DEPARTMENT OF BOTANY

SYLLABUS

Programme Outcome

Upon completion of the B. Sc. Degree Programme in Botany,

Sl. No.	PO Number	Programme Outcome
1	PO 1	Students will acquire core competency in the subject Botany, and in allied subject areas.
2	PO 2	Students will have an increased understanding of fundamental concepts of botany and their applications of scientific principles.
3	PO 3	Students have exposure to cutting-edge technologies that are currently used in the subject
4	PO 4	Students will be able to identify the major groups of organisms with an emphasis on plants and be able to classify them within a phylogenetic framework.
5	PO 5	Students will be able to compare and contrast the characteristics of plants, algae, and fungi that differentiate them from each other and from other forms of life.
6	PO 6	Students will be aware of the social and environmental issues, significance of plants and their relevance to the national economy.
7	PO 7	Students will be able to demonstrate procedural knowledge that creates different types of professionals in the field of Botany i.e. research and development, teaching, government and public services.
8	PO 8	Students will be able to prepare for state as well as national competitive examinations, like UGC-CSIR NET and UPSC Civil Services Examination.

Course Outcomes

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
Semester 1 **Core Course- Angiosperm anatomy, Reproductive Botany and Palynology**			
1.	CO 1	▪ Develop skills for identification of microscopic structures	Un, Re, Ap
2.	CO 2	▪ Distinguish various tissue systems and internal structure	Un, Re, Ap
3.	CO 3	▪ Recognize the different aspects of flower development	Re, Un,
4.	CO 4	▪ Acquire basic knowledge about embryo development and pollen grain	Re, Un,

5.	CO 5	▪ Identify and classify different plant fossil records	Un, Re, Ap
Complementary for Zoology **Microtechnique, Angiosperm Anatomy and Reproductive Botany**			
6.	CO 1	▪ Expertise in taking micro-sections of the plant materials	Un, Re
7.	CO 2	▪ Acquire proficiency in preserving and collected plant materials	Re, Un, Ap
8.	CO 3	▪ Develop skills for identification of microscopic structures	Re, Un, Ap
9.	CO 4	▪ Distinguish various tissue systems and internal structure	Un, Re
10.	CO 5	▪ Understand the morphology and development of plant reproductive Parts.	Re, Un, Ap
Semester II **Core Course- Methodology and perspectives in plant sciences**			
11.	CO 1	▪ Understand different scientific methods, culture and work habits	Re, Un, Ap
12.	CO 2	▪ Acquire awareness on role of research in science	Un, Re
13.	CO 3	▪ Familiarize with the basic tools and techniques of scientific study with emphasis on biological sciences	Re, Un, Ap
14.	CO 4	▪ Apply scientific methods independently and familiarize instruments in biological labs	Re, Un, Ap
15.	CO 5	▪ Acquaint with the different bio statistics techniques and their use in different purposes	Un, Re, Ap
Complementary for Zoology **Phycology, Mycology, Lichenology, Bryology, Pteridology, Gymnosperms and Plant Pathology**			
16.	CO 1	▪ Understand about the diverse group of plants	Re, Un,
17.	CO 2	▪ Familiarize characteristic features of algae, fungi, Lichens, bryophytes, Pteridophytes, Gymnosperms and their significance.	Un, Re
18.	CO 3	▪ Acquire knowledge about types of algae, fungi, lichen and their economic as well as evolutionary significance	Re, Un, Ap
19.	CO 4	▪ Acquire awareness about the plant diseases, affecting agriculture, its causative organisms and symptoms	Re, Un, Ap
20.	CO 5	▪ Familiarize with the various measures adopted to control plant diseases	Un, Re, Ap

Semester III **Core Course - Microbiology, Phycology, Mycology, Lichenology and Plant pathology**			
21.	CO 1	▪ Identify the diverse world of microbes	Re, Un
22.	CO 2	▪ Discuss the different group of lower plants and its significance	Un, Re
23.	CO 3	▪ Understand about the lichen world and its significance.	Re, Un
24.	CO 4	▪ Acquire awareness about the plant diseases, affecting agriculture, its causative organisms and symptoms	Re, Un, Ap
25.	CO 5	▪ Familiarize with the various measures adopted to control plant diseases	Re, Un, Ap
Complementary for Zoology **Systematic Botany, Economic Botany, Ethnobotany, Plant Breeding**			
26.	CO 1	▪ State out the significance of plant taxonomy.	Re, Un
27.	CO 2	▪ Understand the importance of morphological characters in plant identification and classification	Re, Un, Ap
28.	CO 3	▪ Classify different plants according to its economic importance	Re, Un, Ap
29.	CO 4	▪ Develop knowledge about economic, ethno botanical significance and pharmacognosy of plants.	Re, Un, Ap
30.	CO 5	▪ Design different methods for crop improvement	Re, Un, Ap
Semester IV **Core Course -Bryology, Pteridology, Gymnosperms and Paleobotany**			
31.	CO 1	▪ Understand plant evolution and their transition to land habitat.	Re, Un
32.	CO 2	▪ Analyze and recognize taxonomic position, occurrence, thallus structure, reproduction and evolutionary significance of Bryophytes, Pteridophytes and Gymnosperms	Re, Un
33.	CO 3	▪ Demonstrate experimental techniques and methods of appropriate analysis of Bryophytes, Pteridophytes, Gymnosperms	Re, Un, Ap
34.	CO 4	▪ Identify and classify different plant fossil records	Re, Un, Ap
35.	CO 5	▪ Impart knowledge about fossil formation and its significance.	Re, Un, Ap
Complementary for Zoology			

Plant Physiology, Plant Ecology, Horticulture and Plant Biotechnology			
36.	CO 1	▪ Explain the significance of Photosynthesis and respiration	Re, Un
37.	CO 2	▪ Explain chemical properties and deficiency symptoms in plants	Re, Un, Ap
38.	CO 3	▪ Understand the core concepts of biotic and abiotic components of life	Re, Un
39.	CO 4	▪ Classify the different classifications of horticultural crops, nursery management, and evaluate the use of technology in horticulture.	Re, Un, Ap
40.	CO 5	▪ Discuss the role of plant tissue culture in improving the quality and yield of crops	Re, Un, Ap
Semester V **Core Course- Angiosperm Morphology, Systematic Botany, Economic Botany, Ethnobotany and Pharmaconosy**			
41.	CO 1	▪ Examine the different morphological characters in plant identification and classification	Re, Un
42.	CO 2	▪ Evaluate the important herbaria and botanical gardens	Re, Un
43.	CO 3	▪ Interpret the rules of IUCN in botanical nomenclature	Re, Un,Ap
44.	CO 4	▪ Appreciate the diversity of plants and the plant products in human use	Re, Un, Ap
45.	CO 5	▪ Operate screening of adulteration in herbal extracts and formulations	Re, Un, Ap
Core Course- Environmental Studies and Phytogeography			
46.	CO 1	▪ Create awareness about ecosystem and natural resources	Re, Un, Ap
47.	CO 2	▪ Discuss the importance of Biodiversity conservation.	Re, Un, Ap
48.	CO 3	▪ Understand the need to mitigate pollution strategies for disaster management	Re, Un, Ap
49.	CO 4	▪ Analyze the phytogeography or phytogeographical division of India	Re, Un, Ap
50.	CO 5	▪ Support the importance of conservation of vegetation in India	Re, Un, Ap
Core Course- Cell biology, Genetics and Evolutionary Biology			
51.	CO 1	▪ Compare the structure and function of cells & explain the development of cells	Re, Un, Ap

52.	CO 2	▪ Create awareness about cellular organelles.	Re, Un, Ap
53.	CO 3	▪ Learns about the fine structure and molecular aspects of genetic material	Re, Un, Ap
54.	CO 4	▪ Have conceptual understanding of laws of inheritance, genetic basis of loci and alleles and their linkage.	Re, Un, Ap
55.	CO 5	▪ Able to solve and workout problems in classical genetics	Re, Un, Ap
56.	CO 6	▪ Understand evolutionary trends and evidences of evolution organisms	Re, Un, Ap
Open Course- Horticulture			
57.	CO 1	▪ Understand the importance of horticulture in human welfare	Re, Un, Ap
58.	CO 2	▪ Understand the different classifications of horticultural crops, nursery management, and use of technology in horticulture.	Re, Un, Ap
59.	CO 3	▪ Understands the types of gardens and flower arrangements	Re, Un, Ap
60.	CO 4	▪ Familiarize propagation methods in plants	Re, Un, Ap
61.	CO 5	▪ Understands and applies various harvesting and preservation methods of fruits and vegetables	Re, Un, Ap
Semester VI **Core Course- Plant Physiology and Biochemistry**			
62.	CO 1	▪ Understand the basic principles related to various physiological functions in plant life	Re, Un
63.	CO 2	▪ Acquire a detailed knowledge about photosynthesis and respiration taking place in plants	Re, Un
64.	CO 3	▪ Identifies different hormonal responses of plants and its practical applications	Re, Un, Ap
65.	CO 4	▪ Understand the role, structure and importance of the bio molecules associated with plant life.	Re, Un, Ap
66.	CO 5	▪ Analyse biochemical processes occurring in plants by experimentation	Re, Un, Ap
Molecular Biology, General Informatics & Bioinformatics			
67.	CO 1	▪ Know about the genomic organization or living organisms	Re, Un
68.	CO 2	▪ Apply cell based methods in experimentation mode	Re, Un, Ap
69.	CO 3	▪ Gain an understanding of various steps in transcription, protein synthesis and protein modification.	Re, Un

70.	CO 4	▪ Get an overview of information technology	Re, Un, Ap
71.	CO 5	▪ Develop skill for using internet, biological databases and molecular visualization tools.	Re, Un, Ap
Horticulture, Plant Breeding & Research Methodology			
72.	CO 1	▪ Understand the importance of horticulture in human welfare	Re, Un, Ap
73.	CO 2	▪ Understand the different classifications of horticultural crops, nursery management, and use of technology in horticulture.	Re, Un, Ap
74.	CO 3	▪ Gain knowledge on the techniques of production of new superior crop verities	Re, Un, Ap
75.	CO 4	▪ Design different methods for crop improvement	Re, Un, Ap
76.	CO 5	▪ Get knowledge about research methodology and preparation of projects	Re, Un, Ap
Open course Elective- Biotechnology and Nanobiotechnology			
77.	CO 1	▪ Understand the core concepts and fundamentals of plant biotechnology	Re, Un, Ap
78.	CO 2	▪ Develop their competency on different types of plant tissue culture	Re, Un, Ap
79.	CO 3	▪ Critically analyze the major concerns and applications of transgenic technology	Re, Un, Ap
80.	CO 4	▪ Gain basic knowledge about nanoscience involved in Nanobiotechnology.	Re, Un, Ap
81.	CO 5	▪ Know about the applications of nanotechnology	Re, Un, Ap

FIRST DEGREE PROGRAMME (B. Sc) IN CHEMISTRY
2020 ADMISSION ONWARDS
PROGRAMME OUTCOME (PO) FOR FDP IN CHEMISTRY

Sl.No.	Upon completion of BSc Degree programme in Chemistry, students will be able to	PO No.
1	Develop scientific outlook scientific attitude and scientific temper	PO1
2	Develop skill in experimenting, analyzing and interpreting data	PO2
3	Develop research attitude and adopt scientific method of identifying, analyzing and solving research problems in an innovative way	PO3
4	Apply physical and mathematical theories and principles in the context of chemical science	PO4
5	Use chemistry related soft wares for drawing structure and plotting graphs	PO5
6	Use instruments- potentiometer, conductometer, pH meter and colorimeter.	PO6
7	Acquire skill in safe handling of chemicals including hazardous materials.	PO7
8	Identify the ingredients in household chemicals, use them in a critical way	PO8
9	Predict analytical procedures, compare experimental, theoretical and graphical methods of analysis	PO9
10	Predict reaction mechanism in organic reactions	PO10
11	Understand the terms, concepts, methods, principles and experimental techniques of physical, organic, inorganic and analytical chemistry	PO11
12	Develop critical thinking and adopt healthier attitudes towards individual, community and culture through the course of Chemistry	PO12
13	Become cautious about environmental aspects and impact of chemicals in soil, water and air and adopt ecofriendly approach in all frontiers of life	PO13
14	Become responsible in consumption of natural resources and adopt measures for sustainable development.	PO14
15	Visit Chemical factories and industries with scientific curiosity	PO15
16	Develop writing skills and presentation skills using audio visual aids	PO16
17	Compare and share knowledge in an interdisciplinary manner	PO17
18	Inculcate spirit of originality, novelty, and necessity in scientific research	PO18
19	Contribute to the academic and industrial requirements of the society	PO19
20	Get motivated to higher studies - PG Degree in different branches of Chemistry, BEd Degree in Physical Science, and job opportunities in industrial and non industrial sectors	PO20
21	Adopt safer life skills in a human friendly and ecofriendly way	PO21

Semester I

Core Course I Inorganic Chemistry I
Course code – CH 1141

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Discuss the course of development of structure of atom	Un
2.	CO2	Apply rules for filling electrons in classifying elements into s, p, d and f block elements and discuss about diagonal relationship and anomalous behaviour of hydrogen and other first element in each group.	Ap. Un
3.	CO3	Define various scales of electronegativities and their applications, Effective nuclear charge and Slater's rules	Re
4.	CO4	Correlate and predict general properties of s and p block elements based on their electronic configuration	Ap
5.	CO5	Realise applications of s and p block elements in sustainable and renewable energy sources.	Ap
6.	CO6	Define various concepts of acids and bases and understand reactions in non aqueous solvents	Re, Un
7.	CO7	Realise various causes, effects and control measures of environmental pollution and review national movements for environmental protection.	Ev, Un, Ap

Semester II
Foundation Course No.2, Chemistry-its Origin, Methodology and Impacts,
Course Code- CH1221

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Appreciate the development of scientific theories through years with specific examples	Un
2.	CO2	Develop curiosity and scientific attitude towards the application of chemistry in daily life	Cr
3.	CO3	Outline a procedure for experimentation	Ap
4.	CO4	Appraise the current development in Chemistry	Ev
5.	CO5	Identify the common ingredients of house hold synthetic products	Un
6.	CO6	Adopt safety measures in handling chemicals	Ap
7.	CO7	Draw titration curves and explain theory of volumetric titrations and select suitable indicators for acid base titration knowing the theories of acid base titration and indicators	Ap
8.	CO8	Develop computational skills	Ap
9.	CO9	Discuss separation techniques of filtration and chromatographic techniques	Un

Semester III

Core Course II
Inorganic Chemistry II
Course code – CH1341

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand various theories of chemical bonding and their limitations and predict stability of atoms and the nature of bonding between atoms.	Un, Ap
2.	CO2	Discuss various applications of intermolecular interactions	Un
3.	CO3	Understand chemistry of glass, silicates, silicones, refractory carbides, nitrides, borides and silicides	Un
4.	CO4	Discuss chemistry of Boron compounds, oxyacids and oxides of Phosphorous, noble gases, describe various types of halogen compounds and understand inorganic polymers and their applications.	Un
5.	CO5	Distinguish between types of nuclear reactions	An
6.	CO6	Describe measurement of radioactivity and discuss applications of radioactivity in various fields	Un
7	CO7	Understand introductory concepts of nanochemistry and synthesis and application of nanomaterials	Un, Ap

Semester IV

Core course III
Organic Chemistry I
Course code – CH1441

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Recall the fundamentals of organic chemistry.	Re
2.	CO2	Apply the electron displacement effects to compare acidity, basicity and stability of organic compounds/intermediates.	Ap
3.	CO3	Judge the reaction mechanism of substitution and elimination on the basis of the structure of alkyl halides	Ev
4.	CO4	Summarise the chemistry of reaction intermediates	Un

5.	CO5	Discuss optical, geometrical and conformational isomerism of organic compounds	Un
6.	CO6	Use CIP rules to predict the configuration of organic compounds	Ap
7.	CO7	Differentiate photochemical and thermal reactions	An
8.	CO8	Discuss theory of colour and constitution and the method of synthesis of dyes	Un
9.	CO9	Explain aromaticity, orientation effect and mechanism of aromatic electrophilic substitution.	Un
10.	CO10	Demonstrate the method of determination of reaction mechanism.	Ap

Semester V

Core Course V
Physical Chemistry I
Course code-CH1541

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Identify, compare and explain the properties and behaviour of ideal and real gases, knowing kinetic theory of gases and different types of molecular velocities and collision properties	Un
2.	CO2	Perform numerical problems of gases under a set of conditions	Ap
3.	CO3	Differentiate between amorphous and crystalline solids, understand anisotropy, symmetry and types of crystals, X-ray diffraction methods of study of crystal structure, identify the imperfections in crystals understand the physical aspects of surface tension and viscosity of liquids and the basics of liquid crystals and their applications	Un
4.	CO4	Represent lattice planes and calculate interplanar spacing, draw the crystal structures of NaCl and CsCl	Ap
5.	CO5	Recall the basic concepts of solutions, concentration terms, Raoult's law and colligative properties	Re
6.	CO6	Determine colligative properties and molecular mass of solute	Ev
7.	CO7	Understand the working principle Electro-Chemical cells	Un
8.	CO8	Design and determine the potentials of electrochemical systems	Cr, Ev
9.	CO9	Assess the nature of electrolytes in terms of dissociation and ionic conductance of electrolytes in terms of mobility of ions	Ev

10.	CO10	Integrate the theory into practical applications of conductometric titrations	Ap

Semester V

Core Course VI
Inorganic Chemistry III
Course code – CH1542

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Discuss the electronic configuration and related properties of transition elements and inner transition elements	Un
2.	CO2	Understand preparation of selected transition metal compounds, lanthanides and actinides and compare lanthanide and actinide contraction and their consequences.	Un, Ap
3.	CO3	Name coordination complexes, organometallics, discuss their properties and bonding, understand stability of complexes and factors affecting stability and describe isomerism in coordination compounds	Un
4.	CO4	Discuss spectrochemical series, CFSE and their consequences, correlate geometry, stability and Jahn Teller effect and its causes	Un, Ap
5.	CO5	Discuss reaction mechanisms and applications of coordination compounds	Un
6.	CO6	Name and classify organometallic compounds, discuss preparation and properties and bonding of carbonyls, identify the role of organometallic compounds in organic synthesis	Un
7.	CO7	Discuss the role of inorganic ions in biological systems and biochemistry of haemoglobin, myoglobin, cytochromes, iron sulphur proteins, discuss various bioinorganic processes like photosynthesis, working of sodium potassium pump, etc	Un
8.	CO8	Describe various aspects of metallurgy, and instrumental methods of analyses viz., spectrophotometric methods, thermal methods and tools available to measure nanomaterials	Un

Semester V

Core Course VII
Organic Chemistry II
Course code – CH1543

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Describe the preparation of hydroxy, carbonyl & amino compounds, carboxylic acids and organo Mg, Li & Zn compounds	Re
2.	CO2	Distinguish primary, secondary & tertiary alcohols and amines	An
3.	CO3	Write reaction steps in ascending & descending of alcohol and aliphatic acid series, interconversion of aldose and ketose, chain lengthening and shortening of aldoses	Un
4.	CO4	Explain the structure of glucose, fructose, sucrose, starch and cellulose.	Un
5.	CO5	Predict the outcome and mechanism of simple organic reactions, using a basic understanding of the reactivity of functional groups	Ap
6.	CO6	Illustrate the use of organic reagents in synthesis.	Ap
7.	CO7	Discuss fundamental principles of supramolecular and green chemistry	Un

Semester VI

Core course X
Physical Chemistry II
Course code – CH1641

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand basic concepts of thermodynamics, classify processes, properties and systems on a thermodynamic basis and apply laws of thermodynamics in physical and chemical processes	Un, Ap
2.	CO2	Discuss second law of thermodynamics and assess thermodynamic applications using second law of thermodynamics	Ev, Ap
3.	CO3	Solve numerical problems based on thermodynamics and thermochemistry	Ap
4.	CO4	Discuss basic concepts of statistical thermodynamics	Un
5.	CO5	Understand the basics of spectroscopic techniques- Rotational, Vibrational and Raman Spectroscopy,	Un, Ap

		compare NMR and ESR spectroscopy and their applications	
6.	CO6	Evaluate physical and chemical quantities using non-spectroscopic techniques, correlate dipole moment with geometry of molecules	Un, Ev
7.	CO7	Identify the elements of symmetry and determine the point groups of simple molecules	Ev
8	CO8	Differentiate diamagnetism and paramagnetism, measurement of magnetic susceptibility	Un

Semester VI

Core course XI
Organic Chemistry III
Course code – CH1642

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Outline the chemistry of simple heterocyclic compounds	Un
2.	CO2	Classify amino acids, proteins, nucleic acids, drugs, terpenes, vitamins, lipids and polymers.	Un
3.	CO3	Discuss the synthesis of amino acids, peptides, drugs and polymers	Un
4.	CO4	Describe the isolation and structure of terpenes and alkaloids	Re
5.	CO5	Explain the mechanism and techniques of polymerisation.	Un
6.	CO6	Discuss the principle of UV, IR, NMR and Mass spectroscopy	Un
7.	CO7	Interpret spectroscopic data to elucidate the structure of simple organic compounds.	Ap
8	CO8	Use the simple organic reactions to elucidate the structure of quinoline, piperine and conine.	Ap

Semester VI

Core course XII
Physical Chemistry III
Course code – CH1643

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Recall and understand the basic physical concepts in quantum mechanics, colloids, adsorption, Chemical Kinetics, catalysis, chemical and ionic equilibria, phase equilibria, binary liquid systems and photochemistry	Re,Un
2.	CO2	Derive and interpret important theories and equations involved in physical chemistry	Cr
3.	CO3	Demonstrate the origin of quantum numbers by correlating the Cartesian and spherical polar coordinates of hydrogen atom.	Ap
4.	CO4	Identify and recognize the applications of various principles, equations and physical processes	Un
5.	CO5	Perform calculations involving physical concepts and equations	Ap
6.	CO6	Analyse graphical representations (phase diagrams, two and three components, vapour pressure – composition and boiling point –composition, temperature-composition) present in physical chemistry.	Ap

LAB COURSES
Computer Lab for
Foundation Course II (CH 1221) SEMESTER II

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Get acquainted with Computer Lab based instruction on the use of computer and internet in learning.	Un
2.	CO2	Use of educational softwares, information mining from internet and using INFLIBNET/NICNET, NPTEL and VIRTUAL LABS OF MHRD	Ap
3.	CO3	Apply Word processing and document preparation and Spread sheets in Data handling and presentation	Ap
4.	CO4	Develop skill in chemical structure drawing and visualization of molecules using chemistry softwares	Cr

Semester I, III and IV
Core Course IV

Lab I of CH1141, CH1341, CH1441(Inorganic Qualitative Analysis) CH1442

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Obey Lab safety instructions, develop qualities of punctuality, regularity and scientific attitude, out look and scientific temper (GOOD LAB PRACTICES)	Un
2.	CO2	Develop skill in safe handling of chemicals, take precaution against accidents and follow safety measures	Ap
3.	CO3	Use glass wares ,electric oven, burners and weighing balance	Ap
4.	CO4	Develop skill in observation, prediction and interpretation of reactions	Ap
5.	CO5	Detect solubility, and classify compounds according to their solubility	Un
6.	CO6	Apply the principle of common ion effect and solubility product in the identification and separation of ions	Ap
7.	CO7	Develop skill in preparing and purifying inorganic complex compounds	Ap
8.	CO8	Use filtration and chomatographic techniques, vacuum pump and centrifugal pumps	Ap

Semester V

Core Course VIII
Lab Course II
(Inorganic volumetric analysis)
Course code – CH1544

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Develop skill in selecting, primary and secondary standards	Un
2.	CO2	Develop skill in weight calculation of primary standards weighing by electronic balance, making of solutions of definite strength (standard solutions)	Ap

3.	CO3	Use sophisticated glass wares, calibrate apparatus and develop skill in keen observation, prediction and interpretation of results	Ap
4.	CO4	Perform volumetric titrations under acidimetry-alkalimetry, permanganometry, dichrometry, iodimetry-iodometry,cerimetry, argentometry and complexometry	Ap
5.	CO5	Compare the advantages and disadvantages of different volumetric techniques	Un
6.	CO6	Practice Punctuality and regularity in doing experiments and submitting Lab records	Ap

Semester V

Core Course IX
Lab Course III
(Physical chemistry experiments)
Course code – CH1545

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Develop Scientific outlook and approach in applying principles of physical chemistry in chemical systems/reactions	Un
2.	CO2	Use computational methods for plotting graph	Ap
3.	CO3	Describe systematic procedures for physical experiments	Un
4.	CO4	Acquire Instrumentation skill in using conductometer, potentiometer, refractometer, stalagmometer and Ostwald's viscometer.	Un
5.	CO5	Compare theory with experimental findings	Ap
6.	CO6	Practice Punctuality and regularity in doing experiments and submitting Lab records	Ap

Semester VI

Core Course XIII
Lab Course IV (Organic chemistry experiments)
Course Code – CH1644

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Analyse organic compounds	An

2.	CO2	Differentiate and identify organic compounds by their characteristic reactions towards standard reagents	An
3.	CO3	Synthesise solid derivatives, and thus understand reliability of experimental	Cr
4.	CO4	Determine physical constants of organic compounds	Ap
5.	CO5	Practice systematic scientific procedure and prepare adequate report of them	Cr
6.	CO6	Understand the chemistry behind organic reactions	Un

Semester VI

Core Course XIV
Lab Course V (Gravimetry)
Course Code- CH1645

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand precipitation techniques in quantitative context	Un
2.	CO2	Demonstrate the skills of making, diluting solutions on quantitative basis and take precautionary measures in filtration, drying and incineration of precipitates	Ap, Un
3.	CO3	Realise the factors affecting precipitation/crystallisation	Ap
4.	CO4	Understand the principle of colorimetry to estimate Fe^{3+} and ammonia	Un
5.	CO5	Practice Punctuality and regularity in doing experiments and submitting Lab records	Ap

Semester VI

Core Course XV
Project and Factory Visit
Course Code- CH1646

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Identify appropriate research topic	Un
2.	CO2	Apply research methodology to solve the problem	Ap
3.	CO3	Generate a project report	Cr

4.	CO4	Demonstrate the work through presentation of the work	Ap
5.	CO5	Appraise the chemical processes during factory visit	Ev

Semester V

Open Course
Chemistry and its applications
Course Code: CH1551.1

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Appreciate the history of evolution of science	Un
2.	CO2	Develop curiosity and scientific attitude towards the application of chemistry in daily life	Cr
3.	CO3	Appraise the current development in Chemistry and contribution of chemistry for sustainable development	Ev
4.	CO4	Identify the common ingredients of house hold synthetic products	Un
5.	CO5	Classify chemicals according to their uses	Un
6.	CO6	Critically choose cosmetics and cleansing agents for daily use	Ev
7.	CO7	Adopt safer and healthier life skills in harmony with nature	Ap

Semester VI

Elective Course
Polymer Chemistry
Course Code-CH1661.3

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Differentiate between Natural and synthetic polymers	Un
2.	CO2	Understand polymerization process of monomeric units	Un
3.	CO3	Critically analyse the advantages and disadvantages of polymers	An
4.	CO4	Analyse different Applications of Polymers	An

5.	CO5	Identify the properties of polymers.	Un
6.	CO6	Realize the necessity of biodegradable substitutes for a sustainable development	Un, Ap

FIRST DEGREE PROGRAMME (B. Sc)
2020 ADMISSION ONWARDS

CHEMISTRY COMPLEMENTARY FOR PHYSICS MAJORS

Semester I

Theoretical and analytical chemistry

Course code: CH1131.1

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Discuss the rules for filling electrons in atomic orbitals	Un
2.	CO2	Correlate stability of atom with electronic configuration	Un
3.	CO3	Discuss theories of chemical bonding and their limitations	Un
4.	CO4	Predict geometry of molecules from the type of hybridisation	Un, Ap
5.	CO5	Recognise fundamentals of thermodynamics and the predict spontaneity of reactions	Un, Ap
6.	CO6	Derive thermodynamic properties of systems in equilibrium	Cr
7.	CO7	Critically select suitable indicators for acid base and redox titrations	Ev, Ap
8.	CO8	Appreciate the application of common ion effect and solubility product in precipitation and intergroup separation of cations	Ap
9.	CO9	Discuss the basic principles of paper chromatography and thin layer chromatography	Un
10.	CO10	Solve numerical problems on bond order, molarity, normality and Lattice energy	Ap

