to broaden their vocabularies and develop an appreciation of language.
- CO5. The student will be able to be competent to write a report or idea expansion.
- CO6. The student will be able to summarize and paraphrase information in a text.

**Course: Environmental Studies and Human Rights**

CO1. The students after the completion of this course will be able to understand, recognize and practice multidisciplinary nature of environmental studies, natural resources: renewable and non-renewable resources - forest resources, deforestation, timber extraction, mining, dams and their effects on forests and tribal people and relevant forest act, water resources, surface and ground water, floods drought, conflicts over water, dams benefits and problems and relevant act, mineral resources, environmental effects of extracting and using mineral resources, food resources, world food problems, effects of modern agriculture, fertilizer-pesticide problems, waterlogging, salinity, energy resources, renewable and nonrenewable energy sources, use of alternate energy sources, land resources, land degradation, man made landslides, soil erosion and desertification.

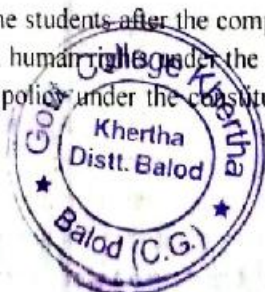
CO2. The students after the completion of this course will be able to understand, recognize and practice ecosystem - producers, consumers and decomposers, energy flow in ecosystem, ecological succession, food chains, food webs and ecological pyramids, structure and function of forest, grass, desert and aquatic ecosystem.

CO3. The students after the completion of this course will be able to understand, recognize and practice biodiversity and its conservation, genetic, species and ecosystem diversity, bio-geographical classification of India, the value of biodiversity: consumptive use, productive use, social ethics, aesthetic and option values, biodiversity at global, national and local levels, India as mega-diversity nation, hot spots of biodiversity, threats to biodiversity, habitat loss, poaching of wildlife, man-wild life conflict, endangered and endemic species of India, conservation of biodiversity: in situ and ex-situ conservation of biodiversity.

CO4. The students after the completion of this course will be able to understand, recognize and practice pollution: causes, effect and control measures for - air, water, soil, marine, noise, nuclear pollution and human population, solid waste management, urban and industrial wastes, disaster management: floods, earthquake, cyclone and landslides, environmental management - from unsustainable to sustainable development, water conservation, rain water harvesting, water shed management, resettlement and rehabilitation of people, environmental ethics, climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust, wasteland reclamation, environment protection act, environmental legislation, information technology in environment and human health.

CO5. The students after the completion of this course will be able to understand, recognize and practice concepts of human rights, classification of human rights, protection of human rights under the UNO charter, protection of human rights under the universal declaration of human rights, 1948 convention on the elimination of all forms of discrimination against women, convention on the rights of the child, 1989.

CO6. The students after the completion of this course will be able to understand, recognize and practice human rights norms in India, human rights under the constitution of India, fundamental rights under the constitution of India, directive principles of state policy under the constitution of India, enforcement of human rights in India, protection of human rights under the



  
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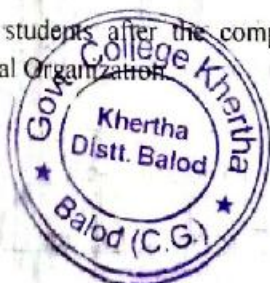
## M.A. Political Science – 4 Semesters Postgraduate programme


### Programme Outcomes (PO)

- PO1. Students would be able to think critically on political issues and its national & global implications.
- PO2. Students would be able to shoulder socio-political responsibilities in its true form and hence develop into a better citizen.
- PO3. Students would be able to perceive political issues both objectively and subjectively.
- PO4. Students would be able to develop better socio-political awareness and interaction skills for greater exchange of political thoughts and socio-political ideas.
- PO5. The students will be able to think critically and take informed decisions after identifying the accuracy and validity of their assumptions and ideas from intellectual, organizational, and personal perspectives.
- PO6. The students will be able to communicate effectively through speaking, reading, writing and listening clearly in one Indian language and thereby express themselves to the world by connecting with different ideas, books, people, media and technology.
- PO7. The students will be able to interact socially and stimulate views, reconcile disagreements and help reach consensual conclusions.
- PO8. The students will be able to demonstrate compassionate social concern and act with a cognizant awareness of issues to contribute in civic life by volunteering impartially towards national development and thereby deliver effective citizenship.
- PO9. The students will be able to ethically recognize different value systems, understand the moral dimensions of individual decisions and accept responsibility for them.
- PO10. The students will be able to recognize the issues of environmental perspectives and appreciate sustainable development for long term environmental sustainability.
- PO11. The students will be able to engage themselves in life-long self-determining and learning in the comprehensive background of socio-technological changes for continued self-directed and life-long learning.

### Programme Specific Outcomes (PSO)

- PSO1. The students after the completion of this programme will be able to proactively contemplate and comprehend Indian Political Thought.
- PSO2. The students after the completion of this programme will be able to proactively contemplate and comprehend Indian Government and Politics.
- PSO3. The students after the completion of this programme will be able to proactively contemplate and comprehend Comparative Politics.
- PSO4. The students after the completion of this programme will be able to proactively contemplate and comprehend International Organization.



  
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PSO5. The students after the completion of this programme will be able to critically contemplate and comprehend Western Political Thought.

PSO6. The students after the completion of this programme will be able to proactively contemplate and comprehend and actively participate in State Politics in India.

PSO7. The students after the completion of this programme will be able to critically contemplate and comprehend Comparative Politics of Developing Countries.

PSO8. The students after the completion of this programme will be able to critically contemplate and comprehend Indian Foreign Policy.

