

# CHRISTIAN COLLEGE, CHENGANNUR



*Programme & Course Outcome*

## List of Departments

1. *Botany*
2. *Chemistry*
3. *Mathematics*
4. *Physics*
5. *Zoology*
6. *English*
7. *Economics*
8. *History*
9. *Commerce*

## **1. DEPARTMENT OF BOTANY**

### **B. SC. BOTANY**

#### **PROGRAMME OUTCOME**

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

- Develop a scientific attitude with open mindedness, critical skills and curiosity.
- Develop skill in practical work, experiments and laboratory materials and equipments along with collections and interpretations of scientific data to contribute science.
- Understand scientific terms, concepts, facts, phenomenon and their relationship ability
- Make the students aware of natural resources and environment.
- Provide practical experience to students as a part of the course to develop scientific to work in the field of research and other fields of their own interests and to make them fit for society.
- Create enthusiasm to understand more about the beautiful planet earth and to give awareness to the public the need to protect the planet from all kinds of exploitation.
- Keep the scientific temper which the student acquired from the school level and to develop a research culture.

#### **PROGRAMME SPECIFIC OUTCOME**

- To understand and appreciate the role of biology in societal issues such as environment and biological resources, biodiversity, ethics and human health and diseases.
- To develop ability for the application of the acquired knowledge to improve agriculture and other related fields to make the country self reliant and sufficient.
- To enrich the students with the latest developments in the field of information technology, biotechnology, bioinformatics and other related fields of research and development.
- The students are expected to acquire knowledge of plant and related subjects so as to understand natural phenomenon manipulation of nature and environment in the benefit of human beings.

**COURSE OUTCOME**

Sem.	Course Code	Title of Course	Course Outcome
I	BO1141	<b>Angiosperm Anatomy and Reproductive Botany and Palynology</b>	<ul style="list-style-type: none"> <li>• Students are able to understand the complexities of cell wall organization, microscopic and sub microscopic structures.</li> <li>• Students can distinguish various anatomical features of monocots and dicots (stem and root) with respect to permanent tissues and tissue systems.</li> <li>• Identify and differentiate male and female gametophyte development in angiosperms.</li> <li>• Distinguish monocot and dicot embryo and the basic features of pollen grains.</li> </ul>
	BO1341	<b>Microbiology, Phycology, Mycology, Lichenology and Plant Pathology (Complimentary)</b>	<ul style="list-style-type: none"> <li>• Students are able to understand the complexities of cell wall organization, microscopic and sub microscopic structures.</li> <li>• Students can distinguish the anatomical features of monocots and dicots with respect to permanent tissues and tissue systems.</li> <li>• Identify and differentiate male and female gametophyte development in angiosperms. To identify the basic features of pollen grains.</li> </ul>
II	BO1221	<b>Methodology and Perspectives in Plant Science</b>	<ul style="list-style-type: none"> <li>• Students will be familiarized with the fundamental characteristics of Science.</li> <li>• Develops an idea about involvement of science in improvement of human life.</li> <li>• Create awareness of scientific approach towards life and learns the values of ethics in science. Develops skills to interpret scientific data using basic statistical methods.</li> <li>• Create skills to prepare specimens for microscopic and gross anatomical studies and familiarize with different microscopic methods for sample analysis.</li> <li>• Students become able to prepare buffers, measure pH, separate plant pigments and construct absorption spectrum of a sample</li> </ul>
	BO1231	<b>Phycology, Mycology, Lichenology, Bryology, Pteridology, Gymnosperms and Plant Pathology (Complimentary)</b>	<ul style="list-style-type: none"> <li>• Student can identify and prepare micro preparations of lower plant groups like algae, fungi and lichen.</li> <li>• Awareness created among students about various microbes, structure and economic importance.</li> <li>• Can identify various plant diseases, etiology of pathogens and control measures.</li> <li>• Able to prepare natural fungicides like tobacco decoction and Bordeaux mixture</li> </ul>

III	<b>BO 1341 Microbiology, Phycology, Mycology, Lichenology and Plant Pathology</b>	<ul style="list-style-type: none"> <li>• Students can prepare micro preparations and identify the thallus and reproductive structures of lower plant groups like algae, fungi and lichen.</li> <li>• Awareness created among students about various microbes, structure and economic importance. Students can use effectively the methodology to isolate and identify bacteria present in curd and root nodules.</li> <li>• Can identify various plant diseases, etiology of pathogens and control measures.</li> <li>• Able to prepare fungicides like tobacco decoction and Bordeaux mixture</li> </ul>
	<b>BO1331 Systematic Botany, Economic Botany, Ethno Botany and Plant Breeding (Complimentary)</b>	<ul style="list-style-type: none"> <li>• Ability to identify different types of inflorescences, flowers and fruits, their arrangement and relative position.</li> <li>• Familiarization of basic rules of Angiosperm classification and different types of classification.</li> <li>• Identification of plants to their respective families.</li> <li>• Understanding ethnobotanical and pharmacological importance of plants.</li> </ul>
IV	<b>BO 1441 Bryology Pteridology, Gymnosperms and Paleobotany</b>	<ul style="list-style-type: none"> <li>• Students are able to make micro preparations of thallus and reproductive structures of as well as better understanding of the life cycle of selected members of Bryophytes, Pteridophytes and Gymnosperms.</li> <li>• Can understand the economic and ecologic importance of lower groups of plant kingdom. Better understanding of fossilization and importance of Palaeobotany.</li> <li>• Identify various parts of fossil plants through micro slides</li> </ul>
	<b>BO1431 Plant Physiology, Plant Ecology, Horticulture and Plant Biotechnology (Complimentary)</b>	<ul style="list-style-type: none"> <li>• Students get a clear understanding of the basic concepts of Physiology and Biochemistry. Understands photosynthesis, respiration, plant growth regulators, nitrogen metabolism and stress physiology.</li> <li>• Develops awareness about natural resources, its conservation and importance of sustainable lifestyles. Students are familiarized in horticulture implements and methods of gardening.</li> <li>• Better understanding of commercial horticulture, flower arrangement, cut flowers. Can understand about land scaping, fertilizers and Plant protection.</li> <li>• Students are familiarized in preparation of culture solutions, sterilization, inoculation of explants, induction of callus and morphogenesis</li> </ul>