Semester II

Physical and industrial Chemistry

Course code: CH1231.1

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level

1.	CO1	Define enthalpies of formation, combustion, neutralization, solution and hydration reactions	Re, Un
2.	CO2	Apply Hess's law for thermo chemical calculations	Ap
3.	CO3	Predict the effect of temperature pressure and concentration on a system in equilibrium based on Le Chatelier principle	Un
4.	CO4	Classify acidic and basic compounds in accordance with different concepts and calculate pH	Un, Ap
5.	CO5	Discuss petrochemicals and their applications, realise the depletion of petroleum products and the need for alternate sources of energy and recognise the necessity of sustainable development	Un
6.	CO6	Appreciate the role of solar energy in photosynthesis and discuss methods of solar energy harvesting	Un
7.	CO7	Become responsible in the consumption of natural resources and avoid factors affecting the harmony of nature from the equilibrium concept.	Ap
8.	CO8	Discuss and the Illustrate general methods and techniques in metallurgy	Un, Ap
9.	CO9	Predict methods of concentration, extraction metals from their ores	Ap
10.	CO10	Discuss the applications of Van Arkel method and zone refining in metallurgy	Un

Semester III

Physical Chemistry

Course code: CH1331.1

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Discuss on electrochemical cells and emf measurements	Un
2.	CO2	Apply the principles of physical Chemistry in Catalysis and photochemistry	Ap
3.	CO3	Draw unit cells and structure of crystals	Cr
4.	CO4	Understand the effect of temperature on molecular velocities of gases	Re
5.	CO5	Calculate cell emf and electrode potentials and construct electrochemical cells	Ap

6.	CO6	Classify order of reactions and calculate rection rate	Un, Ap
7.	CO7	Classify between Photochemical reactions	Un
8.	CO8	Identify the elements of symmetry and determine point groups of simple molecules	Un, Ev

Semester IV

Spectroscopy and advanced materials

Course code: CH1431.1

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Discuss the principle and applications of rotational, vibrational, electronic and NMR spectroscopy	Un
2.	CO2	Illustrate isomerism, geometry and bonding in coordination complexes	Ap
3.	CO3	Appreciate the use of coordination compounds in qualitative and quantitative analysis	Un
4.	CO4	Solve numerical problems relating to nuclear chemistry	Ap
5.	CO5	Appreciate the use of biodegradable polymers	Un
6.	CO6	Apply the importance energy and environment conservation	Ap
7.	CO7	Get insight to the emerging area of nano and advanced materials	Un

Laboratory Course for Physics Course code: CH1432.1

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Obey Lab safety instructions, develop qualities of punctuality, regularity and scientific attitude, outlook and scientific temper (GOOD LAB PRACTICES)	Ev, Un
2.	CO2	Develop skill in safe handling of chemicals, take precaution against accidents and follow safety measures	Ap
3.	CO3	Develop skill in observation, prediction and interpretation of reactions	Un, Ap

4.	CO4	Apply the principle of common ion effect and solubility product in the identification and separation of ions	Ap
5.	CO5	Develop skill in weight calculation for preparing standard solutions	Ap
6.	CO6	Perform volumetric titrations under acidimetry-alkalimetry, permanganometry, dichrometry, iodimetry-iodometry, cerimetry, argentometry and complexometry	Ap

CHEMISTRY COMPLEMENTARY FOR BOTANY MAJORS

Semester I

Analytical and Environmental chemistry
Course code: CH1131.3

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Discuss Bohr atom model and represent electronic configuration of elements	Un
2.	CO2	Predict structure of simple molecules based on the concept of hybridization	Ap
3.	CO3	Identify hydrogen bonding in relation to physical and chemical properties	Un
4.	CO4	List the various chemical bonds	Re
5.	CO5	Apply the VSEPR theory to explain the geometry of molecules	Ap
6.	CO6	Discuss the theory of volumetric analysis	Un
7.	CO7	Become aware of threat of chemical pollutants air, water and soil	Ap

Semester II

Inorganic and bioinorganic chemistry

Course Code: CH1231.3

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand the biological and environmental aspects of organanometallic compounds	Un
2.	CO2	Comprehend the meaning of stability of nucleus	Re
3.	CO3	Summarise the applications of radioactivity	Un
4.	CO4	Predict the properties of transition metal complexes	Ap
5.	CO5	Apply complexation reactions in qualitative and quantitative analysis	Ap
6.	CO6	Appreciate biological processes like photosynthesis, respiration etc	Ev
7.	CO7	Realise the use of trace elements in biochemical processes	Un

Semester III

Physical Chemistry

Course code: CH1331.3

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Classify reactions on the basis of order and molecularity	An
2.	CO2	Understand the effect of temperature on reaction rates	Un
3.	CO3	Understand the theories of catalysis	Un
4.	CO4	Categorize compounds into acids and bases	An
5.	CO5	Discuss the principle and application of UV and NMR spectroscopy	Un, Ap
6.	CO6	Understand the properties of colloids and their application	Un

Semester IV

Organic Chemistry

Course code: CH1431.3

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Discuss the principle and applications of chromatography and electrophoresis	Un
2.	CO2	Classify amino acids, proteins, carbohydrates and vitamins. Identify and distinguish the structure of amino acids, peptides, proteins and nucleic acids.	Un, An, Ap
3.	CO3	Summarise the concept of optical isomerism.	Un, Ap
4.	CO4	Categorise crude drugs and explain the method of evaluating crude drugs.	Un, An
5.	CO5	Draw the structure of aminoacids, carbohydrates, simple optical isomers	Cr
6.	CO6	Explain the preparation and reactions of amino acids and carbohydrates	Un
7.	CO7	Discuss the extraction process and general properties of natural products -oils, fats, terpenes and alkaloids.	Un

Laboratory Course for Botany Course code: CH1432.3

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Obey Lab safety instructions, develop qualities of punctuality, regularity and scientific attitude, out look and scientific temper (GOOD LAB PRACTICES)	Re, Un, Ap
2.	CO2	Develop skill in safe handling of chemicals, take precaution against accidents and follow safety measures	Un, Ap
3.	CO3	Develop skill in observation, prediction and interpretation of reactions	Un, Ap
4.	CO4	Prepare organic compounds, Purify and recrystallise	Un, Ap
5.	CO5	Develop skill in weight calculation for preparing standard solutions	Ev, Ap
6.	CO6	Perform volumetric titrations under acidimetry-alkalimetry, permanganometry, dichrometry, iodimetry-iodometry, cerimetry, argentometry and complexometry	Ap
7.	CO7	Conduct chromatographic separation of mixtures	Ap

CHEMISTRY COMPLEMENTARY FOR ZOOLOGY MAJORS
Semester I

Theoretical chemistry

Course code: CH1131.4

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Differentiate particle nature and wave nature of matter	Un
2.	CO2	Associate wave concept with microscopic matter	Ap
3.	CO3	Understand the relevance of periodic classification of elements	Un
4.	CO4	Describe the various types of chemical bonds	Re
5.	CO5	Apply the VSEPR theory to explain the geometry of molecules	Ev, Ap
6.	CO6	Comprehend different segments of titrations	Un

7.	CO7	Apply the principles of colorimetry to estimate ions and elements	Ap
8.	CO8	Recognize the factors affecting environment and solutions for it	Ev

Semester II

Inorganic chemistry

Course Code: CH1231.4

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand the biological and environmental aspects of organanometallic compounds	Un
2.	CO2	Comprehend the meaning of stability of nucleus	Re
3.	CO3	Summarise the applications of radioactivity	Un
4.	CO4	Predict the properties of transition metal complexes	Ap
5.	CO5	Apply complexation reactions in qualitative and quantitative analysis	Ap
6.	CO6	Appreciate biological processes like photosynthesis, respiration etc	Ev
7.	CO7	Realise the use of trace elements in biochemical processes	Un

Semester III

Organic Chemistry

Course code: CH1331.4

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Classify carbohydrates, amino acids, proteins, nucleic acids, lipids, polymers and drugs	Un, An
2.	CO2	Summarize optical, geometrical and conformational isomerism, draw the structure of simple carbohydrates	Un, Cr
3.	CO3	Discuss the structure of proteins	Un
4.	CO4	Explain the synthesis of amino acids, peptide, drugs	Un

5.	CO5	Predict absolute configuration of stereo centres	Ap

Semester IV

Physical Chemistry

Course code: CH1431.4

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Classify reactions on the basis of order and molecularity	An
2.	CO2	Discuss different concepts of acids and bases	Re, Un
3.	CO3	Understand different techniques used for the study of colloids	Un
4.	CO4	Calculate rate and order of reactions	Ev, Ap
5.	CO5	Review the principles underlying the working of sophisticated instruments	Un

Laboratory Course for Zoology Course code: CH1432.4

Course Outcomes:

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Obey Lab safety instructions, develop qualities of punctuality, regularity and scientific attitude, outlook and scientific temper (GOOD LAB PRACTICES)	Re, Un, Ap
2.	CO2	Develop skill in safe handling of chemicals, take precaution against accidents and follow safety measures	Un, Ap
3.	CO3	Develop skill in observation, prediction and interpretation of reactions	Un, Ap
4.	CO4	Prepare organic compounds, Purify and recrystallise	Un, Ap
5.	CO5	Develop skill in weight calculation for preparing standard solutions	Ev, Ap
6.	CO6	Perform volumetric titrations under acidimetry-alkalimetry, permanganometry, dichrometry, iodimetry-iodometry, cerimetry, argentometry and complexometry	Ap
7.	CO7	Conduct chromatographic separation of mixtures	Ap

PROGRAMME OUTCOME B.COM –FINANCE
2016-2018, 2018-2021

Upon completion of the B.Com (Finance) Degree programme in Commerce, The students will be able to:

Sl.No	PO Number	Programme Outcome
1	PO 1	Students will be able to develop entrepreneurial skills amongst learners
2	PO 2	Students will be able to recognise features and roles of businessmen, entrepreneur, managers, consultant, which will help learners to possess knowledge and other soft skills and to react aptly when confronted with critical decision making.
3	PO 3	Enables learners to get theoretical and practical exposure in the commerce sector which includes Accounts, Commerce, Marketing, Management, Economics, Environment etc.
4	PO 4	Students will be able to enhance the capability of decision making at personal and professional levels
5	PO 5	Students will be able to strengthen their capacities in varied areas of commerce and industry aiming towards holistic development of learners.
6	PO 6	Makes students industry ready and develop various managerial and accounting skills for better professional opportunities.
7	PO 7	Students will be able to enhance the capability of decision making at personal and professional levels.
8	PO 8	Students will be able to independently start up their own Business.
9	PO 9	After completing graduation, students can get skills regarding various aspects like Marketing Manager, Selling Manager, over all Administration abilities of the Company.
10	PO 10	The knowledge of different specializations in Accounting, costing, banking and finance with the practical exposure helps the students to stand in organization.
11	PO 11	Students will be able to demonstrate progressive learning of various tax issues and tax forms related to individuals.

		Students will be able to demonstrate knowledge in setting up a computerized set of accounting books
12	**PO 12**	Students will learn relevant financial accounting career skills, applying both quantitative and qualitative knowledge to their future careers in business.
13	**PO 13**	Learners will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other courses.
14	**PO 14**	Students can acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.
15	**PO 15**	Students will be able to acquire the skills like effective communication, decision making, problem solving in day to day business affaires

Upon completion of the B.Com (TTM) Degree programme in Commerce, The students will be able to:

Sl.No	PO Number	Programme Outcome
1	**PO 1**	Analyze the various components of Tourism and to describe how they coincide each other.
2	**PO 2**	Depicts the interrelationship between travel, tourism and hospitality industries.
3	**PO 3**	Develop leadership skills and to provide necessary Managerial, Communicative, IT, product and Resource skills to effectively handle Tourism activities.
4	**PO 4**	Mould career paths and equip students to face professional challenges.
5	**PO 5**	Students will be able to strengthen their capacities in varied areas of commerce and industry aiming towards holistic development of learners.
6	**PO 6**	To give the conceptual knowledge and understanding of the Tourism Industry
7	**PO 7**	Students will be able to enhance the capability of decision making at personal and professional levels.
8	**PO 8**	Students will be able to independently start up their own Business.

9	**PO 9**	After completing graduation, students can get skills regarding various aspects like Marketing Manager, Selling Manager, over all Administration abilities of the Company.
10	**PO 10**	Tourism graduates will be prepared to communicate effectively with tourists and to acquire jobs effectively in diversified fields such as tourism offices, travel agencies, airlines and hotels etc
11	**PO 11**	Students will be able to demonstrate progressive learning of various tax issues and tax forms related to individuals. Students will be able to demonstrate knowledge in setting up a computerized set of accounting books
12	**PO 12**	The B Com tourism course offers specialization and practical exposure which help the students in organizing tours and working in tourism industry
13	**PO 13**	To create the awareness regarding latest developments in the field of tourism
14	**PO 14**	Students can acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.
15	**PO 15**	To promote team work, time management and service orientation in organizing tour and working tourism industry

Upon completion of the M.Com (Finance) Degree programme in Commerce, The students will be able to:

Sl.No	PO Number	Programme Outcome
1	**PO 1**	To make students more proficient in areas like Costing, Taxation, G.S.T., and Accountancy.
2	**PO 2**	To learn the practical aspects of above subjects through project work, viva practical written exams.
3	**PO 3**	To prepare students for further out- country professional courses.

4	**PO 4**	To develop job skills among students and make them confident to face interviews.
5	**PO 5**	: Students are eligible to pursue masters in Commerce, Finance, Management, and Business Administration
6	**PO 6**	Acquiring Conceptual Clarity of Various Functional Areas
7	**PO 7**	Develop Ethical Practices and Imbibe Values for Better Corporate Governance
8	**PO 8**	Analyse Global Environment and its Impact on Business
9	**PO 9**	Demonstrate the ability to create business plans
10	**PO 10**	Learners will be able to prove proficiency with the ability to engage in competitive exams like CA, CS, ICWA and other courses.
11	**PO 11**	Students can acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.
12	**PO 12**	: Create a collaborative learning environment for students to become next generation leaders
13	**PO 13**	
14	**PO 14**	Students can acquire practical skills to work as tax consultant, audit assistant and other financial supporting services.
15	**PO 15**	Provides emphasis on productivity and agile culture helps tipping the balance in favor of Creating tomorrow's leaders in industry as well as education.

COURSE OUTCOME 2014 REVISION

COURSE OUTCOME B.Com FINANCE & TTM 2014 FIRST YEAR (SEMESTER 1 & 2)

At the end of the course, student will be able to

Subject : Environmental Studies CO 1121

Sl No	Course Outcome No	Course Outcome	Taxonomic level
1	CO1	To develop knowledge and understanding of the environment	understand
2	CO2	To take steps to maintain and improve the quality of the environment	apply
3	CO3	To identify emerging issues related to environmental problems	analyse
4	CO4	To understand the need and importance of protecting environment	understand
5	CO5	To identify the effects a business could create on the environment	evaluate

Subject : Methodology and perspectives of Business Education CO 1141

Sl No	Course Outcome No	Course Outcome	Taxonomic level
1	CO1	To understand business and its role in society	understand
2	CO2	To understand entrepreneurship and its heuristics	understand
3	CO3	To comprehend the business environment	analyse
4	CO4	To enable the students to undertake business activities	apply
5	CO5	To provide a holistic, comprehensive and integrated prespective to business education	understand

Subject : Functional Application of Management CO 1142

Sl No	Course Outcome No	Course Outcome	Taxonomic level
1	CO1	To provide an introduction to the concepts and significance of management	understand
2	CO2	To understand the scope, meaning and definition of financial management	understand
3	CO3	To identify the scope and importance of operations management	understand
4	CO4	To identify the major problems of marketing products in India	understand

5	CO5	To understand the importance of human resources in a business	understand

Subject: Managerial Economics CO 1131

SL No	Course Outcome No	Course Outcome	Taxonomic level
1	CO 1	To create awareness about basic economic principles and theories that help in business decisions	create
2	CO 2	Helps students to apply economic theories in different business situations	Apply
3	CO 3	Helps to develop business skills like developing a product idea, product features, content, pricing and promotional strategies	Create
4	CO 4	Helps to understand different stages of growth and vision and mission statements of companies	understand
5	CO5	Helps to analyse demand for existing products and forecast demand foe new products	analyse

Semester 2

Subject: Informatics and Cyber Laws CO 1221

SL No	Course Outcome No	Course Outcome	Taxonomic level
1	CO 1	To update and expand informatics skills and attitude to students	apply
2	CO 2	To enable students to use digital knowledge resources used for business	apply
3	CO 3	To review basic informatics concepts	Understand
4	CO 4	To study the impact of informatics on business decisions	understand
5	CO5	Create awareness of cyber laws and cyber world	understand

Subject: Business Communication and Office Management CO 1241

SL No	Course Outcome No	Course Outcome	Taxonomic level
1	CO 1	To explore talents in business communication	create
2	CO 2	To understand the appointment and role of company secretary in business	understand
3	CO 3	To develop communication skills in students suitable for business situations	create
4	CO 4	To impart knowledge on the management of modern offices	understand

5	CO5	To understand the basic principles of record keeping in business	understand

Subject : Financial Accounting CO 1242

SL No	Course Outcome No	Course Outcome	Taxonomic level
1	CO 1	To impart knowledge and understanding of the principles and concepts of financial accounting	understand
2	CO 2	To prepare financial statements and accounts of business	apply
3	CO 3	Familiarize students with accounting standarda	understand
4	CO 4	Enable students to prepare accounts of special business areas	apply
5	CO5	To understand the different methods of depreciation used in a business	understand

Subject : Business Regulatory Framework CO 1231

SL No	Course Outcome No	Course Outcome	Taxonomic level
1	CO 1	To familiarize students with legal framework influencing business decisions and operations	understand
2	CO 2	To provide a brief idea about framework of indian business laws	understand
3	CO 3	To apply business laws to business activities	apply
4	CO 4	To motivate the students to take up higher studies in business laws	create
5	CO5	To understand the features and functions of IRDA and TRAI	understand

2014 onwards, Second Year (S 3 & S 4)

SEMESTER: 3

At the end of the course students will be able to:

Subject: Entrepreneurship Development

Sl.No	**Course Outcome No.**	**Course Outcome**	**Taxonomic level**
1	CO 1	Develop a Practical insight about how to become an entrepreneur	Create

2	CO 2	Discuss the latest programmes of Government for promoting Small and Medium industries	Understand
3	CO 3	Examine the various entrepreneurial opportunities regarding starting of new ventures	Analyze
4	CO 4	Develop a clear cut vision about how to evaluate various financial sources providing fund for new entrepreneurs	Create, Evaluate
5	CO 5	Describe how to make feasibility study as well as feasibility report and project report regarding entrepreneurship	Understand

Subject: Company Administration

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Investigate into the salient provisions of Indian Companies Act 2013	Create
2	CO 2	Discuss how to acquaint with Management and Administration of Companies	Understand
3	CO 3	Examine the Compliance requirements , investigation into affairs of the Company Winding up Procedure	Analyze
4	CO 4	Develop awareness about governance and CSR	Create
5	CO 5	Describe how to prepare a record on complying essential documents needed at various stages of formation of Public Ltd Co.	Understand

Subject: Advanced Financial Accounting

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Develop an awareness about the accounts related to dissolution of partnership firms	Create
2	CO 2	Compare the system of accounting for different branches and departments	Analyze
3	CO 3	Discuss the preparation of accounts of consignments	Understand
4	CO 4	Formulate the general financial of sole proprietor, partnership and non-profit entities	Create
5	CO 5	Implement the techniques and standards of accounting in order to prepare financial statements	Apply

Subject: Information Technology in Business

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Develop awareness about the innovations in IT and its potential application in business	Create
2	CO 2	Discuss the basic concepts and functional knowledge in the field of IT	Understand
3	CO 3	Construct knowledge regarding the application of computer in the field of business	Create
4	CO 4	Compare the various services offered by internet for business activities	Analyze
5	CO 5	Appraise the e-governance techniques available	Evaluate

Subject: Fundamentals of Tourism I(S3TTM)

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Describe the basic concepts of Tourism	Understand
2	CO 2	Develop an awareness about the role of various organizations of Tourism in Tourism promotion	Create
3	CO 3	Examine the impact of Tourism	Analyze
4	CO 4	Investigate into the historical development of Tourism	Create
5	CO 5	Discuss the status of Tourism in India	Understand

Subject: Financial Management (S3 Finance)

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Explain the conceptual and analytical insight to make financial decisions skillfully	Understand
2	CO 2	Develop awareness about the conceptual frame work of financial management	Create
3	CO 3	Discuss the practical application of financial management	Understand
4	CO 4	Enable to take financial decisions, investment decisions and dividend decisions by evaluating various theories and approaches	Evaluate, Create
5	CO 5	Discuss the Management of working capital cycle and inventory	Understand

SEMESTSER: 4

Subject: Capital Market

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Construct knowledge about the capital market in detail	Create
2	CO 2	Explain in detail about the functioning of Indian Capital Market	Understand
3	CO 3	Describe the various functions carried out by stock exchange	Understand
4	CO 4	Appraise the various types of derivatives	Evaluate
5	CO 5	Discuss the functions of SEBI	Understand

Subject: Banking theory and Practice

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Discuss about the changing scenario of Indian Banking and Insurance	Create
2	CO 2	Explain the basic knowledge about the theory and practice of Banking	Understand
3	CO 3	Discuss the various areas of Insurance Business	Understand
4	CO 4	Develop and awareness about the innovations and reforms in banking	Create
5	CO 5	Appraise the techniques adopted in asset liability management	Evaluate

Subject: Corporate Accounting

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Construct and idea about the accounting practices prevailing in corporate sector	Create
2	CO 2	Investigate about corporate accounting in conformity with the provisions of Companies Act, IAS,IFRS	Create
3	CO 3	Interpret the techniques to prepare the accounts of Banking and Insurance Companies	Apply
4	CO 4	Develop an idea about the preparation and interpretation of financial statements of Joint stock companies	Create
5	CO 5	State the accounting standards and GAAP	Remember

Subject: Business Statistics

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Develop skill for applying appropriate statistical tools and techniques in different business situations	Create
2	CO 2	Discuss the statistical techniques those are applicable to business	Understand
3	CO 3	Demonstrate the various statistical techniques in business	Apply
4	CO 4	Judge the merits and demerits of various techniques adopted in statistics for data collection and presentations	Evaluate
5	CO 5	Examine the importance of statistics in business	Analyze

Subject: Project Finance (S4 Finance)

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Describe the process and issues relating to project preparation, appraisal, administration, review and monitoring of project	Understand
2	CO 2	Develop awareness about project appraise, techniques and evaluation	Create
3	CO 3	Examine the various methods of project risk analysis	Analyze
4	CO 4	Appraise various sources and techniques of project finance	Evaluate
5	CO 5	Develop an idea about global project and world bank project reports	Create

Subject: Fundamentals of Tourism II(S4TTM)

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Construct knowledge about the development and impact and Tourism industry and role of organizations in tourism promotions	Create
2	CO 2	Develop an insight into various impact of Tourism	Create
3	CO 3	Examine tourism industry and products offered by tourism	Analyze
4	CO 4	Discuss the basic functions of international tourism organizations	Understand
5	CO 5	Contrast the structure of tourism industries	Evaluate

SEMESTER - 5

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
1	**CO 1541**	**FUNDAMENTALS OF INCOME TAX**	
	Co1	**To articulate the history and development of income tax laws.**	**Understand, remember**
	Co2	**To describe the concept of tax procedure**	**Create, understand**
	Co3	**To implement the information in future .**	**Apply**
	Co4	**To judge the facts like deduction which head it is taxable .**	**Evaluate**
	Co5	**To design a tax consultancy firm as an entrepreneur.**	**Create**

CO1542 COST ACCOUNTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
2	**CO 1542**	**COST ACCOUNTING**	
	Co1	**To describe the concept of cost accounting**	**Understand , remember**
	Co2	**To assemble the cost concept in business field .**	**Create, understand**

	Co3	To distinguish costing from financial accounting.	Analyze
	Co4	To operate costing techniques in all business concern.	Apply
	Co5	To state all methods used in cost accounting.	remember

CO1543 ACCOUNTING FOR SPECILIZED INSTITUTIONS

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
3	CO 1543	ACCOUNTING FOR SPECILIZED INSTITUTIONS	
	Co1	To state accounting practices prevailing in various specialized institutions	Remember
	Co2	To demonstrate the preparation of accounts in SEBI	apply
	Co3	To classify the different institutions practicing accounting	understand

SEMESTER 5 OPEN COURSE

CO1551.1 FUNDAMENTALS OF FINANCIAL ACCOUNTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
4	CO 1551.1	FUNDAMENTALS OD FINACIAL ACCOUNTING	
	Co1	To assemble the basis principles and practice in financial accounting.	Create
	Co2	To recognise the various ledger and book keeping methods .	Understand
	Co3	To classify the cashbooks and journals.	Understand
	Co4	To differentiate the single data entry and double entry book keeping.	Analyse
	Co5	To repeat the practical by doing the accounts.	remember

OPEN COURSE

CO1551.2 PRINCIPLES OF MANAGEMENT

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
5	CO 1551.2	PRINCIPLES OF MANAGEMENT	
	Co1	To create awareness about various functions of management	create

	Co2	To memorise and recall the the levels of management	remember
	Co3	To classify management aspects as science as well as profession	understand
	Co4	To interpret concept of controlling and planning process.	apply
	Co5	To direct the relevant information to achieve objectives	create

CO1561.1 FINANCIAL MARKET AND SERVICE

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
6	CO 1561.1	FINANCIAL MARKET AND SERVICE	
	Co1	To understand the role of financial services prevailed in India	Understand
	Co2	To judge and create strategies to promote financial products and services	Evaluate
	Co3	To repeat the basic concept like factoring ,leasing etc.	Remember, understand
	Co4	To experience mutual fund investment scheme and diversified investment.	Analyse, apply
	Co5	To describe various sources in financial services in India	Remember, understand

CO1561.3 MANAGEMENT OF TRAVEL AND SERVICE

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
7	CO 1561.3	MANAGEMENT OF TRAVEL AND SERVICE	
	Co1	To recognise the history and relevance of management in field of travel and service.	Understand
	Co2	To solve the problems in situation demanded in travel and service	Apply
	Co3	Organising skill be acquired to handle different tours .	Analyse
	Co4	To investigate the scope of management skill in tourism field	Create
	Co5	To comprehend the societal applications by experience and personal skills.	Remember, understand

CO1551.3 CAPITAL MARKET OPERATIONS

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
8	CO 1551.3	CAPITAL MARKET OPERATIONS	
	Co1	To acquire fact about capital market and its operation.	Create
	Co2	To understand about SEBI functioning	understand
	Co3	To create awareness about capital market instruments.	create
	Co4	To describe the methods of capital market operations	apply
	Co5	To assemble the facts about real stock marketing.	Remember

SEMESTER - 6

CO1641 AUDITING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
9	CO 1641	AUDITING	
	Co1	To construct the ideas of auditing in the field of business	Create
	Co2	To judge the practical wise application in management	Evaluate
	Co3	Describe the internal as well as external auditing procedure	Understand, remember
	Co4	Explain the role of auditor in any organisation	understand
	Co5	Recognise the auditors work and procedure	remember

CO1643 MANAGEMENTACCOUNTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
10	CO 1643	MANAGEMENT ACCOUNTING	
	Co1	To listing the managerial techniques.	Remember
	Co2	To solve the problems in managerial aspects	Apply
	Co3	Formulate the policies and rules by using reports	Create

	Co4	Explain the ideas behind management decisions	evaluate
	Co5	To support the management through evaluating the result.	understand

CO1661.3 HOSPITALITY MANAGEMENT

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
11	CO 1661.3	HOSPITALITY MANAGEMENT	
	Co1	To understand the role of hospitality agencies prevailed in India	Understand
	Co2	To solve the problems in in the hospitality sector	Evaluate
	Co3	To repeat the basic concept in hospitality management	Remember, understand
	Co4	To investigate the scope of management skill in particular field	Analyse, apply
	Co5	To comprehend the societal applications by experience	Remember, understand

CO1543 MARKETING MANAGEMENT

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
12	CO 1543	MARKETING MANAGEMENT	
	Co1	To develop ideas to promote product marketing.	create
	Co2	To examine different marketing tools and techniques like advertising, branding etc	analyse
	Co3	To state the theories for product marketing in future perspective.	Remember
	Co4	To judge the real life product and services available in market.	Evaluate
	Co5	To locate the market situation properly through learning.	understand

CO1642APPLIED COSTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
13	CO 1642	APPLIED COSTING	
	Co1	To describe the concept of cost accounting	Understand , remember

	Co2	**To assemble the cost concept in business field.**	**Create, understand**
	Co3	**To distinguish costing from financial accounting.**	**Analyse**
	Co4	**To operate costing techniques in all business concern.**	**Apply**
	Co5	**To state all methods used in cost accounting.**	**remember**