PSO9. The students after the completion of this programme will be able to deeply contemplate and comprehend Principles of International Politics.

PSO10. The students after the completion of this programme will be able to proactively contemplate and comprehend and critically gauge Public Administration – I.

PSO11. The students after the completion of this programme will be able to proactively contemplate and comprehend and apply the principles of Research Methodology - I in political issues.

PSO12. The students after the completion of this programme will be able to proactively and critically contemplate and comprehend and perform a participatory role in Government and Politics of Chhattisgarh.

PSO13. The students after the completion of this programme will be able to critically contemplate and comprehend Contemporary of International Politics.

PSO14. The students after the completion of this programme will be able to proactively contemplate and comprehend and critically gauge Public Administration – II.

PSO15. The students after the completion of this programme will be able to proactively contemplate and comprehend and apply the principles of Research Methodology - II in political issues.

PSO16. The students after the completion of this programme will be able to critically and proactively contemplate and comprehend Political Ideologies and Modern Political Thought and choose the best suitable one for individual's, society's, state's and nation's uprising.

### **Course Outcomes (CO)**

#### **Course 1: Indian Political Thought**

CO1. The students will be able to critically contemplate and comprehend Indian Political thought and philosophical thinkers.

CO2. The students will be able to critically contemplate and comprehend the new thinkers like Nehru, Deendayal Upadhyay, Abdul Kalam etc.


#### **Course 2: Indian Government and Politics**

CO1. The students will be able to critically explain the politics, governance and authority of India.

CO2. The students will be able to critically assess the information about racism, regionalism, communalism, criminalization and corruption, and be refrained from such politics and politicians.

#### **Course 3: Comparative Politics**



  
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CO1. The students will be able to critically judge the useful information about the probable consequences of different political order.

CO2. The students will be able to critically assess the constitutions or party systems of different countries and voluntary participate to bring positive changes in Indian political atmosphere.

#### **Course 4: International Organization**

CO1. The students will be able to critically decide upon the scope and subject matter of International relation.

CO2. The students will be able to critically assess the basic concepts like Globalization in contemporary world order.

#### **Course 5: Western Political Thought**

CO1. The students will be able to critically understand the dominant feature of ancient western political thought.

CO2. The students will be able to critically assess features of medieval political thought.

#### **Course 6: State Politics in India**

CO1. The students will be able to critically understand the State Legislature and State Executives.

CO2. The students will be able to critically assess the demand for State Autonomy.

#### **Course 7: Comparative Politics of Developing Countries**

CO1. The students will be able to critically understand the classification of Government.

CO2. The students will be able to critically assess the political development, political Elites, Political socialization, Political Modernization.

#### **Course 8: Indian Foreign Policy**

CO1. The students will be able to critically ascertain increasing India's influence on the international platform.

CO2. The students will be able to critically assess India's foreign policy and India's engagement with the rest of the world.

CO3. The students will be able to critically examine India's foreign relations with her neighbors.

#### **Course 9: Principles of International Politics**

CO1. The students will be able to critically assess the evolution of international politics.

CO2. The students will be able to critically contemplate the theories of international politics.

CO3. The students will be able to critically examine the nature and developments in international politics.

#### **Course 10: Public Administration – I**

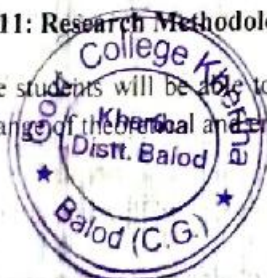
CO1. The students will be able to critically ascertain the concept of administration in India.

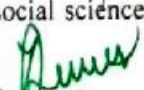
CO2. The students will be able to critically compare the traditional approaches and new approaches.

CO3. The students will be able to critically examine the structure and operation of public organizations.

#### **Course 11: Research Methodology – I**

CO1. The students will be able to critically ascertain and apply various research methods used in social science by drawing upon a range of theoretical and empirical research in survey studies of political science.



  
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CO2. The students will be able to critically examine the theoretical aspects comprising an exploration of various theories, concepts and term that are part of the research methodology in survey studies of political science.

### **Course 12: Government and Politics of Chhattisgarh**

CO1. The students will be able to critically ascertain and comprehend the main determining factors and features of state politics in Chhattisgarh.

CO2. The students will be able to critically assess the various national movements in Chhattisgarh and major social reformist and political leaders.

### **Course 13: Contemporary of International Politics**

CO1. The students will be able to critically ascertain and comprehend the fundamental theories and themes of contemporary International politics.

CO2. The students will be able to critically think, analyze information, and express their ideas clearly in the practice of International politics.

### **Course 14: Public Administration – II**

CO1. The students will be able to critically ascertain the importance of public administration in India.

CO2. The students will be able to critically examine the characteristics of public administration in India.

CO3. The students will be able to critically assess the operations of public organizations in India.

### **Course 15: Research Methodology – II**

CO1. The students will be able to perform the critical review of published political science literature and research for advancement of new research and development in political science.

CO2. The students will be able to critically examine the research methodology used in survey studies of political science.


CO3. The students will be able to critically analyze the data used in survey studies of political science and comprehend the data based conclusive interpretations for political survey studies in India.

### **Course 16: Political Ideologies and Modern Political Thought**

CO1. The students will be able to perform the critical comprehension, review and assessment of various concepts like Individualism, Existentialism, Feminism, and Liberalism, Socialism etc prevalent in national and international political scene.

CO2. The students will be able to critically contemplate, assess and review of political thinkers like Antonio Gramsci, Jean Paul Sartre and their political views and opinions.



  
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