SL.NO	**COURSE OUTCOME NUMBER**	**COURSE OUTCOME**	**TAXONOMIC LEVEL**
14	**CO 1661.1**	**INCOME TAX LAW AND ACCOUNTS**	
	Co1	**To articulate the history and development of income tax laws.**	**Understand, remember**
	Co2	**To describe the concept of tax procedure**	**Create, understand**
	Co3	**To implement the information in future .**	**Apply**

CO1661.7 MANAGEMENT OF FOREIGN TRADE

SL.NO	**COURSE OUTCOME NUMBER**	**COURSE OUTCOME**	**TAXONOMIC LEVEL**
15	**CO 1661.7**	**MANAGEMENT OF FOREIGN TRADE**	
	Co1	**To understand the role of foreign trade**	**Understand**
	Co2	**To judge and create strategies to promote financial products and services outside India**	**Evaluate**
	Co3	**To repeat the basic concept like BOP, BOT etc.**	**Remember, understand**
	Co4	**To experience internal as well as external trade.**	**Analyse, apply**
	Co5	**To describe various sources in foreign trade**	**Remember, understand**

ICOURSE OUTCOME B.Com FINANCE & TTM 2018 -21 FIRST YEAR (SEMESTER 1 & 2)

At the end of the course, student will be able to

Subject : Methodology and perspective of Business Education CO 1121

Sl No	Course Outcome No	Course Outcome	Taxonomic level
1	CO1	Identify the methodology for pursuing the teaching learning process with a perspective of higher learning in business education	understanding
2	CO2	Examine the role of business in economic development	Analyse, apply

3	CO3	Create holistic, comprehensive and intregrated prespective to business education	create
4	CO4	Organized to provide an intregrated learning approach to business education	analyse
5	CO5	Explain the significance of entrepreneurship	understand

Subject : Environmental Studies CO 1141

Sl No :	Course Outcome No	Course Outcome	Taxonomic level
1	CO1	To take measures to protect and preserve the environment from all sorts of exploitation particularly that caused by business	apply
2	CO2	Create awareness among students about basic environmental issues and problems	create
3	CO3	Understand the need for preserving the environment	understand
4	CO4	To take measures to control different forms of pollution caused by business	apply
5	CO5	To make their own contribution towards improving the quality of the environment	apply

Subject : Management Concepts and Thoughts CO 1142

Sl No	Course outcome No	Course Outcome	Taxonomic Level
1	CO1	To develop managerial skills in students to enable them to manage business well in the future	create
2	CO2	Helps students to understand different dimensions of the management process	uderstand
3	CO3	Create knowledge of management concepts in students	undestand
4	CO4	Understand the nature and evolution of modern management	understand
5	CO5	To enhance leadership abilities in students	create

Subject : Managerial Economics CO 1131

SL No	Course Outcome No	Course Outcome	Taxonomic level
1	CO 1	To create awareness about basic economic principles and theories that help in business decisions	create
2	CO 2	Helps students to apply economic theories in different business situations	Apply
3	CO 3	Helps to develop business skills like developing a product idea, product features, content, pricing and promotional strategies	Create

4	CO 4	Helps to understand different stages of growth and vision and mission statements of companies	understand
5	CO5	Helps to analyse demand for existing products and forecast demand foe new products	analyse

Subject: Informatics and Cyber Laws CO 1221

Sl No	Course Outcome No	Course Outcome	Taxonomic Level
1	CO 1	Provide informatics skills and attitude to the students	understand
2	CO2	Helps to analyse the impact of informatics on business decisions	Analyse
3	CO3	Create awareness about cyber world and cyber regulations	create
4	CO4	Provides a good understanding of digital knowledge skills for higher education	understanding
5	CO5	Helps to study application of IT in medicine, healthcare, business, commerce, industry and defence	apply

Subject : Financial Accounting CO 241

Sl No	Course Outcome No	Course Outcome	Taxonomic Level
1	CO1	Familiarise students with different methods of depriciation	understand
2	CO2	Helps students to prepare accounts of specialized business entreprises	create
3	CO3	Gives a clear idea of investment accounts	understand
4	CO4	Understand the basic concepts and principles of financial accounting	understand
5	CO5	Gives a clear idea of accounting for voyage, packages and containers	understand

Subject : Business Regulatory Framework CO 1242

Sl No	Course Outcome No	Course Outcome	Taxonomic Level
1	CO 1	To provide a brief idea about the frame work of Indian business laws	understand
2	CO 2	Enables to apply the provisions of business laws in business acivities	apply
3	CO 3	Gives a clear idea of Indian Contract Act 1872 and special contracts	understand
4	CO4	Prepare models of different kinds of contracts	create
5	CO5	Gives a clear picture of RTI Act	understand

Subject; Business Maths CO 1231

Sl No	Course Outcome No	Course Outcome	Taxonomical Level
1	CO 1	Familiarise with basic mathematical tools	understand
2	CO 2	Impart skills in applying mathematical tools in business practice	apply
3	CO 3	Calculating pricing costs and financial ratios	apply
4	CO4	Interpreting graphical representations in business	evaluate
5	CO5	Analyse mathematical applications in business	evaluate

COURSE OUTCOME OF B Com & TTM

2018 onwards, Second Year (S 3 & S4)

SEMESTER: 3

At the end of the course students will be able to:

Subject: Entrepreneurship Development

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Develop a Practical insight about how to become an entrepreneur	Create
2	CO 2	Discuss the latest programmes of Government for promoting Small and Medium industries	Understand
3	CO 3	Examine the various entrepreneurial opportunities regarding starting of new ventures	Analyze
4	CO 4	Develop a clear cut vision about how to evaluate various financial sources providing fund for new entrepreneurs	Create, Evaluate
5	CO 5	Describe how to make feasibility study as well as feasibility report and project report regarding entrepreneurship	Understand

Subject: Advanced Financial Accounting

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Develop anawareness about the accounts related to dissolution of partnership firms	Create
2	CO 2	Compare the system of accounting for different branches and departments	Analyze

3	CO 3	Discuss the preparation of accounts of consignments	Understand
4	CO 4	Formulatethe general financial of sole proprietor, partnership and non-profit entities	Create
5	CO 5	Implement the techniques and standards of accounting in order to prepare financial statements	Apply

Subject: Company Administration

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Investigate into the salient provisions of Indian Companies Act 2013	Create
2	CO 2	Discuss how to acquaint with Management and Administration of Companies	Understand
3	CO 3	Examine the Compliance requirements , investigation into affairs of the Company Winding up Procedure	Analyze
4	CO 4	Develop awareness about governance and CSR	Create
5	CO 5	Describe how to prepare a record on complying essential documents needed at various stages of formation of Public Ltd Co.	Understand

Subject: Financial Management (S3 Finance)

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Explain the conceptual and analytical insight to make financial decisions skillfully	Understand
2	CO 2	Develop awareness about the conceptual frame work of financial management	Create
3	CO 3	Discuss the practical application of financial management	Understand

4	CO 4	Enable to take financial decisions, investment decisions and dividend decisions by evaluating various theories and approaches	Evaluate, Create
5	CO 5	Discuss the Management of working capital cycle and inventory	Understand

Subject: Tourism -Principles and Practices (S3 TTM)

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Describe the basic concepts of Tourism	Understand
2	CO 2	Develop an awareness about the role of various organizations of Tourism in Tourism promotion	Create
3	CO 3	Examine the impact of Tourism	Analyze
4	CO 4	Investigate into the historical development of Tourism	Create
5	CO 5	Discuss the status of Tourism in India	Understand

Subject: E - Business

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Develop in depth knowledge on E- Business and its potentialities	Create
2	CO 2	Discuss the various e- commerce and e-business models	Understand
3	CO 3	Acquaint knowledge about some innovative e-business systems and their application	Apply
4	CO 4	Develop knowledge regarding the basics of starting online business	Create
5	CO 5	Appraise various e-governance models and e-governance initiatives in Kerala and India	Understand, Evaluate

SEMESTER: 4

Subject: Indian Financial Market

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Investigate knowledge on financial market and its operations	Create
2	CO 2	Discuss the functioning of Indian Financial Market in general and Capital Market operation in particulars	Understand
3	CO 3	Interpret the various methods used in Primary and Secondary Market	Analyze
4	CO 4	Discuss and evaluate various types of derivatives	Understand, Evaluate
5	CO 5	Develop an awareness about the regulatory frame work of financial market	Create

Subject: Banking and Insurance

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Discuss about the changing scenario of Indian Banking and Insurance	Create
2	CO 2	Explain the basic knowledge about the theory and practice of Banking	Understand
3	CO 3	Discuss the various areas of Insurance Business	Understand
4	CO 4	Develop and awareness about the innovations and reforms in banking	Create
5	CO 5	Appraise the techniques adopted in asset liability management	Evaluate

Subject: Corporate Accounting

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Construct and idea about the accounting practices prevailing in corporate sector	Create
2	CO 2	Investigate about corporate accounting in conformity with the provisions of Companies Act, IAS,IFRS	Create
3	CO 3	Interpret the techniques to prepare the accounts of Banking and Insurance Companies	Apply
4	CO 4	Develop an idea about the preparation and interpretation of financial statements of Joint stock companies	Create
5	CO 5	State the accounting standards and GAAP	Remember

Subject: Project Finance (S4 Finance)

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Describe the process and issues relating to project preparation, appraisal, administration, review and monitoring of project	Understand
2	CO 2	Develop awareness about project appraise, techniques and evaluation	Create
3	CO 3	Examine the various methods of project risk analysis	Analyze
4	CO 4	Appraise various sources and techniques of project finance	Evaluate
5	CO 5	Develop an idea about global project and world bank project reports	Create

Subject: Tourism Products (S4 TTM)

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Discuss about various Tourism products	Understand
2	CO 2	Appraise the various natural and man- made products of tourism	Evaluate
3	CO 3	Examine the varieties of natural resources in India	Analyze
4	CO 4	Appraise various historical and socio- cultural tourism products	Evaluate
5	CO 5	Develop an awareness about adventure tourism	Create

Subject: Business Statistics

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Develop skill for applying appropriate statistical tools and techniques in different business situations	Create
2	CO 2	Discuss the statistical techniques those are applicable to business	Understand
3	CO 3	Demonstrate the various statistical techniques in business	Apply
4	CO 4	Judge the merits and demerits of various techniques adopted in statistics for data collection and presentations	Evaluate
5	CO 5	Examine the importance of statistics in business	Analyze

Subject: Software for Data Management

Sl.No	Course Outcome No.	Course Outcome	Taxonomic level
1	CO 1	Execute and Develop theoretical and technical expertise in applying software for data management	Apply, Create
2	CO 2	Discuss the basics of software for data management	Understand
3	CO 3	Formulate knowledge to meet the demands of industry	Create
4	CO 4	Develop practical skills in spreadsheet application, statistical software and data base application	Create
5	CO 5	Appraise in detail about the SPSS package	Evaluate

SEMESTER 5

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
1	**CO 1541**	**FUNDAMENTALS OF INCOME TAX**	
	Co1	**To articulate the history and development of income tax laws.**	**Understand, remember**
	Co2	**To describe the concept of tax procedure**	**Create, understand**
	Co3	**To implement the information in future .**	**Apply**
	Co4	**To judge the facts like deduction which head it is taxable .**	**Evaluate**
	Co5	**To design a tax consultancy firm as an entrepreneur.**	**Create**

CO1542 COST ACCOUNTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
2	**CO 1542**	**COST ACCOUNTING**	
	Co1	**To describe the concept of cost accounting**	**Understand , remember**
	Co2	**To assemble the cost concept in business field .**	**Create, understand**

	Co3	To distinguish costing from financial accounting.	Analyse
	Co4	To operate costing techniques in all business concern.	Apply
	Co5	To state all methods used in cost accounting.	remember

CO1543 MARKETING MANAGEMENT

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
3	CO 1543	MAARKETING MANAGEMENT	
	Co1	To develop ideas to promote product marketing.	create
	Co2	To examine different marketing tools and techniques like advertising, branding etc	analyse
	Co3	To state the theories for product marketing in future perspective.	Remember
	Co4	To judge the real life product and services available in market.	Evaluate
	Co5	To locate the market situation properly through learning.	understand

CO1561.1 FINANCIAL SERVICE IN INDIA

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
4	CO 1561.1	FINANCIAL SERVICE IN INDIA	
	Co1	To understand the role of financial services prevailed in India	Understand
	Co2	To judge and create strategies to promote financial products and services	Evaluate
	Co3	To repeat the basic concept like factoring ,leasing etc.	Remember, understand
	Co4	To experience mutual fund investment scheme and diversified investment.	Analyse, apply
	Co5	To describe various sources in financial services in India	Remember, understand

CO1561.3 HOSPITALITY MANAGEMENT

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
5	CO 1561.3	HOSPITALITY MANAGEMENT	
	Co1	To recognise the history and relevance of management in field of hospitality	Understand
	Co2	To solve the problems in situation demanded in hospitality.	Apply
	Co3	Organising skill be acquired to handle different situation	Analyse
	Co4	To investigate the scope of management skill in this field	Create
	Co5	To comprehend the societal applications by experience earned through learning.	Remember, understand

CO1551.1 FUNDAMENTALS OF FINANCIAL ACCOUNTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
6	CO 1551.1	FUNDAMENTALS OD FINACIAL ACCOUNTING	
	Co1	To assemble the basis principles and practice in financial accounting.	Create
	Co2	To recognise the various ledger and book keeping methods .	Understand
	Co3	To classify the cashbooks and journals.	Understand
	Co4	To differentiate the single data entry and double entry book keeping.	Analyse
	Co5	To repeat the practical by doing the accounts.	remember

CO1551.2 PRINCIPLES OF MANAGEMENT

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
7	CO 1551.2	PRINCIPLES OF MANAGEMENT	
	Co1	To create awareness about various functions of management	create
	Co2	To memorise and recall the the levels of management	remember
	Co3	To classify management aspects as science as well as profession	understand
	Co4	To interpret concept of controlling and planning process.	apply
	Co5	To direct the relevant information to achieve objectives	create

CO1551.1 PRACTICAL ACCOUNTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
1	CO 1551.1	PRACTICAL ACCOUNTING	
	Co1	To assemble the basis principles and practice in financial accounting.	Create
	Co2	To recognise the various ledger and book keeping methods .	Understand
	Co3	To classify the cashbooks and journals.	Understand
	Co4	To differentiate the single data entry and double entry book keeping.	Analyse
	Co5	To repeat the practical by doing the accounts.	remember

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
2	CO 1661.1	TAXATION IN LAWS AND ACCOUNTS(finance)	
	Co1	To articulate the history and development of income tax laws.	Understand, remember
	Co2	To describe the concept of tax procedure	Create, understand
	Co3	To implement the information in future.	Apply
	Co4	To judge the facts like deduction which head it is taxable.	Evaluate
	Co5	To design a tax consultancy firm as an entrepreneur.	Create

CO1642APPLIED COSTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
3	CO 1642	APPLIED COSTING	
	Co1	To describe the concept of cost accounting	Understand , remember
	Co2	To assemble the cost concept in business field.	Create, understand
	Co3	To distinguish costing from financial accounting.	Analyse
	Co4	To operate costing techniques in all business concern.	Apply
	Co5	To state all methods used in cost accounting.	remember

CO1643 MANAGEMENTACCOUNTING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
4	CO 1643	MANAGEMENT ACCOUNTING	
	Co1	To listing the managerial techniques.	Remember
	Co2	To solve the problems in managerial aspects	Apply
	Co3	Formulate the policies and rules by using reports	Create
	Co4	Explain the ideas behind management decisions	evaluate
	Co5	To support the management through evaluating the result.	understand

CO1641 AUDITING

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
5	CO 1641	AUDITING	
	Co1	To construct the ideas of auditing in the field of business	Create
	Co2	To judge the practical wise application in management	Evaluate
	Co3	Describe the internal as well as external auditing procedure	Understand, remember
	Co4	Explain the role of auditor in any organisation	understand
	Co5	Recognise the auditors work and procedure	remember

CO1661.3 TOURISM AGENCIES,TOUR OPERATION AND AIRLINE MANAGEMENT

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
6	CO 1661.3	TOURISM AGENCIES,TOUR OPERATION AND AIRLINE MANAGEMENT	
	Co1	To recognise the history and relevance of management in field of travel and tourism.	Understand
	Co2	To solve the problems in situation demanded in travel and service in airline management	Apply
	Co3	Organising skill be acquired to handle different tours and travels	Analyse

	Co4	To investigate the scope of management skill in tourism field	Create
	Co5	To comprehend the societal applications by experience and personal skills.	Remember, understand

CO1661.7 MANAGEMENT OF FOREIGN TRADE

SL.NO	COURSE OUTCOME NUMBER	COURSE OUTCOME	TAXONOMIC LEVEL
7	CO 1661.7	MANAGEMENT OF FOREIGN TRADE	
	Co1	To understand the role of foreign trade	Understand
	Co2	To judge and create strategies to promote financial products and services outside India	Evaluate
	Co3	To repeat the basic concept like BOP, BOT etc.	Remember, understand
	Co4	To experience internal as well as external trade.	Analyse, apply
	Co5	To describe various sources in foreign trade	Remember, understand

B.A. Economics

Course outcomes of courses offered to B.A. Economics students. At the end of each course the student will be able to achieve the following course outcomes:

EC1141 Core I Introductory Microeconomics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Discuss the concept of demand and supply	Un, Re
2.	CO2	Explain income and substitution effects	Un, Re
3.	CO3	Comprehend consumer decision making	Un, Re
4.	CO4	Describe the production decision of a firm	Un, Re
5.	CO5	Explain different market structures	Un, Re

EC1241 Intermediate Microeconomics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Explain equilibrium in factor markets	Un, Re
2.	CO2	Explain risk, probability, expected value and variability	Un, Re
3.	CO3	Recognize preferences towards risk	Un, Re
4.	CO4	Describe the basic concepts of Behavioural Economics	Un, Re
5.	CO5	Recognize market failures and externalities	Un, Re

EC1321 Informatics for Applied Econometrics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Explain the scope and significance of information networks in economics.	Un, Re
2.	CO2	Explain and solve Time series, Panel and cross-sectional data using Gretl software	Un, Re,Ap

3.	CO3	Discuss the concept of Population and Sample regression functions.	Un, Re
4.	CO4	Recognize the method of Ordinary Least Squares and Gauss Markov Theorem	Un, Re
5.	CO5	Solve the hypothesis testing using computer resources	Un, Re,Ap

EC 1341 Introductory Macro Economics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Discuss the basic concepts of macroeconomics	Un, Re
2.	CO2	Explain Classical School	Un, Re
3.	CO3	Explain Keynesianism	Un, Re
4.	CO4	Describe ISLM Model	Un, Re
5.	CO5	Explain National Income Concepts	Un, Re

EC 1441 Mathematical Methods for Economics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Examine ethe role of mathematics in economics	Un, Re
2.	CO2	Explain and use different types of functions and equations.	Un, Re,Ap
3.	CO3	Explain matrix algebra and solve different types of operations.	Un, Re,Ap
4.	CO4	Execute differential calculus operations and use economic applications of derivatives.	Un, Re,Ap
5.	CO5	Understand the meaning and applications of integral calculus in economics.	Un, Re,Ap

EC1442 Intermediate Macroeconomics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Discuss the basic concepts of open economy macroeconomics	Un, Re
2.	CO2	Explain aggregate supply and aggregate demand	Un, Re
3.	CO3	Explain important concepts on inflation and unemployment	Un, Re
4.	CO4	Describe different growth models	Un, Re
5.	CO5	Explain different consumption theories	Un, Re

EC 1541 Methodology and Perspectives of Social Science

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Examine the need for an interdisciplinary approach in social sciences	Un, Re, An
2.	CO2	Critique the different economic systems	Un, Re, Ev
3.	CO3	Explain the industrial revolution	Un, Re
4.	CO4	Explain the major global economic events	Un, Re
5.	CO5	Describe economic inequality and different methods of measuring inequality	Un, Re

EC 1542 Statistical Methods for Economics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Demonstrate measures of central tendency and dispersion	Un, Re, Ap
2.	CO2	Comprehend correlation and execute different methods of conducting correlation analysis	Un, Re, Ap

3.	CO3	Explain simple and multiple linear regression	Un, Re
4.	CO4	Explain index numbers and their applications	Un, Re
5.	CO5	Explain probability and solve questions using addition and multiplication theorems	Un, Re, Ap

EC 1543 Readings in Political Economy

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Explain the idea of division of labour, Ricardian theory of rent and Marxian theory.	Un, Re
2.	CO2	Understand the contributions of economists in political economy.	Un, Re
3.	CO3	Explain Great Depression and ideas of Keynes.	Un, Re
4.	CO4	Recognise the features of global capital crisis.	Un, Re
5.	CO5	Critique the issues of political economy of India	Un, Re,Ev

EC1544 Economic Growth and Development

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Understand the meaning and scope of economic development and compare the development patterns of different nations.	Un, Re,An
2.	CO2	Discuss various measures of poverty and inequality.	Un, Re

3.	CO3	Discuss the concept of Gini coefficient and Lorenz curve.	Un, Re
4.	CO4	Recognize various growth models	Un, Re
5.	CO5	Explain different theories of economic growth	Un, Re

EC 1545 International Economics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Discuss the different theories of international trade	Un, Re
2.	CO2	Explain the concept of Balance of payments and describe automatic and deliberate measures to correct disequilibrium.	Un, Re
3.	CO3	Examine different approach towards exchange rate determination	Un, Re
4.	CO4	Discuss functions of international monetary organisations.	Un, Re
5.	CO5	Explain tariff barriers and different types of protection.	Un, Re

EC1551.2 Human Resource Management

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Comprehend the meaning and scope of human resource management	Un, Re
2.	CO2	Execute human resource planning in an organisation	Un, Re, Ap
3.	CO3	Explain recruitment, selection and training of employees	Un, Re
4.	CO4	Describe the different methods of controlling human resources	Un, Re

5.	CO5	Distinguish between human resource development and human resource management	Un, Re, An

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Examine the growth process in Indian economy	Un, Re, An
2.	CO2	Examine the agriculture, industry and service sector growth and development	Un, Re, An
3.	CO3	Examine India's foreign trade	Un, Re, An
4.	CO4	Explain the economic reforms of 1991	Un, Re
5.	CO5	Examine the impacts of GST, demonetization and the digital economy	Un, Re, An

EC1642 Banking and Finance

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Discuss the nature and role of Financial System	Un, Re
2.	CO2	Examine the changing role and structure of the Indian banking system	Un, Re, An
3.	CO3	Explain the conduct of monetary policy	Un, Re
4.	CO4	Describe the various constituents of the Money market	Un, Re
5.	CO5	Describe the various constituents of the Capital market	Un, Re

EC 1643 Public Economics

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Understand the meaning and scope of public economics.	Un, Re

2.	CO2	Discuss the concept of market failure and various government actions for correcting market failure.	Un, Re
3.	CO3	Explain the meaning and sources of public revenue in India	Un, Re
4.	CO4	Discuss the meaning and objectives of public debt and its management in India	Un, Re
5.	CO5	Explain Fiscal policy mechanism and comprehend fiscal federalism in India	Un, Re

EC 1645 Project

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Select an issue or topic related to economics	Un, Ev
2.	CO2	Examine the literature	Un, An
3.	CO3	Use primary or secondary source of data	Un, Ap
4.	CO4	Implement statistical methods	Un, Ap
5.	CO5	Formulate the results and suggestions	Un, Ev, Cr

EC 1644 Environmental Economics and Disaster Management

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Discuss basic concepts of environmental economics.	Un, Re
2.	CO2	Understand and recognize environmental externalities and market failure.	Un, Re
3.	CO3	Explain different types of environmental policy tools and understand cost benefit analysis	Un, Re
4.	CO4	Identify global environmental issues and understand the idea of sustainable development.	Un, Re
5.	CO5	Examine disaster management in India	Un, Re,Ev

EC1661.1 KERALA ECONOMY

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Discuss nature and scope of economics and describe the significance of studying economics	Un,Re
2.	CO2	Explain the concept of law of demand and supply	Un,Re
3.	CO3	Recognize the factors of production and production function.	Un,Re
4.	CO4	Explain the concepts of costs and revenue.	Un,Re
5.	CO5	Explain different types of market structures exist in the economy	Un,Re

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Critique the development experience of Kerala	Un, Re, Ev
2.	CO2	Explain the demographic features of Kerala	Un, Re
3.	CO3	Examine migration and its impacts	Un, Re, An
4.	CO4	Comprehend poverty and unemployment	Un, Re
5.	CO5	Compare the development and current state of agriculture, industry and service sector in Kerala	Un, Re, An

EC 1131 Foundations of Economic Theory(complementary)

EC 1231 Money and Banking(complementary)

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Discuss the concept and definition of money	Un, Re
2.	CO2	Identify the different measures of money supply.	Un, Re
3.	CO3	Understand the concept and types of inflation.	Un, Re
4.	CO4	Examine the role of commercial banking system in India	Un, Re,An
5.	CO5	Explain the objectives and instruments of monetary policy in India	Un, Re

EC1331 Introduction to International Trade and Public Economics (Complementary)

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Explain the scope of public economics and the difference between public and private finance.	Un, Re
2.	CO2	Recognize the concept of budget	Un, Re
3.	CO3	Discuss the concept of taxation and types of taxes.	Un, Re
4.	CO4	Critique the causes of rising public expenditure in India	Un, Re,Ev
5.	CO5	Explain basic concepts and theories of international trade.	Un, Re

EC1431 Indian Economy since independence (Complementary)

S No.	Course outcome No.	Course Outcome	Taxonomic level
1.	CO1	Examine the features of Indian economy after Independence.	Un, Re,An
2.	CO2	Examine the demographic trends	Un, Re,An
3.	CO3	Examine the agriculture, industry, and service sector growth and development.	Un, Re,An
4.	CO4	Recognize the measures of national income.	Un, Re
5.	CO5	Discuss the features and structural changes in the Kerala economy.	Un, Re

PROGRAMME OUTCOME

P01	**To Understand the dynamic aspects of Economy**
P02	**To gain thorough understanding of Economic theories**
P03	**To have research aptitude in Economics**
P04	**To acquire critical thinking in various economic aspects**
P05	**Academic training for future Policy makers**

COURSE OBJECTIVES AND OUTCOMES

FIRST DEGREE PROGRAMME(CBCS System) in B.A. ENGLISH LANGUAGE AND LITERATURE Revised Syllabus for 2020 Admissions onwards (Core, Complementary, Open & Elective Courses)

BA English Language and Literature: Programme Outcome

PO 1: A comprehensive understanding of the discipline of literary studies
PO 2: Realize the divergent and plural voices that come in to the making of the corpus of literary studies.
PO 3: Understand literature as one of the many arts that seeks literary expression and its close connection with other art forms like painting, music, dance, movie and so on down the ages.
PO 4: Imbibe the importance of multidisciplinary approach to understand the nuances of literary expressions.
PO 5: Understand the specific socio-cultural backdrop of the formation of literary representations.
PO 6: Form an awareness of the multiplicities of such socio-cultural realities that shape literary representations and to critique the inherent hegemony.
PO 7: The ability to trace the development of the English language from the early writings to its present day use in specific contexts.
PO 8: Address the requirements of the language use in a globalized context
PO 9: Ensure the importance of study of the English language in relation to the study of language and literature of the mother tongue.
PO 10: Have improved competence in translation and to view the same not only as a tool for cultural transmission but also as skill acquisition.
PO 11: Comprehended the current modes of writings – that which encompasses the issues related to race, gender, ethnicity, climate change etc. and realize the role of literature in inculcating social sensitiveness
PO 12: The competence to identify the literary voices of dissent from diverse parts of the globe and to reflect on the popular culture and literature.
PO 13: A basic knowledge of research methodology and other areas related to the faculty of research.
PO 14: Imbibe a research oriented approach to the study of humanities in connection with the basic understanding of social sciences to initiate a multidisciplinary approach of study.
PO 15: Contribute to the realm of knowledge production with an increased intellectual, creative, critical and multidisciplinary capability.

SEMESTER I

FIRST DEGREE PROGRAMME IN

B A ENGLISH LANGUAGE AND LITERATURE (CBCS SYSTEM)

Semester I

Language Course 1- EN 1111.1 (B A/ B. Sc), EN 1111.2 (B.Com), EN 1111.3 [Career Related 2(a)] Programme and EN 1111.4 [Career Related 2(b) Programme]

Course Title: LANGUAGE SKILLS

Credits: 4

Hours: 5/week (90 hrs)

Learning Objectives:

1. Mastering the language for personal and professional growth.
2. Basic language skills are to be acquired through interactive classroom sessions
3. Connecting literature with language learning

Learning Outcomes:

English as an acquired language for undergraduate students is to be mastered with focus on learning the basic skills of listening, speaking, reading and writing the language proficiently. This course aims to impart these skills in an interactive manner along with classroom activities and using the text as a resource for self study as well. Discursive Practice as the learning and teaching method for this course, will encourage teachers to localise and personalise learning of English for students in undergraduate classrooms. The course will equip the students with basic language skills along with improved non-verbal skills thereby improving their employability quotient.

Foundation Course 1- EN 1121 (B A/ B. Sc) and CG 1121.3 [Career Related 2 (a) Programme]

Course Title: WRITINGS ON CONTEMPORARY ISSUES

Credits: 2

Hours: 4/week (72 hrs)

Learning Objectives:

1. To sensitize students to the major issues in the society and the world.
2. To provide students with a variety of perspectives on contemporary issues.
3. To encourage them to read literary pieces critically.

Learning Outcomes:

On completion of the course, the students should be able to

1. Have an overall understanding of some of the major issues in the contemporary world
2. Respond empathetically to the issues of the society

3. Read literary texts critically

Core Course 1: EN 1141 Introduction to Literary Studies I

No. of Credits: 4 **No. of Instructional hours: 6 per week [Total: 108 Hours]**

Aim

To introduce the world of literature

Objectives

1. Develop an awareness of the diversity of world literature, representing different forms, time and space
2. An awareness of genre, with emphasis on forms of poetry and drama
3. Develop an inquisitiveness to read more of literature in the line of texts suggested in the course.

Course Outcome

CO 1: Introduce varied literary representations.
CO 2: Familiarize students with the nature and characteristics of literature.
CO 3: Discuss the nature and characteristics of literature
CO 4: Introduce two key genres of literature, poetry and drama.
CO 5: Possess a foundational understanding of poetry and drama.

Complementary Course 1: EN 1131

Popular Literature and Culture

No: of Credits: 3 **No: Instructional Hours: 3 per week [Total 54 Hours]**

Aim

To broaden the idea of literature and the concept of texts

Objectives

1. Learn the difference between genre fiction and literary fiction
2. Gain an understanding of the folk roots of popular literature
3. Gain a perspective into the debate between high and low cultures

Course Outcome
CO 1: Encourage the student to think critically about popular literature.
CO 2: Understand the categories of the ―popular‖ and the ―canonical‖
CO 3: Identify the conventions, formulas, themes and styles of popular genres such as detective fiction, the science fiction and fantasy, and children‘s literature.
CO 4: An assessment of the literary and cultural value of popular texts

C O 5: Sensitize students to the ways in which popular fiction reflects and engages with questions of gender, identity, ethics and education.

Complementary Course 1: EN 1131 Popular Literature and Culture

No: of Credits: 3 **No: Instructional Hours: 3 per week [Total 54 Hours]**

Aim To broaden the idea of literature and the concept of texts

Objectives

1. Learn the difference between genre fiction and literary fiction
2. Gain an understanding of the folk roots of popular literature
3. Gain a perspective into the debate between high and low cultures

Course Outcome

CO 1: Encourage the student to think critically about popular literature.

CO 2: Understand the categories of the ‒popular‖ and the ‒canonical‖

CO 3: Identify the conventions, formulas, themes and styles of popular genres such as detective fiction, the science fiction and fantasy, and children‘s literature.

CO 4: An assessment of the literary and cultural value of popular texts

C O 5: Sensitize students to the ways in which popular fiction reflects and engages with questions of gender, identity, ethics and education.

SEMESTER II

FIRST DEGREE PROGRAMME IN

B A ENGLISH LANGUAGE AND LITERATURE (CBCS System)

EN 1211.1

Language Course 3: Ability Enhancement Compulsory Course – EN 1211.1 (B.A / B.Sc)

Course Title: ABILITY ENHANCEMENT COMPULSORY COURSE: ENVIRONMENTAL STUDIES AND DISASTER MANAGEMENT

Credits: 5

Hours: 5/week (90 hrs)

Learning Objectives:

To enable the student:

- to engage with a wide range of issues in environmental studies and disaster management.
- to acquire a set of values for environmental protection and conservation
- to recognize the ecological basis for regional and global environmental issues
- to manage natural disasters and other emergency situations
- to develop a critical vocabulary related to environmental studies and disaster management

Learning Outcomes:

The student will be able to:

- understand environmental crises and disaster management situations
- take lead in spreading environmental values and creating awareness among the public
- understand local environmental issues better
- respond in a better way to a natural calamity or disaster
- articulate environmental concerns using appropriate vocabulary

Language Course 4 -EN 1212.1 (BA/B. Sc), Language Course 3 - EN 1211.2 (B.Com) and Language Course 3 - EN 1211.3 [Career related 2(a) Programme]

Course Title: ENGLISH GRAMMAR, USAGE AND WRITING

Credits: 4

Hours: 5/week (90 hrs)

Learning Objectives:

1. To help students have a good understanding of modern English grammar.
2. To enable them produce grammatically and idiomatically correct language.
3. To help them improve their verbal communication skills.
4. To help them minimise mother tongue influence.

Learning Outcomes:

On completion of the course, the students should be able to

1. Have an appreciable understanding of English grammar.
2. Produce grammatically and idiomatically correct spoken and written discourse.
3. Spot language errors and correct them.

Core Course 2: EN 1241 Introduction to Literary Studies II

No. of Credits: 4 No. of instructional hours: 6 per week [Total: 108 Hours]

Aim

Introduce the world of Literature, esp. Fiction and Non-Fiction

Objectives

1. An awareness of diverse literary representations from different time and space
2. Possess a foundational understanding of fiction and non-fiction.
3. Provide an awareness of genre, with emphasis on forms of short fiction, fiction and non-fiction

Course Outcome

CO 1: Cherish a taste for the literary among students
CO 2: Comprehend the nature and characteristics of different genres of literature.
CO 3: Detailed awareness of the two key genres of literature- fiction and non-fiction.
CO 4: Imbibe the representational possibilities of the respective genres.
CO 5: Instill a creative and critical aptitude

Complementary Course 3: EN 1231 Art and Literary Aesthetics

No: of Credits: 3 No: of Instructional Hours: 3 per week [Total 54 Hours]

Aim
Introduce the multidisciplinarity of Art and Literary Studies

Objectives:
1. Gain an understanding of various movements in art history and how they relate to literature
2. Engage with works of art that directly refer to literary works and also draw inspiration from art
3. Recognize how all forms of art is part of a continuum.

Course Outcome

CO 1: The student will be able to engage with literature in a broader, educated perspective.
CO 2: The student will be able to think with greater originality and independence about the complex interrelationship between different art forms.
CO 3: The student will be trained to engage sensitively and intelligently in new readings of literature.
CO 4:The course develops an understanding of the co-relation between literature, film, music and painting and encourages ways of reading and seeing which deliver insights into literary texts.
CO 5: Initiate students to implement the multidisciplinary scope of art and literary studies.
Instructions: This course is designed to draw out the relationships between art movements and literature. In the first two modules, the texts/pieces have been chosen to be representative of the various time periods in which these movements originated, so a comparative study of both the paintings, films and the literary works is recommended. The third module discusses music as literary text and the various ways in which this is manifested.

SEMESTER III

FIRST DEGREE PROGRAMME IN

B A ENGLISH LANGUAGE AND LITERATURE

Language Course 6 - EN 1311.1 (BA/B. Sc), Language Course 5 - EN 1311.3 [Career related 2(a) Programme] and Language Course 1 - EN 1211.4 [Career related 2(b) Programme]

Course Title: English for Career Credits: 4
Hours: 5 hours/ week (90 hrs)

Learning Objectives

- To introduce students to the language skills required for appearing in career oriented competitive examinations
- To frame modules of study that would develop the cognitive, logical, verbal and analytical skills necessary to succeed in competitive examinations.
- To provide the pattern of questions based on common models of competitive tests
- To provide sufficient practice in Vocabulary, Grammar, Comprehension and Remedial English from the perspective of career oriented tests.
- To help students to prepare for and appear in competitive examinations.

Learning Outcomes

The student will

- Acquire the necessary language skills required in the competitive job market.
- Acquire the cognitive, logical, analytical and verbal skills necessary to succeed in competitive examinations
- Become familiar with the pattern of questions usually asked in the competitive examinations

- Get sufficient practice in Vocabulary, Grammar, Comprehension and Remedial English
- Be able to prepare for and be successful in competitive examinations.

Core Course 3: EN 1341

British Literature I

No. of Credits: 3 **No. of instructional hours: 5 per week [Total: 90 Hours]**

Aims Introduce the origin and growth of English literature

Objectives

1. Familiarize the historical phases of English literature
2. Provide glimpses of writers and literary texts that are pivotal to an understanding of British literature
3. Discuss the development of British literature across time from Pre-Elizabethan to Restoration Era

Course Outcome

CO 1: Comprehend the origins of English literature

CO 2: Understand the specific features of the particular periods

CO 3: Understand themes, structure and style adopted by early British writers

CO 4: Gain knowledge of growth and development of British Literature in relation to the historical developments

CO 5: Understand how writers use language and creativity to capture human experience through different literary forms

Foundation Course 2: EN 1321

Evolution of the English Language

No. of Credits: 3 **No. of instructional hours: 4 per week [Total: 72 Hours]**

Aim: Study the historical development of the English Language.

Objectives

1. Demonstrate a thorough understanding of the diachronic development of the English language down the ages.
2. Sensitize students to the changes that have shaped English
3. Enable understanding of the growth of English into a global language

Course Outcome:

CO 1: Knowledge of the paradigm shifts in the development of English.

CO 2: Well aware of the historical paradigm shifts in the history of English Language

CO 3: Imbibe the plural socio cultural factors that went in to the shaping of the English Language.

CO 4: Place English language in a global context.

CO 5: Recognize the politics of many "Englishes"

Complementary Course 5: EN 1331

Narratives of Resistance

Number of Credits: 3 No. of Instructional Hours: 3 [Total 54 Hours]

Aim Introduce the various narratives of resistance, literary and other wise.

Objectives

1. To understand the various modes of resistance needed to subvert oppressive socio- cultural structures.
2. To provide insight into the struggles of people from around the world for identity and rights and contribute proactively to social dynamics.
3. To understand how literature acts as a vehicle for voices of dissent and protest.

Course Outcome

CO 1: Be able to identify themes of resistance in different forms and genres of literature.

CO 2: Have a sense of the various kinds of injustice related to race, ethnicity, gender etc. prevalent in society.

CO 3: Develop an idea of literature as a form of resistance to all forms of totalitarian authority. CO 4: Understand the inter connection between various genres in manifesting resistance
CO 5: How resistance is an undeniable presence in the everyday narratives of literary and other artistic expressions.

SEMESTER IV

FIRST DEGREE PROGRAMME IN

BA ENGLISH LANGUAGE AND LITERATURE (CBCS System)
Language Course 8 -EN 1411.1 (BA/B. Sc), Language Course 4 - EN 1411.2 (B.Com) and Language Course 6 - EN 1411.3 [Career related 2(a) Programme]

Course Title: READINGS IN LITERATURE

Credits: 4

Hours: 5/week (90 hrs)

Learning Objectives

1. To introduce students to Global Literatures and familiarize the writers

2. To sensitize students to the aesthetic, cultural and social aspects of literature originating from all over the world

3. To help them analyze and appreciate literary texts and the various cultures they embody.

4. Motivate further reading outside the class for enjoyment and pleasure

Learning Outcomes

On completion of the course, the students should be able to:

1. Understand and appreciate literary discourse.

2. Look at the best pieces of literary writing critically.

3. Analyze literature as a cultural and interactive phenomenon.

4. Understand the use of the target language and make use of it in daily life.

Core Course 4 :EN 1441

British Literature II

No. of Credits: 4 **No. of instructional hours: 5 per week [Total: 90 Hours]**

Aim: Introduce the historical and philosophical shifts in English literature since 17th century.

Objectives:

1. Familiarize the history of English literature from the 18th century to the Victorian age
2. Understand the socio-political, historical and cultural contexts
3. Be able to identify the changing trends in English literature in the 18th and 19th centuries

Course Outcome:

CO 1: Sensitize students to the changing trends in English literature in the 18th and 19th centuries and connect it with the sociocultural and political developments.

CO 2: Develop the critical thinking necessary to discern literary merit
CO 3: Be able to recognize paradigm shifts in literature
CO 4: Be able to identify techniques, themes and concerns

CO 5: Connect literature to the historical developments that shaped the English history.

Core Course 5: EN 1442

Literature of the 20th Century

No. of Credits: 3 **No. of instructional hours: 4 per week [Total: 72 Hours]**

Aim Introduce the literary narratives of the 20th century in close connection with the historical time period.

Objectives

1. Examine the ways in which political, cultural and social events in British and European history of the first half of the 20th century, esp. world wars and holocaust, shaped the literature of this period

2. Develop the ability to analyze literary texts of this period in their symbiotic relationship with non-literary developments of the times
3. Acquaint the learners with the significant historical, cultural and imaginative force in 20th century literature

Course Outcome

CO 1: Understand social, political, aesthetic and cultural transformations of early twentieth century in relation to literary texts with their specific formal features.

CO 2**:** Know the stylistic features of Modernism and its various literary and aesthetic movements CO 3: Critically engage the ideas that characterise the period, especially the crisis of modernity CO 4: Understand contemporary responses to the historical incidents that mark the period
CO 5: Understand and use critical strategies that emerged in the early twentieth century.

Complementary Course 7: EN1431

Philosophy for Literature

No. of Credits: 2 **No. of instructional hours: 3 per week [Total: 54 Hours]**

Aim: Engage with the philosophy of literary representations.

Objectives

1. Give the students a historical overview of the major figures in philosophy
2. Introduce to them some of the significant schools of thought that has influenced human perception.
3. Inform students how an understanding of philosophy is vital to the reading of literature.

COURSE OUTCOMES

CO 1: Have a diachronic understanding of the evolution of philosophy from the time of Greek masters to 20th century

CO 2: Have an awareness of the major schools of thought in western philosophy.

CO 3: Have a healthy epistemological foundation at undergraduate level that ensures scholarship at advanced levels of learning.

CO 4: Talk about some of the key figures in Philosophy.

CO 5: Analyze and appreciate texts critically, from different philosophical perspectives

SEMESTER V

Core Course 6: EN 1541 Literature of Late 20th Century and 21st Century

Aim:
Engage with the diversity of forms and contexts of more recent literatures.

Objectives
1. Expose students to the literatures of this period in their relationship with historical (social, cultural and political) developments
2. Introduce them to the basics of Postmodern writing and the conditions of its emergence and development
3. Sensitize them to the plurality and diversity of the literature of this period reflecting the reality of a multi-cultural world and polyphonic cultural sphere
Course Outcome
CO 1:Identify the various socio-cultural changes that evolved in the late modernist period
CO 2: Relate to the diverse currents of postmodern literature and its reflections in the contemporary ethos
CO 3: Assimilate the inherent multiplicities and fluidity of societal perspectives
CO 4: Develop an innate sympathy for the tragedies of Holocaust and an awareness regarding the environmental impasses threatening the modern world
CO 5: Empathise with the marginalised and comprehend their predicament.

Core Course 7: EN 1542 Postcolonial Literatures

Objectives

1. Initiate critical thought on colonialism and after
2. Introduce the fundamental concepts in postcolonial theory
3. Understand the global effects of the colonial enterprise

Course Outcome

CO 1: Ability to critique colonial history
CO 2: Awareness of the socio-political contexts of colonialism and postcolonialism
CO 3: Understanding of the effects of colonialism in various nations
CO 4: Knowledge of the key terms in post-colonial thought
CO 5: Study of the race and gender dynamics in postcolonial literature

Core Course 8: EN 1543

20th Century Malayalam Literature in Translation

Objectives

1. Introduce the students to the historical and socio-cultural atmosphere in which Malayalam literature became enriched
2. Provide the students a basic understanding of Malayalam literature
3. Get an understanding of the gradual transformation of Malayalam literature from the early modern to the post modern
Course Outcome
CO 1: Generate knowledge about the varied milieu of the development and growth of Malayalam literature and be sensitive to its socio cultural and political implications.
CO 2: Get a basic knowledge of the literary and the non-literary works produced inMalayalam

CO 3: Discern the vibrancy of Malayalam literature
CO 4: Sense the distinctness of the socio-cultural arena in which Malayalam literature isproduced
CO 5: Know the value of literature produced in regional languages and key role of translation in the growth of language and literature

Core Course 9: EN 1544 Linguistics and Structure of the English Language

Objectives

1. Give the students a preliminary idea regarding the nature, function and scope of languages, in general
2. Sensitize the students to the specificities of the oral and written dimensions of English.
3. Appreciate Linguistics as a branch of learning with its own defined material and methodology

Course Outcome

CO 1: Understand the phonological and grammatical structure of English Language
CO 2: Be able to analyse actual speech in terms of the principle of linguistics
CO 3: Improve the accent and pronunciation of the language
CO 4: Introduce the students to internationally accepted forms of speech and writing in English.
CO 5: Explore the ancient linguistic tradition of India

Core Course 10: EN 1545

Criticism and Theory

Objectives

1. Give the students a historical overview of the critical practices from classical period to the present.
2. Introduce to them some of the significant concepts that had a seminal influence on the development of critical thought.
3. To develop in them a critical perspective and capacity to relate and compare various critical practices and schools.

Course Outcome.

CO 1: Analyze and appreciate texts critically, from different perspectives.
CO 2: Appreciate Indian Aesthetics and find linkages between Western thought and Indian critical tradition.
CO 3: Show an appreciation of the relevance and value of multidisciplinary theoretical models in literary study.
CO 4: Demonstrate an understanding of important theoretical methodologies and develop an aptitude for critical analysis of literary works.
CO 5: Gain a critical and pluralistic understanding and perspective of life

Open Course1: EN 1551.2 Theatre Studies

Objectives
1. Give an introduction to the world of drama and its techniques
2. Provide exposure to different experimental theatres
3. Develop the skills among students to create and perform drama

Course Outcome
CO 1: Understand the various theatres, techniques and practices
CO 2: Appreciate the medium of drama
CO 3: Initiate collaborative performances.
CO 4: Attempt production of plays
CO 5: Equip learners to choose a career in theatre.

Semester VI

Core Course 11: EN 1641 Gender Studies

Objectives

1. Explore the historical variables that have contributed towards the social norms of gender and sexuality
2. Understand the significance of making gender an integral concept of social analysis
3. Develop a conceptual understanding of the field of gender studies

Course Outcome

CO 1: Recognize the patriarchal bias in the formation of history and knowledge.
CO 2: Analyse the ways in which gender, race, ethnicity class, caste and sexuality construct the social, cultural and biological experience of both men and women in all societies.
CO 3: Recognize and use the major theoretical frames of analysis in gender studies
CO 4: CO 5: Interrogate the social constructions of gender and the limiting of the same in to the male-female binary in its intersections with culture, power, sexualities and nationalities
CO 5: Examine gender issues in relation to the sustainable goals of development

Core Course 12: EN 1642

Indian Writing in English

Objectives

1. Familiarize the students with the genesis of Indian Writing in English.
2. Acquaint them with the major movements in Indian Writing in English and their historical connections.
3. Introduce them to the stalwarts of Indian Literature in English through the study of

selected literary texts

Course Outcome

CO 1: Make students aware of different aspects of colonization like cultural colonization.
CO 2: Trace the historical and literary genesis and development of Indian Writing in English
CO 3:Acquaint them with the major movements in Indian Writing in English across varied period and genres
CO 4: Address the plurality of literary and socio-cultural representations within Indian life as well as letters.
CO 5:Enhance the literary and linguistic competence of students by making them aware of how language works through literature written in the subcontinent.

Core Course 13: EN 1643

Film Studies

Objectives

1. Familiarize students with the emerging area of film studies and make them equipped to decipher the meaning of a movie.
2. Enable the students to understand the medium of cinema with an ample knowledge of the basic terminologies
3. Help them trace the evolution of the different movements in the film history

Course Outcome

CO 1: Recognize the language of films and use it creatively.
CO 2: Analyze films from both technical and non-technical perspectives
CO 3: Engage questions of social justice and gender justice by critiquing representations of culture.
CO 4: Use film as a medium of communication
CO 5: Derive an interest in various careers related to film

Core Course 14: EN 1644

World Classics

Objectives:

1. The course will aid the learner to have a comprehensive study of the historical evolution of classical works from the classical age to the present postmodern age.
2. Enable the learner to imbibe the significance of Classics as a major cultural influence in literatures around the world
3. Understand major Western and non-western literary forms of written and oral traditions.

Course Outcome
CO 1: Understand the study of Classics as a means of discovery and enquiry into the formations of great literary works and how the rich imagery of these classical works continues beyond the twentieth century.

CO 2: Recognize the diversity of cultures and the commonalities of human experience reflected in the literature of the world.
CO 3: Imbibe a fair knowledge in the various Classical works from different parts of the world, at different time periods, across cultures.
CO 4: Examine oneself and one‘s culture through multiple frames of reference, including the perception of others from around the world.
CO 5: Develop and aesthetic sense to appreciate and understand the various literary works with a strong foundation in the World Classics.

Elective Course EN 1661.3 Creative Writing

Objectives
1. Recognise the elements needed to give expression to their creativity.
2. Encourage students to use these self-recognized elements to develop their creative writing talent.
3. Sensitize them to the fact that creative writing has gone beyond the traditional genres in today‘s world and includes many new forms that have grown with the media and social media boom, thereby blurring the boundaries between ―creative‖ and ―functional‖ writing.
Course Outcome
CO 1: Create a body of original creative works which exhibit basic elements of literary writing.
CO 2: Generate the ability to apply the creative as well as critical approaches to the reading and writing of literary genres.
CO 3: Critique and support the creative writing of peers in a guided workshop environment.
CO 4: Engage in literary output by identifying, analyzing and expressing socially sensitive and personally abstract themes and ideas.
CO 5: Gain expertize in providing critical readings of works of literary expressions.

COMMUNICATIVE ENGLISH

SEMESTER I
CAREER RELATED FIRST DEGREE PROGRAMME 2(a) (CBCS System)
COMMUNICATIVE ENGLISH

Language Course 1- EN 1111.1 (B A/ B. Sc), EN 1111.2 (B.Com), EN 1111.3 [Career Related 2(a)] Programme and EN 1111.4 [Career Related 2(b) Programme]

Course Title: LANGUAGE SKILLS

Credits: 4

Hours: 5/week (90 hrs)

Learning Objectives:

4. Mastering the language for personal and professional growth.

5. Basic language skills are to be acquired through interactive classroom sessions

6. Connecting literature with language learning

Learning Outcomes:

English as an acquired language for undergraduate students is to be mastered with focus on learning the basic skills of listening, speaking, reading and writing the language proficiently. This course aims to impart these skills in an interactive manner along with classroom activities and using the text as a resource for self study as well. Discursive Practice as the learning and teaching method for this course, will encourage teachers to localise and personalise learning of English for students in undergraduate classrooms. The course will equip the students with basic language skills along with improved non-verbal skills thereby improving their employability quotient.

Foundation Course I: WRITINGS ON CONTEMPORARY ISSUES: CG 1121.3
No. of credits: 2
No. of instructional hours: 3 per week (Total 54 hrs.)

AIMS

1. To sensitize students to the major issues in the society and the world.
2. To encourage them to read literary pieces critically.

OBJECTIVES

On completion of the course, the students should be able to

1. have an overall understanding of some of the major issues in the contemporary world.
2. respond empathetically to the issues of the society.
3. read literary texts critically.

Core Course I – READING POETRY: CG 1141
No. of credits: 3
No. of instructional hours: 5 per week (Total: 90 hrs)

AIMS

1. To sensitize students to the language, forms and types of poetry.
2. To make them aware of the diverse poetic devices and strategies.
3. To help them read, analyse and appreciate poetry.
4. To enhance the level of literary and aesthetic experience and to help them respond creatively.

OBJECTIVES

On completion of the course, the students should be able to

1. identify the various forms and types of poetry
2. explain the diverse poetic devices and strategies employed by poets.
3. read, analyse and appreciate poetry critically.
4. respond critically and creatively to the world around.

Vocational Course I - BASICS OF COMMUNICATION: CG 1171
No of credits: 3
No of instructional hours: 3 per week (Total 54 hrs)

AIM

1. To provide the students with an ability to build and enrich their communication skills.
2. To make them familiar with different types of communication.
3. to understand the barriers to effective communication
4. engage students in meaningful communication through effective tasks.

OBJECTIVES

On completion of the course students should be able to:
1. Identify the basic principles of communication
2. Analyse the various types of communication
3. Make use of the essential principles of communication.
4. identify the prominent methods and models of Communication.

SEMESTER II

FIRST DEGREE PROGRAMME IN

ENGLISH LANGUAGE AND LITERATURE (CBCS System)

Language Course 4 -EN 1212.1 (BA/B. Sc), Language Course 3 - EN 1211.2 (B.Com) and Language Course 3 - EN 1211.3 [Career related 2(a) Programme]

Course Title: ENGLISH GRAMMAR, USAGE AND WRITING

Credits: 4

Hours: 5/week (90 hrs)

Learning Objectives:

5. To help students have a good understanding of modern English grammar.
6. To enable them produce grammatically and idiomatically correct language.
7. To help them improve their verbal communication skills.
8. To help them minimise mother tongue influence.

Learning Outcomes:

On completion of the course, the students should be able to

4. Have an appreciable understanding of English grammar.
5. Produce grammatically and idiomatically correct spoken and written discourse.
6. Spot language errors and correct them.

Core Course II – READING DRAMA: CG 1241

No. of credits: 4

No. of instructional hours: 5 per wk (Total: 90 hrs)

AIMS

1. To enable the students to read, analyse and appreciate drama
2. To sensitize them to the verbal and visual language of drama
3. To help them watch, write about, and perform plays

OBJECTIVES

On completion of the Course, the students should be able to

1. identify the various forms and schools of drama
2. analyse and appreciate drama
3. write critically about and engage actively in producing / performing drama

Vocational Course II

PHONETICS: CG 1271

No. of credits: 4

No. of instructional hours: 6 per week (Total: 108 hrs)

AIMS

1. To sensitize students to the nuances of spoken and written forms of English
2. To help them overcome specific problems resulting from mother tongue interference

OBJECTIVES

On completion of the course, the students should be able to

1. develop a neutral accent and improve their general standard of pronunciation
2. speak globally intelligible English

Complementary Course

History Of English Literature – II

SEMESTER III
Communicative English
Foundation Course II – INFORMATICS: CG 1321

AIMS
1. To update and expand basic informatics skill and attitudes relevant to the emerging knowledge society
2. To equip students to utilize the digital knowledge resources effectively for their chosen fields of Study

OBJECTIVES
On completion of the course, the students should be able to
1. update and expand their knowledge in the field of informatics
2. understand the nature of the emerging digital knowledge society
3. use digital knowledge resources effectively for their studies

Core Course III: CG 1341

READING FICTION

AIMS:
1. To make students aware of the diverse fictional forms in prose.
2. To enable them to analyse and appreciate various fictional writings.
3. To give them an insight into other cultures.
4. To help them think and write imaginatively.

OBJECTIVES
On completion of the course, the students should be able to
1. identify different fictional forms
2. analyse and appreciate fictional writings.
3. write imaginatively.

Core Course IV
Methodology And Perspectives Of Humanities

AIMS
1. To introduce students to the methodological issues specific to the humanities
2. To develop in them a critical perspective in pursuing literary studies

OBJECTIVES
On completion of the course, the students should be able to
1. explain the key concepts in literary theory and criticism
2. make sense of literature
3. read literature critically from a theoretical perspective.

Complementary Course

History Of English Literature – Iii

Vocational Course III
COPY EDITING: CG 1371

AIMS
1. To familiarize students with the concepts of copy- editing.
2. To impart to them basic copy-editing skills.
3. To help them find employment in the publishing field.

OBJECTIVES
On completion of the course, the students should be able to
1. copy-edit non–technical materials of moderate difficulty.
2. produce consistently well-organized written discourse.
3. find employment in the editing field as copy-editors and sub-editors.

SEMESTER IV

CAREER RELATED FIRST DEGREE PROGRAMME 2(a) (CBCS System)ENGLISH & COMMUNICATIVE ENGLISH

Core Course V – READING PROSE: CG 1441

No. of credits: 3

No. of instructional hours: 4 per week (Total: 72 hrs.)

AIMS

1. To help students understand and appreciate different types of prose writing.
2. To introduce to them the basics concepts of style and literary devices in prose.
3. To acquaint them with cultural diversity and divergence in perspectives.
4. To enable them to write creatively and critically

OBJECTIVES

On completion of the course, the students should be able to:

1. recognize various types of prose writings.
2. analyse, understand and appreciate prose writings
3. write creatively and critically in an expository or argumentative way.

Core Course XI - WORLD CLASSICS: CG 1442

No. of credits: 3

No. of instructional hours: 4 per week (Total: 72 hrs)

AIMS

1. To introduce students to the world of the classics in literature.
2. To broaden their outlook and sensibility.

OBJECTIVES

On completion of the Course, the students should be able to

1. read and appreciate classical works.
2. evaluate classical texts critically.
3. place and assess their own culture and classics.

Complementary Course - HISTORY OF ENGLISH LANGUAGECommon for EN 1431 & CG 1431

B.A. English Main - Complementary Course VII: EN 1431No. of credits: 2

No. of instructional hours: 3 per week (Total: 54 hrs)

B.A. Career related 2(a) English and Communicative English -Complementary Course IV: CG 1431

No. of credits: 4

No. of instructional hours: 4 per week (Total: 72 hrs)

AIMS

1. To familiarize students with the origin and development of the English Language
2. To make them aware of the changes in different areas of the language.

OBJECTIVES

On completion of the course, the students should be able to

1. identify the various language families
2. trace the evolution of the English language
3. list the changes in the different areas of the language

Vocational Course IV - PRINT AND ONLINE WRITING: CG 1471

No of credits: 4

No of instructional hours: 4 per week (Total 72 hrs)

Vocational Course V - THEATRE STUDIES: CG 1472

No. of credits: 4

No. of instructional hours: 4 per week (Total: 72 hrs)

Aims

1. To provide an introduction to theatre studies
2. Familiarize the students with fundamental theories on theatre
3. Introduce the students to Western and Indian theatre

Objectives

1. To sensitize students that theatre is praxis
2. To develop the listening and writing skill of students
3. To help students appreciate theatre
4. Respond creatively to the world around

SEMESTER V

FIRST DEGREE PROGRAMME IN ENGLISH LANGUAGE AND LITERATURE (CBCS System) & CAREER RELATED FIRST DEGREE PROGRAMME 2(a) (CBCS System) ENGLISH & COMMUNICATIVE ENGLISH

Core Course - LITERARY CRITICISM:

Common for EN 1541 & CG 1541

B.A. English Main – Core Course VI:
EN 1541 No. of credits: 4
No. of instructional hours: 5 per week (Total: 90 hrs)

B.A. Career related 2(a) English and Communicative English – Core Course VII:
CG 1541 No. of credits: 4
No. of instructional hours: 5 per week (Total: 90 hrs)

AIMS

1. To give the students a historical overview of the critical practices from classical period to the present.
2. To introduce to them some of the significant concepts that had a seminal influence on the development of critical thought.
3. To develop in them a critical perspective and capacity to relate and compare various critical practices and schools.
4. To help them read and analyze literary texts from different perspectives.

OBJECTIVES

On completion of the course, the students should be able to

1. trace the development of critical practices from ancient times to the present.
2. explain the critical concepts that emerged in different periods
3. analyze and appreciate texts critically, from different perspectives.

SEMESTER V

FIRST DEGREE PROGRAMME (CBCS System)

CAREER-RELATED FIRST DEGREE PROGRAMME (CBCS) - Group 2 (a) IN ENGLISH & COMMUNICATIVE ENGLISH

Core Course VIII - FILM STUDIES: CG 1542

No. of credits: 3
No. of instructional hours: 4 per week (Total: 72 hrs)

AIMS

1. To give the students basic knowledge in the history, art and culture of motion picture.
2. To introduce to them the key concepts in film studies.
3. To help them analyze and appreciate films.
4. To enable them pursue higher studies and careers in film.

OBJECTIVES

On completion of the course, the students should be able to

1. discover the language of cinema
2. explain the key concepts in film studies.
3. analyse films as texts.
4. write critically about films.

SEMESTER V

CAREER RELATED FIRST DEGREE PROGRAMME 2(a) IN ENGLISH & COMMUNICATIVE ENGLISH

Core Course IX - INDIAN WRITING IN ENGLISH: CG 1543

No. of credits: 3
No. of instructional hours: 3 per week (Total: 54 hrs)

AIMS

1. To introduce students to Indian writing in English.
2. To broaden and sharpen their aesthetic and analytical skills.

OBJECTIVES

On completion of the course, the students should be able to

1. trace the development of Indian writing in English.
2. explain the Indianness in Indian literature in English.
3. read and appreciate Indian literature.
4. analyse the strength and constraints of Indian English as a literary medium.

CAREER RELATED FIRST DEGREE PROGRAMME 2(a) IN ENGLISH & COMMUNICATIVE ENGLISH

Open Course I - CREATIVE WRITING: CG 1551.1

No. of credits: 2
No. of instructional hours: 3 per week (Total: 54 hrs)

AIMS

1. To make the students aware of the various aspects of Creative Writing.
2. To expose and familiarise the students to representative English writers and their works.
3. To equip the students to attempt at practical creative writing.
4. To strengthen the creative talents and writing skills.

OBJECTIVES

1. To identify different poetic forms.
2. To analyse and appreciate poems and short stories.
3. To write book and film reviews.
4. To appreciate literary works.

SEMESTER V

CAREER RELATED FIRST DEGREE PROGRAMME 2(a) IN ENGLISH & COMMUNICATIVE ENGLISH

Open Course I - TRANSLATION STUDIES - CG 1551.2

No. of credits: 2
No. of instructional hours: 3 per week (Total: 54 hrs)

AIMS

1. To familiarize students with the concepts and theories of translation.
2. To introduce to them the art of translation.
3. To help them pursue translation as a profession.

OBJECTIVE

On completion of the course, the students should be able to

1. explain the concepts and theories of translation.
2. undertake various translation works.
3. find employment as translators.

CAREER RELATED FIRST DEGREE PROGRAMME 2(a) IN ENGLISH & COMMUNICATIVE ENGLISH

Open Course I - ENGLISH FOR THE MEDIA: CG 1551.3

No. of credits: 2
No. of instructional hours: 3 per week (Total: 54 hrs)

AIMS

1. To sensitize students to the English language used in the media
2. To make them professionally skilled and employable in the media.

OBJECTIVES

On completion of the Course, the students should be able to

1. explain the nature and scope of the communication media
2. write headlines and articles for newspapers and magazines and design their content
3. produce and present scripts and programmes for Radio and TV
4. design and write webs, blogs and advertisements

FIRST DEGREE PROGRAMME IN
ENGLISH LANGUAGE & LITERATURE (CBCS System) - Group 2 (a) Vocational Course VI - ENGLISH LANGUAGE TEACHING: CG 1571

No. of credits: 4
No. of instructional hours: 4 per week (Total: 72 hrs)

AIMS

1. To introduce students to teaching of English as a second language.
2. To aid them in understanding learning from a teacher's perspective.

OBJECTIVES

On completion of the Course, the students should be able to

1. comprehend the concepts in language teaching.
2. understand the important psychological principles behind second language acquisition.
3. understand different approaches and methods of teaching English as second Language.
4. plan lessons effectively.

CAREER RELATED FIRST DEGREE PROGRAMME 2(a) IN ENGLISH & COMMUNICATIVE ENGLISH

Vocational Course VII - THE LANGUAGE OF ADVERTISING: CG 1572

No of credits: 3
No of instructional hours: 3 per week (Total 54 hrs)

AIMS

1. To provide the students with an ability to enrich their creativeskills.
2. To make them understand the different types of advertising
3. To make them familiar to the role of advertising in the society.

OBJECTIVES

On completion of the course students should be able to:

1. Identify and analyse the various types of advertising.
2. Make use of the essential principles of advertising in ordinary situations.
3. Identify the impact of advertising in society.

CAREER RELATED FIRST DEGREE PROGRAMME 2(a) IN ENGLISH & COMMUNICATIVE ENGLISH

Vocational Course VIII – AUDIO VISUAL WRITING: CG 1573

No of credits: 3
No of instructional hours: 3 per week (Total 54 hrs)

AIMS

1. To provide the students with an ability to enrich their creativeskills.
2. To make them aware of the different types of television programmes.
3. To make them familiar to the role of television in the society.

OBJECTIVES

On completion of the course students should be able to:

1. Identify and analyse the various types of television programmes.
2. Identify the impact of television in society.

SEMESTER VI

CAREER RELATED FIRST DEGREE PROGRAMME 2(a) IN ENGLISH & COMMUNICATIVE ENGLISH

Core Course X - TRAVEL LITERATURE: CG 1641

No. of credits: 3
No. of instructional hours: 5 per week (Total: 90 hrs)

Aims:

1. To help students read and appreciate different kinds of travel literature.
2. To introduce to them the basics concepts of travel writing and literary tropes in travel.
3. Facilitate, promote and disseminate curiosity on travel writing which will lead to future research.
4. To enable them to critically analyse multi and cross-disciplinary approaches in travel writing.
5. To understand the themes of self, culture, history, writing, and travel.

Objectives:

On completion of the course, the students should be able to:

1. Read and enjoy various types of travel literature.
2. Analyse, understand and appreciate travel writings.
3. Analyse inter-cultural crossings and perceptions in a self-reflexive and critical manner.

Core Course XI - CG 1642

WOMEN'S WRITING

No. of Instructional hours : 4 per week (Total: 72 hrs) – for EN 1644
: 5 per week (Total: 90 hrs) - for CG 1642

No. of Credits : 3 [EN 1644 & CG 1642] Aims:

1. To introduce students to the development of women's writing in various countries.
2. To familiarize them with the diverse concerns addressed by feminism.
3. To motivate them to critically analyse literary works from a feminist perspective.

Objectives: On completion of the course, the students should be able to

1. The students will have an awareness of class, race and gender as social constructs and about how they influence women's lives.
2. The students will have acquired the skill to understand feminism as a social movement and a critical tool.
3. They will be able to explore the plurality of female experiences.
4. They will be equipped with analytical, critical and creative skills to interrogate the biases in the construction of gender and patriarchal norms.

Core Course XII
20th CENTURY MALAYALAM LITERATURE IN ENGLISH TRANSLATION: CG 1643

No. of instructional hours: 3 per week No of Credits: 3

Aims:

1. To introduce the students to the richness of twentieth century Malayalam writing
2. To provide the students a basic understanding of twentieth century Malayalam Writing
3. To introduce to them some of the major twentieth century Malayalam writers
4. To help them analyse and appreciate twentieth century Malayalam literature.

Objective: On completion of the course, the students should be able to

1. Discern the richness of twentieth century Malayalam writing
2. Discern the distinctiveness of twentieth century Malayalam writing
3. Discuss the salient features of the works of major twentieth century Malayalam writers
4. Analyse and appreciate twentieth century Malayalam writing

Elective Course - AMERICAN LITERATURE: CG 1661.1

No. of credits: 2
No. of instructional hours: 3 per week (Total: 54 hrs)

AIMS

1. To introduce students to American literature, life and culture
2. To broaden their aesthetic and intellectual faculties

OBJECTIVES

On completion of the course, the students should be able to

1. trace the origin and development of American literature, life and culture
2. identify what is distinctly American in American literature
3. read and appreciate American literature

M.A ENGLISH LANGUAGE AND LITERATURE

SEMESTER I

Paper I - EL 211: Chaucer to the Elizabethan Age (6 hours /week)

Objectives

The objectives of this paper are to:

- provide students with an idea of the major historical events and the socio-cultural contexts that shaped the literature of the fifteenth and sixteenth centuries
- *develop in students a historical awareness of the evolution of poetry, drama, prose,fiction and literary criticism in English in these two centuries*
- examine critically the contributions of poets, dramatists, prose writers and criticsthat marked the singularity of the age
- explore the structural/ formal and stylistic features of various representative texts of this period

Learning Outcomes

At the end of the course, students will be able to:

- display an awareness of the major historical events and the socio-cultural contextwhich shaped the medieval and early Renaissance period and literature
- explain the impact of the Renaissance on the thought and literature of the period "
- explain how socio-historical factors have inlluoioed individual texts and how individual texts are representative of their age
- identify and explain the formal and literary features of each genre and text, and how they contribute to the complexity of values and emotions represented in the texts
- analyze andexplainthesimilaritiesanddifferencesbetweenvarioustypesofthedrama of the age
- demonstrate how different critical perspectives have resulted in various readings ofselected texts

Paper II- EL 212: Shakespeare Studies (6 hours/week)

Objectives

The objectives of this paper are:

- to give an overview of the socio-political and historical events

which were instrumental in patterning Elizabethan consciousness

- to help students appreciate Shakespeare usa pioneering figure in defining the courseof English drama
- to look into Shakespeare's contributions toenriching the English language
- to identify the discourses met within the plays and to familiarize the harriers withsignificant critical responses

Learning Outcomes

At the end of this course, students will be able to:

- evaluate the significance of the socio-political and historical events which shaped theperspective of the Elizabethan Age
- relate the texts selected for study to the genres/subgenres they belong to and identifyand explain their formal/ stylistic/literary features
- identify discourses addressed in the plays and critically evaluate them
- analyze the similarities and differences between the various types of drama
- attempt critical reviews of Shakespearean plays based on contemporary theoreticalperspectives and their reworking/adaptations.

Paper III — EL 213: The Augustan Age (6 hours/ week)

Objectives

The objectives of this paper are to:

- familiarize the students with the major socio-political and literary trends in Englishliterature from the Reformation to the post-Restoration era
- evaluate critically the contributions of Augustan writers
- introduce the students to the various features of Augustan poetry and prose
- examine the relative similarities and differences between the different types ofRestoration drama

Learning Outcomes

At the end of the course, students will be able to

- gain a comprehensive understanding of Puritanism, its aftermath and subsequent falland the restoration of the monarchy in England

display an awareness of specific features of Neo-Classicism in English literature

- acquire a critical understanding of the emergence and popularity of prose and novel inEngland, during the period
- assess critically the conflicting trends in the literature of the age

Paper IV - EL 214: Romantics and Victorians (7 hours/week)

Objectives

The objectives of this paper are to:

- understand the socio-cultural, political and intellectual **contexts** that nourishedRomantic and Victorian Literature
- evaluate critically the different phases of Romanticism, the change in mood and temper in the Victorian era and the conflict between science and religion at the turn of the century
- enable the students to evaluate critically the English mindset in the context of rapid social transformations in the nineteenth century
- identify and explain the features of the different kinds of literary texts in terms of the literary movements

Learning Outcomes

At the end of the course, students will be able to:

- relate the texts selected for study to the genres they belong to and identify and explainthe structural, formal, stylistic and literary features.
- display an awareness of the contributions of the poets, novelists and prose writers
- explain and analyze the similarities and differences between thé different types ofnovels of the Romantic and Victorian ages
- understand the social and literary changes that influenced drama in the century
- evaluate the implications of the critical responses of the period

SEMESTER II

Paper V - EL 221: From Modernism to the Present(6 hours/ week)

The Objectives of this course are to:

- familiarize students with the socio-cultural impulses that shaped the twentieth century English society

- introduce and examine the various movements that dominated the literature, culture, and arts of the century and which produced significant shifts in the patterns of thought and living
- introduce the students to the poets, novelists, dramatists, essayists, prose writers and critics of the age
- examine the similarities and differences between the literature of the first and the second half of the centuries

Learning Outcomes:

At the end of this course, students will be able to:

- demonstrate an understanding of how the age affected the literature and the variousgenres
- demonstrate acknowledgement of the major movements that influenced British and European literature
- analyze critically and explain the features of Modernism
- evaluate critically the texts in terms of their stylistic and formal features

Paper VI — EL 222: Indian Writing in English (6 hours/week)Objectives

Objectives

The objectives of this paper are to:

- enable students to understand the historical and socio-cultural contexts for the emergence of English as a medium for communication and literary expression in India
- provide students a perspective on the diverse aspects of Indian Writing in English
- enable students to trace the evolution of Indian Writing in English
- enable students to get an overview of Indian English poetry, prose, drama, novel and
- short story
- help students to develop a general understanding of Indian aesthetics
- enable an understanding of the recent trends in Indian Writing in English

Learning Outcomes

At the end of the course, the students will be able to:

- display an in-depth awareness of the major historical events and the socio-cultural contexts which moulded the various genres in Indian Writing in English
- analyze how the sociological, historical, cultural and political context impacted thetexts selected for study
- evaluate critically the contributions of major Indian English poets, dramatists, prosewriters, novelists and short story writers
- develop a literary sensibility and display an emotional response to the literary texts and cultivate a sense of appreciation for them
- apply the ideas encapsulated in Indian Aesthetics to literary texts

Paper VII — EL223: American Literature (6 hours/ week)

Objectives

The objectives of the course are to:

- understand the socio-political factors that shaped the American literary scene
- analytically explore works of prose, poetry, drama and fiction in relation to theirhistorical and cultural contexts
- examine the African-American experience as articulated in African-American literature
- develop an awareness of the evolving .American experience and character

Learning Outcomes

At the end of this course, the students will be able to:

- demonstrate an awareness of the socio-political and cultural history of America
- identify key ideas and characteristic perspectives or attitudes as expressed in American
- demonstrate knowledge of the contributions of major literary periods, works andpersons in American literature and recognize their continuing significance
- evaluate the thoughts, beliefs, customs, struggles, and visions of African American
- writers
- compare/contrast literary works through an analysis of genre, theme, character, andother literary devices

Paper VIII – CRITICAL STUDIES I (7 hours/week)

Objectives

The objectives of this course are:

- represent the important theoretic schools that have radically changed the perception of literature as a cultural phenomena.

- familiarize the students with the basic premises of the foundational schools of modern thought, particularly on the construction of the subject,1anguage, and socio-cultural formations.
- discuss the intellectual milieu in Europe that led to the emergence of theories of structuralism, post structuralism, psychoanalysis, Marxism and feminism
- familiarize the students with the primary conceptual apparatus of these systems ofthought
- enable the students to analyze literary phenomena using the theoretical tools provided by the above schools.

Learning Outcomes

At the end of the course it is expected that the students

- would sharpen their analytical and critical faculties drawing inspiration from the readings provided.
- gain an idea of the evolution of critical thinking in Europe and India in the 20* and 21"centuries.
- understand the function of language in the construction and analysis of literary andcultural phenomena.
- gain an insight into the interconnected nature of these major schools of thought leading to a shift from the paradigmatic to the syntagmatic.

SEMESTER III

Paper IX- EL 231: Linguistics and Structure of the English Language (6 hours/week)

Objectives

The objectives of this course are:

- to enable students to get a fundamental understanding of the basic nature, branches, and history of linguistics
- to attempt a comparison of RP, GIE and Malayalam sounds based on contrastive linguistics
- to examine the features of language units at the phonological, morphological and syntactical levels
- to familiarize the students with history and developments of Modern Grammar

Learning Outcomes

At the end of this course, students will:

- have developed an awareness of the basic nature, branches, and history of linguistics
- have become familiar with contrastive linguistics
- be able to analyse language units based on their phonological, morphological and syntactical features
- have developed an awareness of the principles and limitations of ICA and PSG
- be able to explain the transformation of sentences based on TG grammar

SEMESTER III

Paper X- Critical Studies II [7 hours/week]

PAPER XI: Choice 2
EL 233.3- Elective Course: Canadian and Australian Literatures (6 hours/week)

Objectives

The objectives of this course are to:

- introduce the students to Canadian and Australian Literature
- familiarize the students with major literary figures in Canada and Australia
- help students understand the socio- cultural contexts that nourish the emergence of these literatures
- make them understand the ethnic and cultural diversity of Canada and Australia
- interrogate the idea of multiculturalism and national culture
- contexualise the emergence of 'Englishes'

Learning Outcome

At the end of this course, students should be able to:

- demonstrate an awareness of the spread and reach of literatures from Canada and Australia
- explain the politics and ideology in canon formation
- display an awareness of how socio-cultural contexts shape literary experiences
- conceptualize concepts like ethnicity, diversity, national culture, and multiculturalism
- engage critically with decolonization

PAPER XII: Choice 2
EL 234.2 African and Caribbean Literatures [6 hours/week]

Objectives:

The objectives of this paper are to:

- introduce the students to different literary genres from African and Caribbean literature
- familiarize them with the historical and cultural context of literary works
- help students understand the impact of colonialism, race, class, ethnicity and gender
- enable them to gain a broad knowledge of the major texts and major concerns of African and Caribbean literatures

Learning outcomes:

At the end of this course, students will be able to:

- appreciate the diversity of literary voices from Africa and the Caribbean and to enable them to read texts in relation to the historical and cultural contexts
- understand the debates and concepts emerging from the filed of African-Caribbean Studies
- develop the ability to think critically about African- Caribbean Diaspora

DEPARTMENT OF ENVIRONMENTAL SCIENCES

PROGRAMME OUTCOMES OF M Sc ENVIRONMENTAL SCIENCES (PSO)

Upon completion of the M Sc. Master's Degree Programme in Environmental Sciences, the students will be able to

Sl. No.	PO Number	Programme Outcome
1	PO 1	Acquire fundamental knowledge of different aspects of environment and local, regional and global environmental problems and act to curtail it.
2	PO 2	Develop environmental monitoring skills, including conduct of experiments and data analysis and practice these.
3	PO 3	Obtain exposure to the environmental pollution control technologies and take appropriate measures for pollution control.
4	PO 4	Acquire the knowledge and skills needed for the environmental design and management and to plan management measures.
5	PO 5	Acquire skills in the preparation, planning and implementation of environmental projects and take up these kinds of projects.
6	PO 6	Be aware of the social and environmental issues and strategize action plans to solve the problems
7	PO 7	Will have the job opportunity and services in the field of Teaching, Researches, Projects, Effluent Treatment Plants of various Industries/Companies/Factories, Municipal Councils/Corporations, Central Pollution Control Board, State Pollution Control Boards, National Research Institutes/Organizations/Laboratories, NEERI, EIA, GIS, Environmental Monitoring Projects, Environmental Consultants, Different Laboratories, NGO's, Forest department, Water Purification and Treatment Plants and Various Sectors related to the field of Environment.
8	PO 8	Able to prepare and get through state as well as national competitive examinations, like UGC-CSIR NET and UPSC Civil Services Examination.
9	PO 9	Understand and take necessary action on the different kinds of Pollutions and their sources through study of Climate and Air Pollution Studies, Hazardous Waste & Environmental Toxicology and Soil Pollution and different laws about pollution.
10	PO 10	Analyse and determine pollution using Environmental Analytical Techniques, Biostatistics and Computational Techniques.
11	PO 11	Apply different technologies like biotechnology, water and Wastewater treatment technology to find the solutions and their applications in abatement of Pollution and other environmental problems.
12	PO 12	Use various tools for the management of Environment, Energy resources, solid wastes, Biodiversity conservation like Remote Sensing & Geographical Information Systems and different methodologies.
13	PO 13	Formulate a successful Disaster and Industrial Safety Management Plan

14	PO 14	Take up individual S&T and Environmental Projects

COURSE OUTCOMES

SEMESTER I

ES 211. ENVIRONMENTAL BIOLOGY AND ECOSYSTEM DYNAMICS

Through this Course, learners will explore how to study ecosystems, and investigate the complex array of factors that inform management efforts. At the end of the course, learners will be able to grapple with real-world conservation questions, such as whether an ecosystem can recover from anthropogenic disruption and what role humans can, and should, play in that recovery.

On completion of the course, the students will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO 1	Describe the transnational character of environmental problems and interactions across local to global scales	Remember and Understand
2.	CO 2	Explain core concepts and methods from ecological and physical sciences and apply in environmental problem solving	Remember, Understand and apply
3.	CO 3	Determineand define the ethical, cross-cultural, and historical context of environmental issues and the links between human and natural systems	Understand and Apply
4.	CO 5	Reflect critically about their roles and identities as citizens, consumers and environmental actors in a complex, interconnected world	Apply and Analyze
5.	CO6	Demonstrate proficiency in quantitative methods, qualitative analysis, critical thinking, and written and oral communication needed to conduct high-level work as interdisciplinary scholars in the field.	Evaluate

ES 212. ENVIRONMENTAL GEOLOGY

After the end of the course, students will have a solid understanding of currently occurring and historical geologic events, such as past earthquakes and floods. The

course provides a challenging and stimulating environment using a mixture of class, laboratory, practical and field-based teaching with a focus on vocational and transferable skills to maximize student's career opportunities.			
On completion of the course, the students will be able to:			
1.	CO 1	Describe the basic geological concept, principles and theories of stratigraphy	Remember and Understand
2.	CO 2	Interpret natural hazards and disasters, including defining and mitigation of human exposure and threat	Understand and Apply
3.	CO 3	Explain the concepts of disaster management, watershed management, water pollution, oil exploration, mining etc.	Apply and Analyse
4.	CO 4	Present Ideas about Geochemical classification of materials present on the earths surface	Apply and Analyse
5.	CO 5	Design and perform experiments in the lab to demonstrate the concepts, principles and theories learned in the classroom	Apply and Analyse
6.	CO 6	Do Lab Experiments, prepare field reports and give presentations using scientific literature effectively and reference information sources correctly	Analyse and Evaluate
ES 213. NATURAL RESOURCES AND ENERGY MANAGEMENT After this course, the learner will be able to understand and be aware of the importance of sustainable energy and will demonstrate an overview of the main sources of renewable energy.			
On completion of the course, the students will be able to:			
1.	CO 1	Outline the major Natural resources and to harness the power of various energy sources	Remember and Understand
2.	CO 2	Explain the impact of energy utilization and Management on the environment at local and global levels	Remember and Understand
3.	CO 3	Design and perform experiments in the lab to demonstrate the concepts, principles and theories learned in the classroom	Apply and Analyze
4.	CO 4	Identify and comment onthe principles that	Remember,

		underlie the ability of various natural phenomena to deliver energy	Understand and Apply
5.	CO 5	Distinguish the positive and negative aspects of solar energy in relation to natural and human aspects of the environment	Analyze and Evaluate

ES 214. PRACTICAL – I

ENVIRONMENTAL BIOLOGY, GEOLOGY AND ENERGY MANAGEMENT

The purpose of teaching Environmental Science is not only to acquaint with theoretical knowledge but also to develop practical skills. This is the expected outcome of this course with practical sessions in Environmental Science which offer hands-on experience in the subject.

On completion of the course, the students will be able to:

1.	CO 1	Perform experiments in the lab to demonstrate the concepts, principles and theories learned in the classroom	Understand, Analyze and Evaluate
2.	CO 2	Use the sophisticated instruments available in the laboratory and be acquainted with it	Analyze and Evaluate
3.	CO 3	Estimate frequency, density and abundance of biota in natural ecosystems	Understand Apply, Analyze and Evaluate
4.	CO 4	Analyze and explain topographic maps	Understand, Analyze and Apply
5.	CO 5	Identify the type of rock and minerals in the environment	Understand, Analyze and Apply

SEMESTER II

ES 221. ENVIRONMENTAL CHEMISTRY

In this course the students will study the chemistry of the air, water, and soil, and how anthropogenic activities affect this. Specifically, students learn and understand the sources, reactions, transport, effects, and fates of chemical species in air, water, and soil environments, and the effects of technology thereon. Attention is paid to chemical equilibrium and kinetics of natural systems and how they are influenced by human actions. Additional topics of study include remediation of pollution, green chemistry

and the analysis of environmental samples.			
On completion of the course, the students will be able to:			
1.	CO 1	Explain and demonstrate the chemical transformations of chemical species and pollutants in the different layers of atmosphere	Re, Un, An
2.	CO 2	Analyze the chemical composition of water and explain the causes of deviation from the natural properties of water	Un, Re, An, Ev
3.	CO 3	Explain the physical and chemical nature of soil and identify the soil type and profile	Re, Un, An
4.	CO 4	Describe the environmental and health problems associated with pesticides and heavy metals in the environment and plan proper pest management system	Re, Un, Ap, Ev
5.	CO 5	Explain the concepts of green chemistry with the underlying principles and to do laboratory experiments as per the principles of green chemistry	Re, Un, Ap
ES 222. ENVIRONMENTAL TECHNIQUES The course will introduce students to the application of some of the modern laboratory analytical techniques used in Environmental Sciences. The course also provides hands-on training in key analytical methods, data interpretation, researching literature, and scientific reporting of results. Study of statistical techniques help students in formulation of hypotheses and designing experiments.			
1.	CO 1	Explain the various sampling techniques that can be applied for air, water, soil and sediment and execute accurate sampling from the aforesaid environments	Re, Un, Ap
2.	CO 2	Describe the theory, principles, instrumentation and environmental applications of sophisticated instruments and techniques used for environmental analysis	Re, Un, Ap
3.	CO 3	Explain the principles and advantages of molecular techniques in environmental analyses	Re, Un, Ap
4.	CO 4	Apply statistical and computational methods in environmental data processing	Re, Un, Ev, Ap

5.	CO 5	Design field experiments for enhancing accuracy of environmental analysis	Re, Un, Ev, Ap
ES 223. ENVIRONMENTAL POLLUTION AND TOXICOLOGY The modules under this course have been designed to improve the familiarity of the students about different pollution problems and the control strategies in three environmental compartments i.e. air, water and soil. Issues related to solid-waste disposal and noise pollution and their impact on environment and health are dealt with.			
On completion of the course, the students will be able to:			
1.	CO 1	Identify and explain the various types and sources of air, water and soil pollution along with the local, regional and global implication of environmental pollution	Re, Un
2.	CO 2	List the criteria of air pollutants and explain air pollution indices	Re, Un, Ap
3.	CO 3	Explain the domestic, agricultural and industrial causes of soil and water pollution and describe the effects of these pollution	Re, Un
4.	CO 4	Describe the health impacts of radiations and noise in the environment and list out the sources of these.	Re, Un
5.	CO 5	Explain the principles of toxicity and draw a dose-response curve.	Re, Un
6.	CO 6	Explain the various occupational health hazards and set terms for occupational health and safety	Re, Un. Ev, Ap
ES 224. PRACTICAL II **ENVIRONMENTAL TECHNIQUES, CHEMISTRY & POLLUTION**			
1.	CO 1	Perform air, water and soil sampling	Re, Un, Ap
2.	CO 2	Analyze physical, chemical and physiological parameters of environmental samples	Re, Un, Ap
3.	CO 3	Perform separation techniques in laboratory	Re, Un, Ap
4.	CO 4	Perform metal analysis using flame photometer	Re, Un, Ap
5.	CO 5	Use software for statistical procedures	Re, Un, Ap

SEMESTER III

ES 231. REMOTE SENSING AND GIS

The course will present and assess the fundamental concepts of GIS and remote sensing technologies in the context of environmental sciences. Topics include the physical basis for remote sensing, systems, digital image processing, data structures, database design, and spatial data analysis.

On completion of the course, the students will be able to:

1.	CO 1	Explain and demonstrate the principles and concepts of remote sensing, including the energy propagation, interaction and data capture under different sensors and platforms	Re, Un
2.	CO 2	Acquire an advanced level of understanding of the working principles and methodologies involved in geospatial technologies such as areal and satellite remote sensing, optical, microwave and lidar remote sensing, global positioning system and GIS	Re, Un
3.	CO 3	Practically process the RS Data in a digital format encompassing its geo-correction, rectification, enhancement, projection, classification, layer and layout creation.	Re, Un,Ap
4.	CO 4	Design a management system for geographical data processing and develop a model for solving environmental issues on a basic level, coupling field measurements	Re, Un, Ap
5.	CO 5	Appraise an environmental scenario with the utility of current geospatial technologiesand itspotential applications to environmental monitoring and natural resources conservation.	Re, Un, Ap

ES 232. ENVIRONMENTAL GENETICS, MICROBIOLOGY AND BIOTECHNOLOGY

The course provides students an idea of how environment interacts with an organism's genetic makeup and life style. A basic introduction is given to the students regarding microbiology and microorganisms, and explores their role in shaping the Earth. It also deals with how metabolic processes catalysed by microorganisms are related to major elemental cycles, biogeochemical processes, and organic contaminant degradation.

On completion of the course, the students will be able to:

1.	CO 1	Describe and elaborate on the theories, concepts and causes of mutations and chromosomal	Re, Un

		variations	
2.	CO 2	Distinguish and demonstrate the pros and cons of GMOs and their impact on the environment and its systems	Re, Un
3.	CO 3	Explain the principles and applications of microbiology and biotechnology in addressing issues of environmental concern.	Re, Un,Ap
4.	CO 4	Apply different bioremediation techniques for reclamation of polluted soils, in solid waste management and the development of methods to convert wastes to useful products.	Re, Un, Ap
5.	CO 5	Demonstrate practical skills in the use of tools, technologies and methods common to microbiology, and apply the scientific method and hypothesis testing in the design and execution of experiments.	Re, Un, Ap

SEMESTER III

ES 233. ENVIRONMENTAL METEOROLOGY AND CLIMATE CHANGE

The course provides an overview of the science of climate change including motions of earth and seasons, structure of the atmosphere, different climatological parameters in the formation of clouds, and precipitation, air masses and major mechanisms influencing climate. It also includes Earth's energy balance, water cycle, and atmospheric circulation; spatial distribution of climate and climate classification; natural climate variability, including El Niño; past climate variations; and the carbon cycle and human-induced climate change. CDM technology, which is a new technique which finds application world-wide, is also introduced in this course.

1.	CO 1	Explain the various meteorological phenomena which shape the climate of earth and also identify the problems affecting the normal weather pattern using an understanding of the meteorological parameters.	Re, Un
2.	CO 2	Explain the geographic distribution of the Earth's climate zones using an understanding of atmospheric structure and global circulation.	Re, Un
3.	CO 3	Evaluate a meteorology-related problem or issue impacting society or the environment using scientific reasoning based on field and/or laboratory and/or remote measurements and	Re, Un,Ap

		observations.	
4.	CO 4	Assess the contributions of anthropogenic sources to climate change including urban heat effect, pollution meteorology etc.	Re, Un, Ap
5.	CO 5	Execute the applications of different clean and green technologies in combating the ill effects of climate change at local, regional and national levels.	Re, Un, Ap
ES 234. PRACTICAL III **ENVIRONMENTAL GENETICS, MICROBIOLOGY AND REMOTE SENSING**			
1.	CO 1	Perform Sterilization techniquesand preparation of culture media	Re, Un, Ap
2.	CO 2	Interpret geographic information from topographic sheets based on different themes	Re, Un, Ap
3.	CO 3	Estimation and quantification of microbial contamination in water samples	Re, Un, Ap
4.	CO 4	Perform staining techniques including both simple and gram's staining	Re, Un, Ap
5.	CO 5	Perform microscopic counting and measurement using lab equipments such as hemocytometer and micrometer	Re, Un, Ap
SEMESTER IV			
ES 241. ENVIRONMENTAL ENGINEERING AND WASTE MANAGEMENT The course provides basic idea regarding pollution control strategies employed in various sectors including air, water, waste water and solid waste treatment in conventional unit operations including the scientific engineering principles on which they are based. It also deals with advanced techniques available in the treatment of potable water and also incorporates a general learning on hazardous waste management strategies. Policies and laws pertaining to the management of aforesaid areas are also dealt within.			
1.	CO 1	List out and explain the techniques and equipment in air pollution control	Re, Un
2.	CO 2	Describe the various waste water and sewage treatment processes as well as treatment of industrial effluents	Re Un

3.	CO 3	Discuss the WHO and BIS standards for drinking water	Re, Un
4.	CO 4	Describe and set up a composing unit	Un, An, Ap
5.	CO 5	Explain the management strategies of hazardous wastes and also the policies related to this	Re, Un

ES 242. ENVIRONMENTAL ECONOMICS, IMPACT ASSESSMENT AND DISASTER MANAGEMENT

The module on EIA offers an overview of the concepts, methods, issues and various forms and stages of the EIA process. It also explains the methodology of environmental impact assessment (EIA) as a vital tool for sound environmental management and preparation of Environmental Risk Management (ERM) in decision-making. Disaster Management modules described offer theoretical and practical management skills in preparation, response and recovery from natural and man-made disasters.

1.	CO 1	Relate and describe the economic development and resource utilization	Re, Un, An
2.	CO 2	Discuss the methods of valuation of environmental costs and benefits and also to calculate environmental costs and benefits	Ap, An
3.	CO 3	Carry out environmental audit and explain green balance sheet (GBS)	Ev, An, Ap
4.	CO 4	Define and describe EIA and various stages of EIA and to undertake small EIA project	Re, Un, Ev, Ap
5.	CO 5	Describe environmental disasters and hazards and to prepare a Disaster Management Plan	Re, Un, Ev, Ap

ES 243. ENVIRONMENTAL POLICIES AND LAWS

The modules provided under this course give a thorough and in-depth understanding of Environmental Laws and policies, environmental protection movements and environment related legal regulatory framework in India. The course also outlines the role of environmental education and ethical considerations for proper utilization of environmental resources. It also imparts different international treaties, conventions and agreements with respect to alleviating pollution for sustainable development of the nation. The various environmental standards and certification criteria for goods and services offered are also envisaged in detail. Eco-tourism forms an important component of the course wherein it plays a vital role in conservation and revenue generation for the state. The course modules also give insights on politico-economic issues underlying environmental policy formulation and implementation at an international and domestic level.

1.	CO 1	List out and describe National Environmental Policy and Regulatory Frame Work	Re, Un
2.	CO 2	Describe the environmental laws in India	Re, Un
3.	CO 3	Explain the various environmental movements in India and International environment conventions and treatise	Re, Un
4.	CO 4	Describe and analyze the environmental standards and the scheme of labelling environment friendly products	Re, Un, An
5.	CO 5	Describe and plan sustainable development activities and sustainable and eco-tourism	Re, Un, An, Ap
ES 244. PRACTICAL IV **WASTE MANAGEMENT, IMPACT ASSESSMENT AND DISASTER MANAGEMENT**			
1.	CO 1	Set up a vermi-compost unit	An, Ap
2.	CO 2	Design activated sludge system applying mathematical principles	An, Ap
3.	CO 3	Describe and perform Environmental Impact Assessment	An, Ev, Ap
4.	CO 4	Prepare Environment Management Plan (EMP)	An, Ev, Ap
5.	CO 5	Prepare suitable Disaster Management Plan to various disasters	An, Ev, Ap

BA CBCSS HISTORY PROGRAMME

Programme Outcome

Upon completion of the B A Degree Programme in History, the students will be able to:

Sl No.	PO Number	Programme Outcome
1	PO 1	To explain how and why important events happen
2	PO 2	To analyse of developments in historiography
3	PO 3	To get familiarity with multiple cultures and diversity.
4	PO 4	Understand the skills that historians use in research
5	PO 5	To develop sound knowledge of different historical periods.
6	PO 6	To acquire knowledge of the historical events of the Ancient, Medieval, Modern and Indian history in a new perspective.
7	PO7	To acquaint with range of issues related to Indian History that span distinct eras
8	P0 8	To helps the students to develop their ethical and social value.
9	P0 9	Students will be able to anlyse socio economic political changes in national and global world
10	Po 10	Students will be able to identify the major Civilization, important events and socio economic political changes with an emphasis on Indian History, Kerala History and World History

Semester 1

HY 1141 Core 1 METHODOLOGY AND PERSPECTIVES OF SOCIAL SCIENCES

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand the basic skills that historians use in writing.	Un, Re
2.	CO2	Classify some social issues of concern to social scientists	Un, Re
3.	CO3	To appraise the equality of man irrespective of caste, creed, religion and colour.	Ev, Un
4.	CO4	Test how theory can help us to deal with complex evidence	An, Un, Ap
5.	CO5	Develop clear and compelling arguments, based on	C

		critical analysis of diverse historical sources.	

SEMESTER 2

HY 1341 Cultural formation of the Pre-Modern World

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Identify and classify different cultures of world	Un, Re
2.	CO2	Create awareness among the students about the cultural heritage of mankind.	Un, Re
3.	CO3	Interpret the cultural evolution of human beings until the early stone age.	Ap, Un
4.	CO4	Discuss the metal age and the relationship between human beings and metal	Re, Un, Ap
5.	CO5	Classify the ancient cultures and investigate the relationship between human and nature	Ap, C

SEM3 EVOLUTION OF EARLY INDIAN SOCIETY AND CULTURE

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	To understand evolution of India Culture with special reference to the society and polity of Ancient period	Un, Re
2.	CO2	Identify Palaeolithic and Neolithic settlements	
3.	CO3	Discuss the Ancient Age and Middle Age in historical context.	Re, Un
4.	CO4	Analyse the effects of the processes which led to the Modern Age	Re, Un, Ap
5.	CO5	Classify nature of pre historic societies.	Un,An

HY 1321 INFORMATICS

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
6.	CO1	Articulate the history and development of computers	Un, Re
7.	CO2	Describe the Internet governance	Un, Re
8.	CO3	Explain and access the various knowledge repositories of Internet	Re, Un, Ap
9.	CO4	Comprehend the societal applications of internet and use it during emergencies	Re, Un, Ap
10.	CO5	Describe the applications of internet in various fields	Re, Un

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SEMESTER 4

MEDIEVAL INDIA: SOCIO- CULTURAL PROCESSES

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand background of our religion, customs institutions, administration and so on.	Un, Re
2.	CO2	Understand the present existing social, political, religious and economic conditions of the people.	Un, Re
3.	CO3		Re, Un
4.	CO4	Interpret the Social Cultural and Administrative Features during the Medieval Period	Un, Ap
5.	CO5	Develop practical skills helpful in the study and understanding of historical events.	Un, Ap, C

HY 1442 HISTORY OF MODERN WORLD- PART 1

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Develop an awareness about the causes for the changes in the modern world	Un, Re
2.	CO2	Identify and classify the changes that happened in the modern world	Un, Re

3.	CO3	Get an understanding about liberal ideas and freedom struggles	Ap, Un
4.	CO4	Discuss the revolutions and their impact	Re, Un, Ap
5.	CO5	Analyse the agenda of imperialistic powers	Ap

SEMESTER 5

MAJOR TRENDS IN HISTORICAL THOUGHT AND WRITINGS

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand the development of historiography	Un, Re
2.	CO2	Demonstrate a superior quality of writing both in terms of mechanics and in developing an argument effectively	Ap,Un
3.	CO3	Develop an ability to create original research	Un,C
4.	CO4	Construct original historical arguments based on primary source material research	Ap, C

HY – 1543 Hours 3

Course Outcomes

Course Outcomes:

At the end of the course, the student will be able to:

S No.	**Course Outcome No.**	**Course Outcome**	**Taxonomic Level**
1	CO1	**Identify and list** out the significant events of the unification movements in Italy and Germany	Un, Re
2	CO2	To distinguish and examine the causes and results of the First and Second World Wars	An,Ap
3	CO3	To develop anti- war approach and attitude in their perspective towards world	Ev, Cr

4	CO4	To evaluate the achievements and failures of the International Organizations like League of Nations and United Nations Organization	An, Ev,

Semester V

2. History of Pre-Modern Kerala

Course Outcomes

Student will be able to

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO5	**Identify and recall the important** Sources both Archaeological and LiterarySources	Un, Re
2	CO6	To describe the Physical features of Kerala and to interpret Pre- historic cultures, Megalithic Culture and early historic Kerala	An, Ap
3	CO7	To define the concept of Tinai and describe the features of Sangam Polity and Society and Trade	Ev, Cr
4	CO8	To assess the impact of Jains, Buddhists, Jews, Arabs and Brahmin Settlements	An, Ev,
5	CO9	To explain the emergence of the State - Perumals of Mahodayapuram- Formation of Nadus	Re, Un
6	CO10	To assess the evolution of Caste- Untouchability, Janmi system,Matrilinial system, Mamankam	An, Ev,
7	CO11	To evaluate the impact of Mysorean Invasions and Effects on Kerala Society and Culture and Cultural Symbiosis	An, Ev,

Semester V

3. Making of Indian Nation

Course Outcomes

Student will able to

S No.	Course	Course Outcome	Taxonomic

	Outcome No.		Level
1	CO12	**Identify and recall** the factors of emergence of Indian Nationalism	Un, Re
2	CO13	To examine and interpret the role of Gandhi in National Movement	An, Ev,
3	CO14	To assess the growth of Peasant Movements, Trade Union Movement and Women in Revolutionary Movement	An, Ev,
4	CO15	To evaluate the significance of Civil Disobedience Movement, Quit India Movement	An, Ev,
5	CO16	To analyze the process of Framing of the constitution and Integration of Indian States	An, Ap

HY1542 COLONIALISM AND RESISTANCE MOVEMENTS IN INDIA

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand the circumstances that led to colonialism in India	Un, Re
2.	CO2	Understand the impact of colonial rule in India in the socio-religious and economic fields.	Un, Re
3.	CO3	Analyse the origin of the resistance movements against the British in India	Re, Un
4.	CO4	Know the progress of the resistance movements	Re, Un, Ap
5.	CO5	Evaluate how Colonialism led to resistance movements in India	Ev

Semester 6

HY1644 : THE TWENTIETH CENTURY REVOLUTIONS

At the end of the course, the student will be able to:

S No.	Course Outcome	Course Outcome	Taxonomic Level

	No.		
1.	CO1	Understand the important revolutions of the 20th century	Un, Re
2.	CO2	Analyse the impact of these revolutions	Ap,Un
3.	CO3	Familiarise themselves with the importance of the revolutions in the present context	Un
4.	CO4	Learn the similarities and differences between these revolutions	Ap

Semester 6

CONTEMPORARY INDIA

Course Outcomes

Student will able to

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
11.	CO17	To Identify and recall the circumstances that led to the formation of Indian Union	Un, Re
12.	CO18	To examine the challenges faced by independent India and the bold measures initiated after independence	An, Ev,
13.	CO19	To evaluate the achievements of contemporary India with special reference to Science and Information Technology	An, Ev,

Semester 6

MAKING OF MODERN KERALA

Course Outcomes

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
14.	CO20	Identify and list out the impact of European Intervention on Kerala society	Un, Re
15.	CO21	To describe the nature of early Resistance movements	An, Ev,
16.	CO22	To analyse the emergence of Social reform movements and its impact in society	An, Ev,

17.	CO23	Identify and list out the impact of European Intervention on Kerala society	Un, Re
18.	CO24	To describe the nature of early Resistance movements	An, Ev,
19.	CO25	To analyse the emergence of Social reform movements and its impact in society	An, Ev,
20.	CO26	To evaluate the nature of agitation for responsible Government in Travancore and Cochin and the Nationalistic struggle in Malabar and Peasant unrest	An, Ev
21.	CO27	To explain the process of Formation of the State of Kerala and the role of First Communist Ministry in Socio-economic transformation through Land reforms and Educational reforms.	Ap, An

Hy 1541 MAJOR TRENDS IN INDIAN HISTORICAL THOUGHT AND WRITINGS

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand recent and contemporary debates in the theory and practice of historical writing	Un, Re
2.	CO2	Discuss the current methodologies, theories, and concepts, currently in use within the historical discipline	Un, Re
3.	CO3	to assess critically historical analysis and argument, past and present	Re, Un,
4.	CO4	Identify history a Scientific Discipline	Re, Un
5.	CO5	To develop an insight into current methodologies, theories, and concepts, currently in use within the historical discipline	Re, Un, Ap, C

Open Course for Sem5 and elective of Sem 6

HY 1551.1 & HY 1651.4 EMPOWERMENT OF WOMEN WITH SPECIAL REFERENCE TO INDIA

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand the concept and the relevance of women empowerment	Un, Re
2.	CO2	Analyse the role of women in the contemporary times	Un, Re
3.	CO3	Get an awareness on the important legislations for women	Re, Un
4.	CO4	Know about the changing status of women	Un, Ap
5.	CO5	Interpret the prospects of women empowerment	Un, Ap

Project

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	To enable the students to understand the method of writing history	Un, Re
2.	CO2	To familiarize the new theories and concepts in historical method	Un, Re, An
3.	CO3		Re, Un
4.	CO4	Use of the various tools pertaining to the writing of history.	Re, Un, Ap
5.	CO5	To construct original research project in history	C,An

COMPLEMENTORY COURSES

Sem1

HY1131.1 HISTORY OF MODERN INDIA (1857-1900)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Comprehend the relevance of the Revolt of 1857 in India's National movement	Un, Re
2.	CO2	Evaluate the changes in Indian society in the 19th century	Un, Re
3.	CO3	Understand the factors for the rise of Nationalism in India	Re, Un,
4.	CO4	Know about the formation of Indian National Congress	Re, Un
5.	CO5	Learn about the early Congress leaders and their programmes	Un

COMPLIMENTORY COURSES

Sem 2 HY1131.1 HISTORY OF MODERN INDIA (1857-1900)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Comprehend the relevance of the Revolt of 1857 in India's National movement	Un, Re
2.	CO2	Evaluate the changes in Indian society in the 19th century	Un, Re
3.	CO3	Understand the factors for the rise of Nationalism in India	Re, Un,
4.	CO4	Know about the formation of Indian National Congress	Re, Un
5.	CO5	Learn about the early Congress leaders and their programmes	Un

Semester 3

HY1231.3 HISTORY OF MODERN INDIA (1901-1920)

At the end of the course, the student will be able to:

S No.	Course	Course Outcome	Taxonomic

	Outcome No.		Level
1.	CO1	Understand the emergence of Militant Nationalism in India	Un, Re
2.	CO2	Analyse the rise of Communalism in India	Un, Re, An
3.	CO3	Evaluate the impact of First World War on Indian Nationalism	Re, Un
4.	CO4	Know about the advent of Gandhi in the Indian national movement	Re, Un, Ap
5.	CO5	Analyse the Gandhian ideologies and understand their relevance today	Ap

Semester 4

HY1331.5 HISTORY OF MODERN INDIA (1921-1947)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand the role of Gandhiji in the Indian Political Scene	Un, Re
2.	CO2	Analyse the emergence of Socialist ideas in India	Un, Re, An
3.	CO3	Evaluate the impact of Second World War on Indian National movement	Re, Un
4.	CO4	Understand the Final Phase of the National movement	Re, Un, Ap
5.	CO5	Know about the genesis of the Constitution of India and evaluate Ambedkar's role	Un, An

Sem 4

HY1431.7 HISTORY OF CONTEMPORARY INDIA (AFTER 1948)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Analyse the Integration of Indian States to the Indian Union	Un, Re
2.	CO2	Understand the Domestic and Foreign Policy of Indian in the Nehruvian period	Un, Re, An
3.	CO3	Evaluate the New Economic Policy, the Educational	Re, Un

		and Cultural changes in Contemporary India	
4.	CO4	Comprehend the New Social movements in Contemporary India	Re, Un, Ap
5.	CO5	Get an awareness on Cyber Security laws	Un

Political Science
Complementary Course

Complementary Course in Political Science is offered for B.A. History and Economics students during the first and second year. At the end of each course the student will be able to achieve the following course outcomes:

Semester 1, Course Code PS 1131, Course Title: Introduction to Political Science.

S.No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Define meaning, nature and scope of Political Science	Un, Re
2.	CO2	Discuss various approaches to the study of Political Science	Un, Re
3.	CO3	Explain basic concepts and ideologies of Political Science	Un, Re
4.	CO4	Explain State and Government	Un, Re
5.	CO5	Discuss role of Civil Society	Un, Re, An

Semester 2, Course Code PS 1231, Course Title: Indian Government and Politics

S.No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	State features of the Indian Constitution	Un, Re
2.	CO2	Explain Fundamental Rights, Principles and Duties	Un, Re, An
3.	CO3	Examine the Organization and Functions of the branches of the Union Government viz. Legislature, Executive, Judiciary	Un, Re, An
4.	CO4	Describe the Electoral Process in India	Un, Re
5.	CO5	Discuss the evolution of the party system in India	Un, Re

Semester 3, Course Code PS 1331, Course Title: Public Administration

S.No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Define meaning, nature and scope of Public Administration	Un, Re
2.	CO2	Explain Principles of Organisation	Un, Re
3.	CO3	Discuss problems of recruitment & methods of training	Un, Re
4.	CO4	Explain Financial Administration	Un, Re

5.	CO5	Describe Development Administration & Good Governance	Un, Re

Semester 4, Course Code PS 1431, Course Title: International Politics

S.No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Define meaning, nature and scope of International Politics	Un, Re
2.	CO2	Explain basic concepts of International Politics	Un, Re
3.	CO3	Discuss various approaches to the study of International Politics	Un, Re
4.	CO4	Examine role of International and Regional Organizations in International Politics	An, Un, Re
5.	CO5	Examine contemporary issues in Global Politics	An, Un, Re

MATHEMATICS DEPARTMENT PROGRAMME OUTCOMES	
PO1	Students will possess basic subject knowledge, Practical skills and technical knowledge required for higher studies, professional and applied courses
PO2	Students completing this programme will be able to present mathematics clearly and precisely, make vague ideas precise by formulating them in the language of mathematics, describe mathematical ideas from multiple perspectives and explain fundamental concepts of mathematics to non-mathematicians.
PO3	Students will become employable; they will be eligible for career opportunities in Industry, or will be able to opt for entrepreneurship.
PO4	Students will be aware of and able to develop solution oriented approach towards various Social and Environmental issues by converting them mathematically.
PO5	Enabling students to develop a positive attitude towards mathematics as an interesting and valuable subject of study

COURSE	OUTCOME
MM 1141 Methods of Mathematics	**Students will i) understand different types of functions, ii)learn to sketch graphs, iii)Analyse properties of functions iv)Learn to apply these properties in solving problems.**
MM1221 Foundations of Mathematics	**i)Learn,understand and apply various techniques of proof like inductive resoning,hypothesis and conclusion,contrapositive statement. ii) Learn polar coordinates,understand the relation between polar and cartesian coordinates and applyit in practical problems iii)Learn three dimentional vectors and related problems.**
MM1341 Elementary number theory and calculas-1	**i)Learn elementary number theory ,Diophantine equations and understand how to find the solutions of equations ii)Learn to analyse different types of parametric curves and its application.**
MM1441 Elementary number theory and calculas-II	**i)Understands congruence relation,application in solving equations ii)learn multiple integrals and its application in practical situations.**
MM1541 Real Analysis-I	In this course, we discuss the notion of real numbers and the ideas of limits in a formal manner. Thus the course emphasizes the dialectic between practical utility and logical rigor in General, and within mathematics, that between geometric intuition and algebraic formalism.Student understands

	History of analysis Analyse various problems of limit, Sets, sequences Applying the results to solve day today problems Recognize the ideas behind the mathematical concepts
MM1542 Complex Analysis-I	**i)Learn properties of complex numbers,complex functions** **ii)Understands various properties of complex functions** **iii)Learn analytic functions and contour integration.**
MM1543 Abstract Algebra-Group theory	**i)Learn groups and its properties** **ii)Understand different types of groups** **iii)Analyse the properties of groups and** **iii)Learn to apply it in solving problems**
MM1544 Differential Equations	Students learn how differential equations arise in various physical problems **and consider some methods to solve first order differential equations and second order linear equation** **Student understands** History of ODE Analyse various problems of ODE Applying the results to solve day today problems and problems in engineering applications **Recognize the ideas**
MM1545 Mathematics software LATEXand SAGEMATH	**SAGEMATH** **1.** Understand how SageMath is used as calculators **2.** familiarity with the SAGE computer algebra system 3. Develop skills to prepare your own sage notebooks for various purposes **4.** Understand and applies some advanced concepts in Mathematics using SageMath **5.** Design and develop simple programs and able to analyze and interprets the mathematical concepts using SageMat**h.** **LATEX** **1.** Explain and use LaTeX.

	2. Understand the advantages of LaTeX over other more traditional softwares. 3. Define new environments in LaTex 4. Describes various Packages in LaTex and applies it. 5. Able to Create mathematical documents via LaTeX.
MM1551 open course Operations Research	1. Formulate the LPP 2. Defines different variables and solutions and Conceptualize the feasible region. 3. Solve the LPP with two variables using graphical method and other LPP using simplex method. 4. Understand the difference between activity, dummy acticity and events. 5. Able to construct the network and analyses it.
MM1641 Real Analysis-II	**This course builds on the first course in Real Analysis done earlier and concentrates on real valued functions. The three properties of continuity, differentiable and Riemann integrability. The history of how calculus developed is also included inthis course.** **Student understands** History of analysis Analyse various problems of continuity, differentiable and Riemann integrability Applying the results to solve day today problems **Recognize the ideas behind the mathematical concepts**
MM1642Complex Analysis-II	**Students** **i)Learn series representation of complex functions** **ii)understand residue theorem and applies it in solving problems** **iii) learn conformal mapping**
MM1643 Abstract Algebra Ring theory	**i)Learn the concept of rings and its properties** **ii)Understands integral domain and fields.**
MM1644Linear Algebra	1. Solve systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion.

	2. Carry out matrix operations, including inverses and determinants. 3. Demonstrate understanding of the concepts of linear independence, span, basis, vector space and subspace. 4. Determine to compute determinant, eigenvalues and eigenvectors and solve eigenvalue problems. 5. Apply principles of matrix algebra to linear transformations.
MM1645 Integral transforms	1. Defines Laplace Transform, the Inverse Laplace Transforms, Fourier series, Fourier integral, Fourier Transforms and its inverse. 2. Determine Laplace Transform, Fourier transform, Fourier sine and cosine transform and Fourier series of a function. 3. Understand First, Second and Time shifting Theorems in Laplace Transforms, Convolution in Fourier Transform and applies it 4. Apply the knowledge of Laplace Transform in solving ODEs with variable coefficients and System of ODEs **5.** Apply the knowledge of Fourier transform, and Finite Fourier transforms in finding the solutions of differential equations, initial value problems and boundary value problems.
MM1651	
MM1231.1 **Calculus with application in Physics II**	1. Computes sums, products, quotients, conjugate, modulus, and argument of complex numbers Recognize complex numbers in polar form. Evaluate integral roots and all logarithms of nonzero complex numbers explain how hyperbolic functions are defined in terms of exponential functions Understand and apply hyperbolic function identities, manipulate expressions involving hyperbolic functions. 2. Understand the definitions of partial differentiation, evaluate partial derivatives, including higher order derivatives and simple

	cases of the chain rule, and recognize the various notations used for partial derivatives. 3. Evaluate partial derivatives and Apply to estimate maxima and minima of multivariable function. 4. Understand definition of Multiple Integral, evaluate multiple integrals and determine the area and volume by applying the techniques of double and triple integrals. Also evaluate Mass, C.G and M.I of solid geometric figures of the region bounded by curves. 5. Acquire the basic knowledge of vector differentiation and vector integration Determine and apply, the important quantities associated with scalar fields, such as partial derivatives of all orders, the gradient vector and directional derivative and the important quantities associated with vector fields such as the divergence, curl, and scalar potential
MM1331.1 **Calculus and Linear Algebra**	1. Classify the differential equations with respect to their order and linearity explain the meaning of solution of a differential equation. 2. Applying different methods solve first-order ordinary differential equations 3. Acquire the basic knowledge of vector integration Evaluate line integrals, surface area and surface integrals Understands and Evaluate potential function Calculate work, circulation, flux and verify path independence 4. Defines Simple harmonic Motion, Wave motion and periodic function Determine Fourier series, Fourier transform of a function. 5. Formulate, solve, apply, and interpret properties of linear systems Perform row operations on a matrix. Defines Eigen values and Eigen vectors, Evaluate Eigen values and Eigen vectors, Applying Eigen values and Eigen vectors matrix is diagonalised
MM1131.2 **Calculus with application inChemistry I**	

Complex Analysis, Fourier Series and Fourier Transforms MM1431.1	Students learn the properties of complex numbers and their use in	Student understands History of analysis Analyse various problems of complex

	solving problems. Representation of complex numbers, operations involving them, conjugates, polar form of complex numbers, De-Moivre's formula, complex number sets and functions, their limit, continuity, derivatives. Analytic functions, Cauchy-Riemann equations and Laplace equation, harmonic functions, proof that an analytic function with constant modulus is constant, exponential, trigonometric, hyperbolic, logarithmic functions in C Complex integration: Complex sequences, series, their convergence tests, problems using the tests, power series and their convergence	numbers, complex integration, Residue theorems etc Applying the results to solve day today problems Recognize the ideas behind the mathematical concepts
MM1431.2 Differential Equation Vector calculus and Abstract Algebra	1. Classify the differential equations with respect to their order and linearity explains the meaning of the solution of a differential equation. 2. Applying different methods solve first-order ordinary differential equations 3. Acquire the basic knowledge of vector integration Evaluate line integrals, surface area and surface integrals 4. Understands and Evaluate potential function Calculate work, circulation, flux and verify path independence	

	5. Defines groups subgroups understand its properties Recognize different types of groups	

MATHEMATICS DEPARTMENT PROGRAMME OUTCOMES	
PO1	Students will possess basic subject knowledge, Practical skills and technical knowledge required for higher studies, professional and applied courses
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MM1651	
MM1231.1 **Calculus with application in Physics II**	1. Computes sums, products, quotients, conjugate, modulus, and argument of complex numbers Recognize complex numbers in polar form. Evaluate integral roots and all logarithms of nonzero complex numbers explain how hyperbolic functions are defined in terms of exponential functions Understand and apply hyperbolic function identities, manipulate expressions involving hyperbolic functions. 2. Understand the definitions of partial differentiation, evaluate partial derivatives, including higher order derivatives and simple

	cases of the chain rule, and recognize the various notations used for partial derivatives. 3. Evaluate partial derivatives and Apply to estimate maxima and minima of multivariable function. 4. Understand definition of Multiple Integral, evaluate multiple integrals and determine the area and volume by applying the techniques of double and triple integrals. Also evaluate Mass, C.G and M.I of solid geometric figures of the region bounded by curves. 5. Acquire the basic knowledge of vector differentiation and vector integration Determine and apply, the important quantities associated with scalar fields, such as partial derivatives of all orders, the gradient vector and directional derivative and the important quantities associated with vector fields such as the divergence, curl, and scalar potential
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	5. Defines groups subgroups understand its properties Recognize different types of groups	

CHOICE BASED-CREDIT & SEMESTERSYSTEM (CBCSS)

(2014 ADMISSION ONWARDS)

CORE COURSES (THEORY)

Semester -1

Title of Paper: PY1141: BASIC MECHANICS & PROPERTIES OF MATTER

No. of credits: 2 **No. of hours per week:** 2

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	understand of concepts and principles related to mechanics and properties of matter and examine the basic principles of mechanics	Un, Re
2.	CO2	analyse various oscillating systems obeying simple harmonic motion	Un, Re
3.	CO3	understand the conservation of energy and associated theory	Re, Un, Ap
4.	CO4	have a complete idea about the basic laws and theorems of fluid dynamics	Re, Un, Ap

Semester -2

Title of Paper: PY1221 -CLASSICAL MECHANICS

No. of credits: 2 **No. of hours per week:** 2

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Knowledge and understanding of the classical laws of motion.	Un, Re

2.	CO2	Competency in using the essential mathematical skills needed for describing mechanics and special relativity	Un, Re, Ap
3.	CO3	Problem solving skills- Lagrangian and Hamiltonian mechanics applied to basic systems.	Re, Un, Ap
4.	CO4	have an idea about the influence of classical mechanics and relativity on modern scientific development.	Re, Un, Cr
5.	CO5	Develop an interest in the role of mechanics and relativity in the everyday world.	Re, Un, Cr
6.	CO6	Demonstrate an understanding of the basic principles of special theory of relativity'	Re, Un

Semester -3

Title of Paper: PY1341 -THERMODYNAMICS AND STAT ISTICAL PHYSICS

No. of credits: 3 **No. of hours per week:** 3

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Use thermodynamic terminology correctly and explain fundamental thermodynamic properties and various laws of thermodynamics.	Un, Re, Ap
2.	CO2	develop the problem solving skill to s using the properties and relationships of thermodynamic systems and to analyse basic thermodynamic cycles.	Un, Re, Cr
3.	CO3	develop an idea about various phenomena of heat transference.	Re, Un,Cr
4.	CO4	explain statistical physics as logical consequences of the postulates of statistical mechanics	Un, Re, An
5.	CO5	use the methods of statistical mechanics to develop the statistics for Maxwell Boltzmann, Bose-Einstein, Fermi-Dirac distributions and understand statistics of particles	Un, Re, An, Ap, Cr

Semester -4

Title of Paper: PY 1441 ELECTRODYNAMICS

No. of credits: 3 **No. of hours per week:** 3

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	learn the concepts and properties of electric and magnetic fields in vacuum and matter	Un, Re
2.	CO2	Acquire a thorough knowledge on the vast theory of electrostatics and magnetostatics	Un, Re
3.	CO3	explain classical electrodynamics based on Maxwell's equations	Re, Un, Ap
4.	CO4	concepts and properties of electromagnetic wave propagation and emission	Re, Un, Ap
5.	CO5	Apply Maxwell's equations to a variety of problems and solve problems involving the propagation and scattering of electromagnetic waves in a variety of media, calculation of fields, the motion of charged particles etc	Re, Ap
6.	CO6	Demonstrate an understanding of the characteristics of electromagnetic radiation.	Un, Ap
7.	CO7	To evaluate various circuits including L,C, R and to analyze their complete response	Un, An
8.	CO8	Apply various network theorems to determine the circuit response .	Un, Ap

Semester – 4

Title of Paper: PY1441- CLASSICAL AND RELATIVISTIC MECHANICS

No. of credits: 3 **No. of hours per week**: 3

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Knowledge and understanding of the classical laws of motion.	Un, Re
2.	CO2	Competency in using the essential mathematical skills needed for describing mechanics and special relativity	Un, Re, Ap
3.	CO3	Problem solving skills- Lagrangian and Hamiltonian mechanics applied to basic systems.	Re, Un, Ap

4.	CO4	have an idea about the influence of classical mechanics and relativity on modern scientific development.	Re, Un, Cr
5.	CO5	An interest in the role of mechanics and relativity in the everyday world.	Re, Un,Cr
6.	CO5	Demonstrate an understanding of the basic principles of special theory of relativity'	Re, Un

Semester -5

Title of Paper: PY1541: METHODOLOGY IN PHYSICS & RELATIVISTIC MECHANICS

No. of credits: 4 **No. of hours per week:** 4

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	use the methods of statistical mechanics to develop the statistics for Maxwell Boltzmann, Bose-Einstein, Fermi-Dirac distributions and understand statistics of particles	Un, Re, Cr
2.	CO2	understand some basic concepts of research and its methodologies, identify appropriate research topics, select and define appropriate research problem and parameters, prepare a project proposal , organize and conduct research in a more appropriate manner ,write a research report and thesis	Re, Un, Ap, Cr
3.	CO3	Problem solving skills- Lagrangian and Hamiltonian mechanics applied to basic systems.	Re, Un, Ap, Cr
4.	CO4	have an idea about the influence of classical mechanics and relativity on modern scientific development.	Re, Un, Ap. Cr
5.	CO5	An interest in the role of mechanics and relativity in the everyday world.	Re, Un, An , Ev
6.	CO6	Demonstrate an understanding of the basic principles of special theory of relativity'	Re, Un, An, Cr

Title of Paper: PY1542- QUANTUM MECHANICS

No. of credits: 4 **No. of hours per week:** 4

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain a knowledge on the emergence of quantum mechanics, wave properties of matter, general formalism on wave mechanics	Un, Re
2.	CO2	understand how a wave function is interpreted in terms of probability, and appreciate its physical significance	Un, Re
3.	CO3	understand how a wave function is interpreted in terms of probability, and appreciate its physical significance	Re, Un, Ap
4.	CO4	derive and apply Schrodinger equation to Hydrogen atom	Re, Un, Ap
5.	CO5	apply principles of quantum mechanics to calculate observables on known wave functions	Re, Un
6.	CO6	gain knowledge about fundamental quantum mechanical processes in nature	Un, Cr

Title of Paper: PY1543-ELECTRONICS

No. of credits: 4 **No. of hours per week:** 4

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	students possess advanced knowledge, skills and competence in the subject of analog electronics.	Un, Re, Ap

2.	CO2	Analyze simple electronic circuits based on diodes and transistors with special focus on designing amplifiers with discrete components	Un, Re, An
3.	CO3	Design and analyze bias circuits for BJTs and amplifiers for the basic categories (CB, CE and CC)	Re, Un, Ap, Cr
4.	CO4	Analyze oscillator circuits, feedback amplifiers, operation amplifiers etc	Re, Un, Ap, Cr

Title of Paper: PY1544-ATOMIC & MOLECULAR PHYSICS

No. of credits: 4 **No. of hours per week:** 4

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain a thorough knowledge of vector atom model	Un, Re
2.	CO2	To explain the change in behaviour of atoms in external applied electric and magnetic field.	Un, Re
3.	CO3	Explain rotational, vibrational, electronic and Raman spectra of molecules.	Re, Un, Ap
4.	CO4	Describe electron spin and nuclear magnetic resonance spectroscopy and their applications.	Re, Un, Ap

Semester – 6

Title of Paper- PY 1641 SOLID STATE PHYSICS

No. of credits: 4 **No. of hours per week: 4**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	have a basic knowledge of crystal systems and spatial symmetries	Un, Re, Cr

2.	CO2	provide how crystalline materials are studied using diffraction and know the principles of structure determination by diffraction.	Un, Re, An
3.	CO3	understand the concept of reciprocal space and be able to use it as a tool and to know the significance of Brillouin zones	Re, Un, An
4.	CO4	account for interatomic forces and bonds and understand the conduction in metals	Re, Un, Ap, Ap
5.	CO5	Understand the Magnetic, optical and electrical properties of materials	Re, Un
6.	CO5	Obtain an outline of superconductivity and its basic properties	Re, Un, An

Title of Paper- PY 1642 NUCLEAR AND PARTICLE PHYSICS

No. of credits: 4 **No. of hours per week: 4**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain a thorough understanding of the constituents of a nucleus, its basic properties, stability etc and about the various models used to explain the nucleus	Un, Re, Cr
2.	CO2	explain alpha, beta and gamma decay at a basic particle physics level	Un, Re, Ap
3.	CO3	apply the concepts of fission and fusion to power generation	Re, Un, Ap
4.	CO4	know the theory behind particle detectors	Re, Un, Ap
5.	CO5	gain knowledge about the basics of particle physics and the conservation laws obeyed by them	Re, Un, An

Title of Paper- PY1643- CLASSICAL AND MODERN OPTICS

No. of credits: 4 **No. of hours per week: 4**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Analyze the intensity variation of light due to Polarization, interference, diffraction and dispersion	Un, Re, An
2.	CO2	Understand a knowledge about optical fiber, its types and its application in communication	Un, Re, Ap
3.	CO3	Explain the working principle, recording, reconstruction and types in holography	Re, Un, Ap
4.	CO4	Explain working principle of lasers	Re, Un, Ap

Title of Paper- PY1644-DIGITAL ELECTRONICS AND COMPUTER SCIENCE

No. of credits: 4 **No. of hours per week: 3**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain a deep knowledge on number systems, types, conversion, coded number systems etc	Un, Re, Cr
2.	CO2	Design, construct and analyze basic logic circuits using logic gates	Un, Re, Cr
3.	CO3	Gain a deep knowledge about arithmetic circuits and sequential circuits	Re, Un, An
4.	CO4	Gain an adequate knowledge about the various functioning of computer components, the process of problem solving using computer, internal organization of computer, memory hierarchy.	Re, Un, Ap, An
5.	CO5	By learning C language, the students will be able to enhance their analyzing and problem solving skills and use the same for writing programs in C.	Re, Un, Ap

6.	CO6	understand theory and problems based on iterative methods, interpolation, regression and numerical integration and differentiation.	Un, Re, Ap, Ev, Cr

PY1661. ELECTIVE COURSES (54 HOURS-2CREDITS) FOR EACH COURSE

Title of Paper **PY1661.1 ELECTRONIC INSTRUMENTATION**

No. of credits: 2 **No. of hours per week: 3**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain idea about the concepts of measurement various electrical parameters with accuracy, precision, resolution.	Un, Re, Cr
2.	CO2	passive or active transducers for measurement of physical phenomenon	Un, Re, An
3.	CO3	use and functioning of signal generator, function generator, wave analysers, CRO and spectrum analyser.	Re, Un, Ap, An

CORE COURSES (PRACTICALS)

PY1441 – Mechanics, Properties of mat ter, Error measurements, Heat and Acoustics (S1, S2,S2, &S4)

No. of credits: 3 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understanding on various experiments in mechanics	Un, An, Ap
2.	CO2	Understanding on various experiments in fluid dynamics.	Un, An, Ap

PY1645 – Optics, Electricity and magnetism (S5 & S6)

No. of credits:2 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Complete understanding on various electricity magnetism experiments	Un, An, Ap
2.	CO2	Hands on training and gaining knowledge on optics experiments	Un, An, Ap

PY1646 – Electronics and Computer science (S5 & S6)

No. of credits:2 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Complete understanding on various various Electronics experiments	Un, An, Ap
2.	CO2	Hands on training and gaining knowledge on Computer programming (C++)	Un, An, Ap

PY1645 – Project(S5 & S6)

No. of credits:4 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understanding on Emerging developments in Physics	Un, An, Ap
2.	CO2	Inculcate research aptitude	Un, Ap

COMPLEMENTARY COURSES

Semester 1 (Mathematics Main)

PY1131.1 – Mechanics and Properties of matter (36 hours)

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Describe about the dynamics of rigid bodies, various theorems and derivations on moment of inertia of bodies of different shapes	Un, Re
2.	CO2	Study of bending behavior beams and analyze the expression for young's modulus	Un, Re, Ap
3.	CO3	Understand the surface tension and viscosity of fluid	Re, Un, An
4.	CO4	Analyse waves and oscillations	Re, Un, An

Semester 2 (Mathematics Main)

PY1231.1 – Thermal Physics and statistical mechanics

No. of credits: 2 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	have an idea about various heat transfer phenomena.	Un, Re, Cr
2.	CO2	Use thermodynamic terminology correctly to explain fundamental thermodynamic properties and various laws of thermodynamics	Un, Re, Ap
3.	CO3	develop a skill to solve problems using the properties and relationships of thermodynamic systems and to analyse basic thermodynamic processes.	Re, Un, Ap, Cr
4.	CO4	To gain a knowledge on the basics of statistical physics	Re, Un, Ap, An

Semester 3 (Mathematics Main)

PY1331.1 – Optics, Magnetism and Electricity (54 hours)

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	The course provides an introduction to electricity, magnetism, optics: Electric charge and electric fields, current and resistance, magnetic fields, the properties of light, optical instruments etc.	Un, Re, Ap, An, Ev
2.	CO2	analyze and understand interference between waves	Un, Re, An
3.	CO3	get acquainted with Fresnel's and Fraunhofer's diffraction	Re, Un, Ap
4.	CO4	gain a knowledge in different light sources including lasers	Re, Un, Ap
5.	CO5	Demonstrate an understanding of various magnetic materials and their properties, various circuits including inductor, capacitor, resistor, their combinations etc.	Re, Un, Ev, An

Semester 4 (Mathematics Main)

PY1431.1Modern Physics and Electronics

No. of credits: 3 **No. of hours per week: 3**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Obtain a deep understanding in various atom models, properties of atomic nucleus.	Un, Re, Ap
2.	CO2	Describe the need of quantum mechanics, show an understanding of quantization.	Un, Re
3.	CO3	Explain about semiconductor devices like diodes, transistors, their characteristics and types of biasing.	Re, Un, Ap
4.	CO4	Compare various number systems, logic gates and related theorems, basics of Boolean algebra.	Re, Un, An

Semester 1 (Chemistry Main)

PY1131.2 – Rotational dynamics and Properties of matter (36 hours)

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Describe about the dynamics of rigid bodies, various theorems and derivations on moment of inertia of bodies of different shapes	Un, Re, An
2.	CO2	Study of bending behaviour beams and analyse the expression for young's modulus	Un, Re, An
3.	CO3	Understand the surface tension and viscosity of fluid	Re, Un, Ap
4.	CO4	Analyse waves and oscillations	Re, Un, An

Semester 2 (Chemistry Main)

PY1231.2 – Thermal Physics (36 hours)

No. of credits: 2 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	have an idea about various diffusion phenomena	Un, Re, Cr
2.	CO2	get an idea about various phenomena of transference of heat	Un, Re, Cr
3.	CO3	To Use thermodynamic terminology correctly and explain fundamental thermodynamic properties and various laws of thermodynamics	Re, Un, Ap
4.	CO4	To Use thermodynamic terminology correctly and explain fundamental thermodynamic properties and various laws of thermodynamics	Re, Un
5.	CO5	To develop a skill to solve problems using the properties and relationships of thermodynamic systems.	Un, Re, Cr

Semester 3 (Chemistry Main)

PY1331.2 – Optics, Magnetism and Electricity (54 hours)

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	The course provides an introduction to electricity, magnetism, optics: Electric charge and electric fields, current and resistance, magnetic fields, the properties of light, optical instruments etc.	Un, Re, Ap
2.	CO2	analyze and understand interference between waves	Un, Re, An

3.	CO3	get acquainted with Fresnel's and Fraunhofer's diffraction	Re, Un, Ap
4.	CO4	gain a knowledge in different light sources including lasers	Re, Un, Ap, Cr
5.	CO5	get a thorough knowledge of the polarization of light and its changes upon reflection and transmission	Re, Un, Ap
6.	CO6	Demonstrate an understanding of various magnetic materials and their properties, various circuits including inductor, capacitor, resistor, their combinations etc.	Re, Un, Ap, Ev

Semester 4 (Chemistry Main)

PY1431.2 – Atomic Physics, Quantum Mechanics and Electronics (54 hours)

No. of credits: 3 **No. of hours per week: 3**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Get a deep understanding in various atom models, properties of atomic nucleus etc	Un, Re
2.	CO2	Explain about superconductors, their types, properties and applications	Un, Re, An
3.	CO3	Describe the need of quantum mechanics, show an understanding of quantization etc	Re, Un, Ap
4.	CO4	Derive the time dependent and time independent Schrodinger equation	Re, Un, Ap
5.	CO5	Demonstrate an idea about instrumentation behind various spectroscopic techniques	Re, Un, Cr
6.	CO5	Explain about semiconductor devices like diodes, transistors , their characteristics and types of biasing	Re, Un, Ap

7.	CO6	Compare various number systems, logic gates etc.	Re, Un

PROGRAMME OUTCOME AND COURSE OUTCOME

MSc Physics (2020 Admission onwards)

Programme Outcome :

Upon completion of the M Sc Degree Programme in Physics, the students will be able to:

Sl No.	PO Number	Programme Outcome
1	PO 1	Define and explain fundamental ideas and mathematical formalism of theoretical and applied physics.
2	PO 2	Identify, classify and extrapolate the physical concepts and related mathematical methods to formulate and solve real physical problems.
3	PO 3	Identify and solve interdisciplinary problems that require simultaneous implementation of concepts from different branches of physics and other related areas.
4	PO 4	To define and explain fundamental ideas of space physics and astrophysics
5	PO 5	To define a research problem, translate ideas into working models, interpret the data collected draw the conclusions and report scientific data in the form of dissertation
6	PO 6	To disseminate scientific knowledge and scientific temper in the society to contribute towards greater human cause.

Course Outcomes:

Theory Papers

SEMESTER 1

PH 211: CLASSICAL MECHANICS (6L, 1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Students are able to understand the concepts of Lagrangian and Hamiltonian mechanics and use them to solve problems in mechanics. Able to identify concepts of generating functions, Poisson brackets Hamilton Jacobi equations and action angle variables.	Un, Re
2.	CO2	To equip the students to deal with central force problem and analyzing Kepler's laws.	Ev
3.	CO3	To inculcate the students the concepts of special and general theory of relativity and related problems.	Re, Un, Ap
4.	CO4	To acquaint the students about the theory of small oscillations and Euler's equations of motions of rigid bodies	Re, Un, Ap
5.	CO5	To analyze nonlinear dynamical systems and to explain the concepts of classical chaos.	Re, An

PH 212: Mathematical Physics (6L, 1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To apply and analyze the various vector and matrix operations and to perform complex analysis for solving physical problems.	Un, Re,An
2	CO2	To demonstrate and utilize the concepts of Fourier series and its transforms.	Un, Re,An
3	CO3	To explain and differentiate different probabilistic distributions.	Re, Un, Ap
4	CO4	To apply partial differential equations and special functions for solving mathematical problems.	Re, Un, Ap
5	CO5	To illustrate and apply concepts of group theoretical operations and tensors.	Re, Un,Ap

PH 213: BASIC ELECTRONICS (6L,1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To equip the students design and analyze different analogue and digital circuits.	Un, Re
2	CO2	To summarize the knowledge of basic arithmetic and data processing circuits and memory devices.	Un, Re
3	CO3	To equip the students to explain various components in optical communications systems and microwave devices.	Re, Un, Ap
4	CO4	To measure and analyze the different electronic signals.	Re, Un, Ap,An

SEMESTER 2

PH 221: MODERN OPTICS AND ELECTROMAGNETIC THEORY (6L, 1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To demonstrate the linear and nonlinear optical phenomena.	Un, Re
2	CO2	To explain and discuss propagation of electromagnetic waves through different media.	Un, Re
3	CO3	To restate formulations and relativistic effects in electrodynamics.	Re, Un, Ap
4	CO4	To analyse the propagation of electromagnetic waves through waveguides.	Re, Un, Ap, An
5	CO 5	To use radiation theory in developing different antennas.	Re, Un, Ap

PH 222: THERMODYNAMICS, STATISTICAL PHYSICS AND BASIC QUANTUM MECHANICS (6L, 1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To explain the basic thermodynamic relations, Maxwell's equations and its consequences.	Un, Re
2	CO2	To equip the students to demonstrate and apply classical and quantum statistics in different physical phenomena.	Un, Re, Ap
3	CO3	To distinguish the different phase transitions using Ising model.	Re, Un, An
4	CO4	Outline and apply foundations of quantum mechanics	Re, Un, Ap, An

PH 223: COMPUTER SCIENCE AND NUMERICAL TECHNIQUES (6L, 1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To summarize computer hardware and its operating systems	Un, Re
2	CO2	Explain internal architecture of microprocessors 8085 and create assembly language programing.	Un, Re, Ap
3	CO3	To develop and compile programs in python and C++.	Re, Un, An
4	CO4	Apply numerical methods to solve physical problems.	Re, Un, Ap, An

SEMESTER 3

PH231: ADVANCED QUANTUM MECHANICS (6 L, 1 T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To extend the use of approximation methods viz variation, WKB, time dependent and time independent perturbations.	Un, Re
2	CO2	To summarize different types of symmetry, conservation laws and quantum theory of scattering.	Un, Re, Ap
3	CO3	To distinguish different approximation methods, to study the structure and properties of many electron systems.	Re, Un, An
4	CO4	To compute eigen values of angular momentum and evaluation of CG coefficients.	Re, Un, Ap, An
5	CO5	Infer the requirements of relativistic quantum mechanics.	Re, An, Ap

PH 232: ATOMIC AND MOLECULAR SPECTROSCOPY (6L, 1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	Explain different symmetry operations and deduction of molecular structure.	Un, Re
2	CO2	Distinguish and classify the different spectra shown by atoms and molecules	Un, Re, Ap
3	CO3	Illustrate the various spectroscopic experimental techniques.	Re, Un, An

PH 233: CONDENSED MATTER PHYSICS (6L, 1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	Discuss crystal physics, lattice vibrations, models of thermal properties and band theory of solids.	Un, Re
2	CO2	Explain the theoretical concepts of semiconductors, dielectric, magnetic and	Un, Re, Ap
3	CO3	superconducting materials.	Re, Un, An
4	CO4	To describe the synthesis and characterization techniques of nanomaterials.	Un, An, Ap

PHS 234: PHYSICS OF THE ATMOSPHERE (7L,1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To make students aware about the structure of Earths atmosphere	Un, Re
2	CO2	Discuss various atmospgheric Phenomenon	Un, Re,
3	CO3	Explain the Atmospheric Dynamics	Re, Un, An
4	CO4	Infer various atmospheric paramenters and their influence on weather/climate	Un, An, Ap

SEMESTER 4

PH 241: NUCLEAR AND PARTICLE PHYSICS (6L, 1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To describe and analyze nuclear structure, models and reactions.	Un, Re, Ap
2	CO2	To illustrate the mechanisms of nuclear fission and fusion reactions.	Un, Re, Ap
3	CO3	Discuss various nuclear detectors and particle accelerators.	Re, Un, An
4	CO4	To classify elementary particles and discuss their interactions.	Un, An, Ap

PHS 242 SPACE PHYSICS (5L,1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	Calculate fundamental properties of a plasma with given appropriate information.	Un, Re
2	CO2	Apply basic electromagnetism to derive the kinetic theory of plasmas	Un, Re, Ap
3	CO3	Explain Sun's interior structure, physics of solar wind and origin of cosmic rays.	Un, An
4	CO4	Explain the main consequences of magnetic reconnection for Earth's magnetosphere.	Un, An, Ap

5	CO5	Demonstrate the experimental technique for ionospheric studies.	Ap, Cr

PHS 243: INTRODUCTION TO ASTROPHYSICS (5L,1T)

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	Discuss different celestial coordinate systems.	Un, Re
2	CO2	Apply Stefan – Boltzmann equation to get stellar luminosity.	Un, Re, Ap
3	CO3	Explain different phases of interstellar medium.	Un, An
4	CO4	Discuss energy generation in stars.	Un, An, Ap
5	CO5	Classify different types of galaxies and discuss evolution of Universe	Un, Ap,An

Practicals

PH 251: GENERAL PHYSICS PRACTICALS

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To measure and analyze various physical quantities.	Un, Re, Ap
2	CO2	To calculate error in various general physics experiments.	Un, Re, Ap
3	CO3	To develop experimental skills	Un, Ap

PH 252 Electronics and Computer Science Practicals

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	To design and construct various electronic circuits and its validation.	Un, Re, Cr
2	CO2	To calculate error in various electronics experiments.	Un, Re, Ap
3	CO3	To develop experimental and programming skills	Un, Ap, Cr

PHS 244 Lab: Space Physics

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1	CO1	Ability to use reasoning and logic to define a problem in terms of principles of physics.	Un, Re, Ap
2	CO2	Data handling skills such as making measurements with specialized equipment and computer applications.	Un, Re, Ap
3	CO3	Ability to handle and interpret satellite data.	Un, Ap
4	CO4	Knowledge on methods and techniques of astronomical imaging using charged coupled device (CCD) detectors and computer controlled telescopes to obtain images of the moon, planets, stars and nebulae	Un, Ap

CHOICE BASED-CREDIT & SEMESTERSYSTEM (CBCSS)

(2018 ADMISSION ONWARDS)

CORE COURSES (THEORY)

Semester -1

Title of Paper: PY1141: BASIC MECHANICS & PROPERTIES OF MATTER

No. of credits: 2 **No. of hours per week:** 2

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	understand of concepts and principles related to mechanics and properties of matter and examine the basic principles of mechanics	Un, Re
2.	CO2	analyse various oscillating systems obeying simple harmonic motion	Un, Re
3.	CO3	understand the conservation of energy and associated theory	Re, Un, Ap
4.	CO4	develop a complete idea about the basic laws and theorems of fluid dynamics	Re, Un, Ap

Semester -2

Title of Paper: PY1241 –HEAT AND THERMODYNAMICS

No. of credits: 2 **No. of hours per week:** 2

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Use thermodynamic terminology correctly and explain fundamental thermodynamic properties and various laws of thermodynamics.	Un, Re, Ap
2.	CO2	develop the problem solving skill to s using the properties and relationships of thermodynamic systems and to analyse basic thermodynamic cycles.	Un, Re, Cr
3.	CO3	develop an idea about various phenomena of heat transference.	Re, Un, Cr

Semester -3

Title of Paper: PY 1341 ELECTRODYNAMICS

No. of credits: 3 **No. of hours per week:** 3

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	learn the concepts and properties of electric and magnetic fields in vacuum and matter	Un, Re
2.	CO2	Acquire a thorough knowledge on the vast theory of electrostatics and magnetostatics	Un, Re
3.	CO3	explain classical electrodynamics based on Maxwell's equations	Re, Un, Ap
4.	CO4	concepts and properties of electromagnetic wave propagation and emission	Re, Un, Ap
5.	CO5	Apply Maxwell's equations to a variety of problems and solve problems involving the propagation and scattering of electromagnetic waves in a variety of media, calculation of fields, the motion of charged particles etc	Re, Ap
6.	CO6	Demonstrate an understanding of the characteristics of electromagnetic radiation.	Un, Ap
7.	CO7	To evaluate various circuits including L,C, R and to analyze their complete response	Un, An
8.	CO8	Apply various network theorems to determine the circuit response .	Un, Ap

Semester – 4

Title of Paper: PY1441- CLASSICAL AND RELATIVISTIC MECHANICS

No. of credits: 3 **No. of hours per week**: 3

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Knowledge and understanding of the classical laws of motion.	Un, Re

2.	CO2	Competency in using the essential mathematical skills needed for describing mechanics and special relativity	Un, Re, Ap
3.	CO3	Problem solving skills- Lagrangian and Hamiltonian mechanics applied to basic systems.	Re, Un, Ap
4.	CO4	have an idea about the influence of classical mechanics and relativity on modern scientific development.	Re, Un, Cr
5.	CO5	Develop an interest in the role of mechanics and relativity in the everyday world.	Re, Un,Cr
6.	CO5	Demonstrate an understanding of the basic principles of special theory of relativity'	Re, Un

Semester -5

Title of Paper: PY1541- QUANTUM MECHANICS

No. of credits: 4 **No. of hours per week:** 4

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain a knowledge on the emergence of quantum mechanics, wave properties of matter, general formalism on wave mechanics	Un, Re
2.	CO2	understand how a wave function is interpreted in terms of probability, and appreciate its physical significance	Un, Re
3.	CO3	understand how a wave function is interpreted in terms of probability, and appreciate its physical significance	Re, Un, Ap
4.	CO4	derive and apply Schrodinger equation to Hydrogen atom	Re, Un, Ap
5.	CO5	apply principles of quantum mechanics to calculate observables on known wave functions	Re, Un
6.	CO6	gain knowledge about fundamental quantum mechanical processes in nature	Un, Cr

Title of Paper: PY1542: STATISTICAL PHYSICS, RESEARCH METHODOLOGY AND DISASTER MANAGEMENT

No. of credits: 4 **No. of hours per week:** 4

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	explain statistical physics as logical consequences of the postulates of statistical mechanics	Un, Re
2.	CO2	use the methods of statistical mechanics to develop the statistics for Maxwell Boltzmann, Bose-Einstein, Fermi-Dirac distributions and understand statistics of particles	Un, Re, Cr
3.	CO3	understand some basic concepts of research and its methodologies, identify appropriate research topics, select and define appropriate research problem and parameters, prepare a project proposal , organize and conduct research in a more appropriate manner ,write a research report and thesis	Re, Un, Ap, Cr
4.	CO4	acquire a knowledge on Global natural disasters and communicate factors about health emergencies and diseases etc	Re, Un, Ap
5.	CO5	analyze and communicate the processes of disaster management including disaster risk reduction, response, recovery etc and also to design and perform research on the different aspects of the emergencies and disaster events	Re, Un, An, Cr

Title of Paper: PY1543-ELECTRONICS

No. of credits: 4 **No. of hours per week:** 4

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	students possess advanced knowledge, skills and competence in the subject of analog electronics.	Un, Re, Ap
2.	CO2	Analyze simple electronic circuits based on diodes and transistors with special focus on designing amplifiers with discrete components	Un, Re, An
3.	CO3	Design and analyze bias circuits for BJTs and amplifiers for the basic categories (CB, CE and CC)	Re, Un, Ap, Cr
4.	CO4	Analyze oscillator circuits, feedback amplifiers, operation amplifiers etc	Re, Un, Ap, Cr

Title of Paper: PY1544-ATOMIC & MOLECULAR PHYSICS

No. of credits: 4 **No. of hours per week:** 4

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain a thorough knowledge of vector atom model	Un, Re
2.	CO2	explain the change in behaviour of atoms in external applied electric and magnetic field.	Un, Re
3.	CO3	Explain rotational, vibrational, electronic and Raman spectra of molecules.	Re, Un, Ap
4.	CO4	Describe electron spin and nuclear magnetic resonance spectroscopy and their applications.	Re, Un, Ap

Semester – 6

Title of Paper- PY 1641 SOLID STATE PHYSICS

No. of credits: 4 **No. of hours per week: 4**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	have a basic knowledge of crystal systems and spatial symmetries	Un, Re, Cr
2.	CO2	provide how crystalline materials are studied using diffraction and know the principles of structure determination by diffraction.	Un, Re, An
3.	CO3	understand the concept of reciprocal space and be able to use it as a tool and to know the significance of Brillouin zones	Re, Un, An
4.	CO4	account for interatomic forces and bonds and understand the conduction in metals	Re, Un, Ap, Ap
5.	CO5	Understand the Magnetic, optical and electrical properties of materials	Re, Un
6.	CO5	Obtain an outline of superconductivity and its basic properties	Re, Un, An

Title of Paper- PY 1642 NUCLEAR AND PARTICLE PHYSICS

No. of credits: 4 **No. of hours per week: 4**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain a thorough understanding of the constituents of a nucleus, its basic properties, stability etc and about the various models used to explain the nucleus	Un, Re, Cr

2.	CO2	explain alpha, beta and gamma decay at a basic particle physics level	Un, Re, Ap
3.	CO3	apply the concepts of fission and fusion to power generation	Re, Un, Ap
4.	CO4	know the theory behind particle detectors	Re, Un, Ap
5.	CO5	gain knowledge about the basics of particle physics and the conservation laws obeyed by them	Re, Un, An

Title of Paper- PY1643- CLASSICAL AND MODERN OPTICS

No. of credits: 4 **No. of hours per week: 4**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Analyze the intensity variation of light due to Polarization, interference, diffraction and dispersion	Un, Re, An
2.	CO2	Understand a knowledge about optical fiber, its types and its application in communication	Un, Re, Ap
3.	CO3	Explain the working principle, recording, reconstruction and types in holography	Re, Un, Ap
4.	CO4	Explain working principle of lasers	Re, Un, Ap

Title of Paper- PY1644-DIGITAL ELECTRONICS AND COMPUTER SCIENCE

No. of credits: 4 **No. of hours per week: 3**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain a deep knowledge on number systems, types, conversion, coded number systems etc	Un, Re, Cr
2.	CO2	Design, construct and analyze basic logic circuits using logic gates	Un, Re, Cr
3.	CO3	Gain a deep knowledge about arithmetic circuits and sequential circuits	Re, Un, An
4.	CO4	Gain an adequate knowledge about the various functioning of computer components, the process of problem solving using computer, internal organization of computer, memory hierarchy.	Re, Un, Ap, An
5.	CO5	By learning C++ language, the students will be able to enhance their analyzing and problem solving skills and use the same for writing programs in C++.	Re, Un, Ap

PY1661. ELECTIVE COURSES (54 HOURS-2CREDITS) FOR EACH COURSE

Title of Paper **PY1661.1 ELECTRONIC INSTRUMENTATION**

No. of credits: 2 **No. of hours per week: 3**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Gain idea about the concepts of measurement various electrical parameters with accuracy, precision, resolution.	Un, Re, Cr
2.	CO2	Categorize passive or active transducers for measurement of physical phenomenon	Un, Re, An
3.	CO3	Analyse the use and functioning of signal generator, function generator, wave analysers, CRO and spectrum analyser.	Re, Un, Ap, An

CORE COURSES (PRACTICALS)

PY1441 – Basic Physics Lab 1(S1, S2,S2, &S4)

No. of credits: 3 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understanding on various experiments in mechanics	Un, An, Ap
2.	CO2	Understanding on various experiments in fluid dynamics.	Un, An, Ap

PY1645 – Advanced Physics Lab 2(S5 & S6)

No. of credits:2 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Complete understanding on various electricity magnetism experiments	Un, An, Ap
2.	CO2	Hands on training and gaining knowledge on optics experiments	Un, An, Ap

PY1646 – Advanced Physics Lab 3(S5 & S6)

No. of credits:2 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Complete understanding on various various Electronics experiments	Un, An, Ap
2.	CO2	Hands on training and gaining knowledge on Computer programming (C++)	Un, An, Ap

PY1645 – Project(S5 & S6)

No. of credits:4 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understanding on Emerging developments in Physics	Un, An, Ap
2.	CO2	Inculcate research aptitude	Un, Ap

COMPLEMENTARY COURSES

Semester 1 (Mathematics Main)

PY1131.1 – Mechanics and Properties of matter (36 hours)

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Describe about the dynamics of rigid bodies, various theorems and derivations on moment of inertia of bodies of different shapes	Un, Re
2.	CO2	Study of bending behavior beams and analyze the expression for young's modulus	Un, Re, Ap
3.	CO3	Understand the surface tension and viscosity of fluid	Re, Un, An
4.	CO4	Analyse waves and oscillations	Re, Un, An

Semester 2 (Mathematics Main)

PY1231.1 – Thermal Physics and statistical mechanics

No. of credits: 2 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	develop an idea about various heat transfer phenomena.	Un, Re, Cr
2.	CO2	Use thermodynamic terminology correctly to explain fundamental thermodynamic properties and various laws of thermodynamics	Un, Re, Ap
3.	CO3	develop a skill to solve problems using the properties and relationships of thermodynamic systems and to analyse basic thermodynamic processes.	Re, Un, Ap, Cr
4.	CO4	gain a knowledge on the basics of statistical physics	Re, Un, Ap, An

Semester 3 (Mathematics Main)

PY1331.1 – Optics, Magnetism and Electricity (54 hours)

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	provides an introduction to electricity, magnetism, optics: Electric charge and electric fields, current and resistance, magnetic fields, the properties of light, optical instruments etc.	Un, Re, Ap, An, Ev
2.	CO2	analyze and understand interference between waves	Un, Re, An
3.	CO3	get acquainted with Fresnel's and Fraunhofer's diffraction	Re, Un, Ap
4.	CO4	gain a knowledge in different light sources including lasers	Re, Un, Ap
5.	CO5	Demonstrate an understanding of various magnetic materials and their properties, various circuits including inductor, capacitor, resistor, their combinations etc.	Re, Un, Ev, An

Semester 4 (Mathematics Main)

PY1431.1Modern Physics and Electronics

No. of credits: 3 **No. of hours per week: 3**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Obtain a deep understanding in various atom models, properties of atomic nucleus.	Un, Re, Ap
2.	CO2	Describe the need of quantum mechanics, show an understanding of quantization.	Un, Re

3.	CO3	Explain about semiconductor devices like diodes, transistors, their characteristics and types of biasing.	Re, Un, Ap
4.	CO4	Compare various number systems, logic gates and related theorems, basics of Boolean algebra.	Re, Un, An

Semester 1 (Chemistry Main)

PY1131.2 – Rotational dynamics and Properties of matter (36 hours)

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Describe about the dynamics of rigid bodies, various theorems and derivations on moment of inertia of bodies of different shapes	Un, Re, An
2.	CO2	Study of bending behaviour beams and analyse the expression for young's modulus	Un, Re, An
3.	CO3	Understand the surface tension and viscosity of fluid	Re, Un, Ap
4.	CO4	Analyse waves and oscillations	Re, Un, An

Semester 2 (Chemistry Main)

PY1231.2 – Thermal Physics (36 hours)

No. of credits: 2 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	develop an idea about various diffusion phenomena	Un, Re, Cr
2.	CO2	get an idea about various phenomena of transference of heat	Un, Re, Cr

3.	CO3	Use thermodynamic terminology correctly and explain fundamental thermodynamic properties and various laws of thermodynamics	Re, Un, Ap
4.	CO5	To develop a skill to solve problems using the properties and relationships of thermodynamic systems.	Re, Un

Semester 3 (Chemistry Main)

PY1331.2 – Optics, Magnetism and Electricity (54 hours)

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	provides an introduction to electricity, magnetism, optics: Electric charge and electric fields, current and resistance, magnetic fields, the properties of light, optical instruments etc.	Un, Re, Ap
2.	CO2	analyze and understand interference between waves	Un, Re, An
3.	CO3	get acquainted with Fresnel's and Fraunhofer's diffraction	Re, Un, Ap
4.	CO4	gain a knowledge in different light sources including lasers	Re, Un, Ap, Cr
5.	CO5	get a thorough knowledge of the polarization of light and its changes upon reflection and transmission	Re, Un, Ap
6.	CO6	Demonstrate an understanding of various magnetic materials and their properties, various circuits including inductor, capacitor, resistor, their combinations etc.	Re, Un, Ap, Ev

Semester 4 (Chemistry Main)

PY1431.2 – Atomic Physics, Quantum Mechanics and Electronics (54 hours)

No. of credits: 3 **No. of hours per week: 3**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Get a deep understanding in various atom models, properties of atomic nucleus etc	Un, Re
2.	CO2	Explain about superconductors, their types, properties and applications	Un, Re, An
3.	CO3	Describe the need of quantum mechanics, show an understanding of quantization etc	Re, Un, Ap
4.	CO4	Derive the time dependent and time independent Schrodinger equation	Re, Un, Ap
5.	CO5	Demonstrate an idea about instrumentation behind various spectroscopic techniques	Re, Un, Cr
6.	CO5	Explain about semiconductor devices like diodes, transistors , their characteristics and types of biasing	Re, Un, Ap
7.	CO6	Compare various number systems, logic gates etc.	Re, Un

PY1432 – Practicals (36 hours)

No. of credits: 4 **No. of hours per week: 2**

Course Outcome

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Complete understanding on various electricity magnetism experiments	Un, An, Ap
2.	CO2	Hands on training and gaining knowledge on optics experiments	Un, An, Ap

DEPARTMENT OF ZOOLOGY

ZO 1141
ANIMAL DIVERSITY I

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Identify and classify with examples the invertebrates	Un, Re
2.	CO2	Explain the organizational hierarchies and complexities of invertebrates	Un, Re
3.	CO3	Describe the evolutionary trends in external morphology and internal structure	Re, Un
4.	CO4	Analyze the various modes of adaptations in animals	Re, Un, Ap
5.	CO5	Describe general taxonomic rules on animal classification	Re, Un, Ap

ZO 1241
ANIMAL DIVERSITY II

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Identify and classify with examples the vertebrates	Un, Re
2.	CO2	Explain the organizational hierarchies and complexities of vertebrates	Un, Re
3.	CO3	Describe the evolutionary trends in external morphology and internal structure	Re, Un
4.	CO4	Analyze the various modes of adaptations in animals	Re, Un, Ap
5.	CO5	Organize the myriad organisms into three branches of Kingdom Animalia and forecast the classification category of given organism	Re, Un, Ap, C

ZO 1131
ANIMAL DIVERSITY I

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Identify and classify with examples the invertebrates	Un, Re
2.	CO2	Explain the organizational hierarchies and complexities of invertebrates	Un, Re
3.	CO3	Describe the evolutionary trends in external morphology and internal structure	Re, Un
4.	CO4	Analyze the various modes of adaptations in animals	Re, Un, Ap
5.	CO5	Describe general taxonomic rules on animal classification	Re, Un, Ap

ZO 1231
ANIMAL DIVERSITY II

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Identify and classify with examples the vertebrates	Un, Re
2.	CO2	Explain the organizational hierarchies and complexities of vertebrates	Un, Re
3.	CO3	Describe the evolutionary trends in external morphology and internal structure	Re, Un
4.	CO4	Analyze the various modes of adaptations in animals	Re, Un, Ap
5.	CO5	Organize the myriad organisms into three branches of Kingdom Animalia and forecast the classification category of given organism	Re, Un, Ap, C

ZO 1331
FUNCTIONAL ZOOLOGY

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Describe the structure and function of each system in the human body	Un, Re
2.	CO2	Describe common physiological disorders	Un, Re
3.	CO3	Discuss methods of preventing common lifestyle diseases	Re, Un
4.	CO4	Develop a balanced diet plan according to nutritional requirements	Re, Un, Ap, C

ZO 1431
APPLIED ZOOLOGY

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Identify various methodology and perspectives of applied branches of zoology for the possibilities of self-employment.	Un, Re
2.	CO2	Discuss the basic principles involved in the culture and breeding of common edible and ornamental fishes of Kerala and the art of aquarium keeping.	Un, Re
3.	CO3	Monitor and maintain apiculture as hobby or as an additional income	Re, Un, Ap
4.	CO4	Understand stem cell research and prenatal diagnostic techniques.	Re, Un
5.	CO5	Construct an ornamental fish culture unit for self employment	Re, Un, Ap, C

ZO 1432
Practical I
ANIMAL DIVERSITY I & II, FUNCTIONAL ZOOLOGY AND APPLIED ZOOLOGY

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand how to classify and identify animals	Un, Re
2.	CO2	Differentiate between different animal groups	Un, Re, An
3.	CO3	Understand different honey bee species, bee products, silk worm species and sericulture	Re, Un
4.	CO4	Prepare blood smear and identify the various cells.	Re, Un, Ap
5.	CO5	Design and management of an aquarium	C

Sl No.	Course Outcome No.	Course Outcome	Taxonomic Level
ZO 1341 **Experimental Zoology, Instrumentation, Biostatistics and Bioinformatics** **At the end of the course students achieve**			
1.	CO1	Basic knowledge on the principle concepts about biostatistics.	Un, Re
2.	CO2	Knowledge about hypothesis testing via some of the statistical distributions is achieved.	Un, Re
3.	CO3	Knowledge and awareness of the basic principles and concepts of biology, and computational biology	Re, Un, Ap
4.	CO4	Basics on existing software effectively to extract information from large databases and to use this information in computer modeling	Re, Un, Ap
5.	CO5	Understand the intersection of life and information sciences, and biological databasesand various tools in modelling and drug discovery	Re, Un
ZO 1441 **ECOLOGY, HABITAT DESTRUCTION & DISASTER MANAGEMENT** **At the end of the course students achieve**			
1	CO1	Get basic knowledge on ecosystem, food chain, food web and energy flow.	Un, Re
2	CO2	General awareness on pollution and their impacts.	Un, Re
3	CO3	Awareness about disasters, prevention and mitigation measures	Re, Un, Ap
4	CO4	About various types of anthropogenic pressures on ecosystem, related degradation and management measures.	Re, Un, Ap
5	CO5	Various types of anthropogenic pressures on ecosystem, related degradation and management measures.	Re, Un
ZO 1541 **CELL AND MOLECULAR BIOLOGY**			
1	CO1	Understand the principles of molecular biology and gene manipulation.	Un, Re
2	CO2	Students learn ultra-structure of prokaryotic and eukaryotic cells.	Un, Re
3	CO3	Students understands the mechanism of gene expression and gene regulation.	Re, Un, Ap
4	CO4	Students acquire scientific knowledge on cancer and ageing.	Re, Un, Ap
5	CO5	Students gets an awareness of bacterial recombination	Re, Un
ZO 1542 **GENETICS AND BIOTECHNOLOGY**			
1	CO1	Students get educated on the underlying genetic mechanism operating in human	Un, Re

		and state of the art of bio-techniques	
2	CO2	Students develop a proper understanding on the relation between heredity and variation.	Un, Re
3	CO3	Students become aware of different genetic syndromes and the possible ways toreduce its occurrence	Re, Un, Ap
4	CO4	Structure of gene is studied	Re, Un, Ap
5	CO5	Students develop a proper understanding on the relation between heredity and variation.	Re, Un, Ap
ZO1551.1 OPEN COURSE-PUBLIC HEALTH AND HYGIENE			
1	CO1	Students get knowledge and understanding of the wider determinants of health and ill-health	Un, Re
2	CO2	They get knowledge and understanding of the roles of people and agencies who undertake work in the promotion of public health	Un, Re
3	CO3	Students get an awareness of the stress management by yoga	Re, Un, Ap
4	CO4	They get a basic knowledge about the diet plan to be adopted by people of different age categories	Re, Un, Ap
5	CO5	Students understand the lifestyle diseases	Re, Un
ZO 1442 Practical I – Instrumentation, Animal Diversity I and Animal Diversity II			
1	CO1	Students learn anatomy by diping through simple dissections and mountings on permitted species.	Un, Re
2	CO2	Students learn the working principle of different scientific instruments.	Un, Re
3	CO3	Students become familiar with economically important species.	Re, Un, Ap
4	CO4	Studentsget first-hand experience in lab as well as outside	Re, Un, Ap
5	CO5	Students get familiarized with various organ systems by examining approved animals.	Re, Un
ZO1644 Practical II - Cell Biology, Genetics, Bioinformatics Biotechnology, Immunology and Microbiology			
1	CO1	To prepare and observe chromosomal arrangements during cell division	Un, Re
2	CO2	To study chromosomal aberrations in man	Un, Re
3	CO3	To gain broad knowledge on conventional biotechnological-procedures	Re, Un
4	CO4	To perform routine blood analysis.	Re, Un, Ap
5	CO5	To differentiate prokaryotic and eukaryotic cell	Re, Un

ZO 1543
IMMUNOLOGY & MICROBIOLOGY

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
6.	CO1	Understand the scope and importance of clinical immunology and mechanisms of immunology.	Un, Re
7.	CO2	Learn the malfunctioning and disorders of immune system and immune deficiency diseases.	Un, Re
8.	CO3	Learn transplantation and mechanism of graft rejection and retention.	Re, Un
9.	CO4	Understand the history of microbiology, the positive as well as negative aspects of microbes.	Re, Un, Ap
10.	CO5	Learn the economic importance(applied aspects)of microbes in industry.	Re, Un, Ap

ZO 1641
PHYSIOLOGY & BIOCHEMISTRY

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Develop a clear understanding of the correlation and coordination between the structure and function of different organs and organ systems of the body.	Un, Re
2.	CO2	Understand the physiology of different organ systems of the body.	Un, Re
3.	CO3	Understand the possible causes of abnormal physiology and the resultant diseases	Re, Un
4.	CO4	Understand correlation between diseases and the abnormal structure or improper functions	Re, Un, Ap

		of organs.	
5.	CO5	understand the structure and functions of bio-molecules and their role in metabolism.	Re, Un, Ap, C

ZO 1642
DEVELOPMENTAL BIOLOGY &EXPERIMENTAL BIOLOGY

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Study about the history of developmental biology and provide the students a bird's eye view of sophisticated embryological techniques.	Un, Re
2.	CO2	Study the various stages involved in the development of organisms.	Un, Re
3.	CO3	Study the initial developmental procedures involved in Amphioxus, Frog and chick	Re, Un
4.	CO4	Procure information on state- of- the art experimental procedures in embryology.	Re, Un, Ap
5.	CO5	Different control mechanisms of development including gene action are studied.	Re, Un, Ap

ZO 1643
ECOLOGY EVOLUTION & ZOOGEOGRAPHY

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	To study the physiological basis of behavior.	Un, Re
2.	CO2	Study the different types of communication system among animals.	Un, Re
3.	CO3	To get a concept on organic evolution.	Re, Un

4.	CO4	To get knowledge on the distribution of animals in the biosphere.	Re, Un, Ap
5.	CO5	Understandconcept on organic evolution and appreciate the different modes of energy efficient communication systems existing in the animal world	Re, Un, Ap, C

ZO 1651.1
VERMICULTURE & APICULTURE

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	To learn the basic procedure and methodology of vermiculture.	Un, Re
2.	CO2	To learn the scope and methodology of apiculture	Un, Re
3.	CO3	To promote self-reliance among educated youth	Re, Un
4.	CO4	To promote self employment among educated youth.	Re, Un, Ap, C

ZO 1645
PRACTICAL III
Physiology and Biological Chemistry, Molecular Biology and Biostatistics

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	To demonstrate and study basic principle in physiology.	Un, Re
2.	CO2	To learn clinical procedures for blood analysis	Un, Re
3.	CO3	To learn clinical procedures for urine analysis	Re, Un, Ap

4.	CO4	To make the student skillful in simple biochemical laboratory procedures.	Re, Un

ZO 1646
Practical IV
Developmental Biology , Ecology, Ethology, Evolution and Zoogeography

At the end of the course, the student will be able to:

S No.	Course Outcome No.	Course Outcome	Taxonomic Level
1.	CO1	Understand how to estimate O2, CO2, PH, Turbidity etc. of different water samples	Un, Re
2.	CO2	Study to identify various eggs, blastula, gastrula etc.	Un, Re, An
3.	CO3	Understand different ecological adaptations of various animals	Re, Un
4.	CO4	Study various soil organisms and marine plankton.	Re, Un, Ap
5.	CO5	Study different zoogeographical realms with fauna	C

PROGRAMME OUTCOME

Upon completion of the B Sc Degree Programme in Zoology, the students will be able to

Sl No.	PO Number	Programme Outcome
1.	**PO 1**	Gain knowledge and skill in the fundamentals of animal science and systematics of animal kingdom and understand the complex interactions among various living organisms
2.	**PO 2**	Understand good laboratory practices and safety, carry out experimental and biological techniques thus enhancing the technical skills for experimental purposes and gain the knowledge of modern equipments and tools
3.	**PO 3**	Understand about the environmental issues, conservation processes and its importance, pollution control and biodiversity and protection of endangered species
4.	**PO 4**	Understands about various concepts of genetics and its importance in human health, morphology and functional characteristics at cellular and sub-cellular (molecular) level and correlates the physiological processes of animals and relationship of organ systems
5.	**PO 5**	Analyse the relationships among animals, plants and microbes and apply the knowledge and understanding of Zoology to one's own life and work
6.	**PO 6**	To analyse complex interactions among the various animals of different phyla, their distribution and relationship with the environment and understand the complex evolutionary processes and behaviour of animals
7.	**PO 7**	Gain knowledge about research methodologies, develop insight and improve their analytical communication and commit to professional ethics and responsibilities in delivering the duties and skills of problem solving methods
8.	**PO 8**	Understand the importance of good health, various modes and agents of disease transmission, causative factors of communicable and non communicable diseases and advantages of personal hygiene and sanitation to improve personal and public health.
9.	**PO 9**	Gain knowledge of Agro based Small Scale industries like sericulture, fish farming, apiculture, poultry and cattle farming, vermicompost preparation and economic importance of agricultural pests and their control.
10.	**PO 10**	Apply the knowledge and understanding of Zoology to one's own and social life and recognize the scientific facts behind natural phenomena and to develop empathy and love towards the animals