<b>V</b>	<b>BO1432 Lab Practical (Complimentary)</b>	<ul style="list-style-type: none"> <li>• Create skills to prepare specimens for microscopic and gross anatomical studies and familiarize with different microscopic methods.</li> <li>• Students are able to distinguish dicot and monocot plants by identifying the different cell types and their presence or absence in different plants.</li> <li>• Students can differentiate the reproductive structure in plants.</li> <li>• Students are able to identify selected members of Algae, Fungi, Lichen, Bryophytes, Pteridophytes and Gymnosperms and different plant diseases.</li> <li>• Understand various physiological functions of plants through experiments.</li> <li>• Know the basic rules and types of Angiosperm classification. Identification of plants to their respective families.</li> </ul>
	<b>BO1541 Angiosperm morphology, Systematic Botany, Economic Botany, Ethno Botany and Pharmacognosy</b>	<ul style="list-style-type: none"> <li>• Ability to identify different types of inflorescences, flowers and fruits, their arrangement and relative position.</li> <li>• Familiarization of basic rules of Angiosperm classification and different types of classification.</li> <li>• Preparation and maintenance of Herbarium.</li> <li>• Identification of plants to their respective families. Understanding of ethno botanical and pharmacological significance of plants.</li> </ul>
	<b>BO1542 Environmental Studies and Phytogeography</b>	<ul style="list-style-type: none"> <li>• Develops awareness about natural resources, its conservation and importance of sustainable lifestyles.</li> <li>• Understands and identify different ecosystems and ecosystem processes.</li> <li>• Develop deep understanding about biodiversity and importance of its conservation.</li> <li>• Develop skills to identify polluted sites, its major pollutants and recognize the need to mitigate environmental pollution.</li> <li>• Awareness about types of disasters and strategies to overcome and reduce the impact.</li> <li>• Identify the importance of phytogeographical sites in India</li> </ul>
	<b>BO 1543 Cell Biology, Genetics and Evolutionary Biology</b>	<ul style="list-style-type: none"> <li>• Students have a better understanding of cell structure and cell organelles.</li> <li>• Can prepare micro slides of cell divisions and identify various stages of mitosis and meiosis.</li> <li>• Able to work out problems in classical genetics, modified mendelian ratios and population genetics.</li> <li>• Able to understand genetic diseases and their inheritance.</li> <li>• Understand evolutionary principles, theories and methods of speciation</li> </ul>

VI	<b>BO 1544 Lab Practical I</b>	<ul style="list-style-type: none"> <li>• Students are able to understand the complexities of cell.</li> <li>• Students can distinguish various anatomical features of angiosperms.</li> <li>• Identify and differentiate male and female gametophyte, monocot and dicot embryo and the basic features of pollen grains.</li> </ul>
	<b>BO 1545 Lab Practical II</b>	<ul style="list-style-type: none"> <li>• Prepare micro preparations of algae, fungi, lichen, Bryophytes, Pteridophytes and Gymnosperms.</li> <li>• Awareness about various microbes, structure and economic importance.</li> <li>• Effectively use methodology to isolate and identify bacteria present in curd &amp; root nodules.</li> <li>• Identify various plant diseases, able to prepare fungicides.</li> <li>• Develops an idea about involvement of science in improvement of human life.</li> <li>• Create awareness of scientific approach towards life and values of ethics in science.</li> <li>• Develops skills to interpret scientific data using basic statistical methods.</li> <li>• Create skills to prepare specimens for microscopic methods.</li> <li>• Ability to prepare buffers, measure pH, separate plant pigments and construct absorption spectrum of a sample. Identify various parts of fossil plants through micro slides</li> </ul>
	<b>BO1551.1 Horticulture (Open Course)</b>	<ul style="list-style-type: none"> <li>• Students are familiarized in horticulture implements and methods of gardening.</li> <li>• Better understanding of commercial horticulture, flower arrangement, cut flowers.</li> <li>• Can understand about land scaping, fertilizers and Plant protection</li> </ul>
	<b>BO1641 Plant Physiology and Biochemistry.</b>	<ul style="list-style-type: none"> <li>• Students get a clear understanding of the basic concepts of Physiology and Biochemistry.</li> <li>• Understands photosynthesis, respiration, plant growth regulators, nitrogen metabolism and stress physiology.</li> <li>• Familiarization of basic physiological practical procedures.</li> <li>• Students get the basic knowledge about the macromolecules and their overall role in cell metabolism; and secondary plant products.</li> <li>• Identification of protein, reducing and non reducing sugar by qualitative tests.</li> </ul>
	<b>BO1642 Molecular Biology, General Informatics and Bioinformatics</b>	<ul style="list-style-type: none"> <li>• Understands DNA as genetic material, develops awareness about chemical composition and different types of DNA including their replication method.</li> <li>• Students understand various molecular aspects of gene expression and regulation of genes.</li> <li>• Develops awareness about various academic services applied for their studies.</li> <li>• Awareness about features of a computer, different application and system software.</li> <li>• Recognizes need for safe use of internet and also become aware about health issues related to over usage of computers and mobile phones as well as cyber crimes and cyber laws.</li> <li>• Students will be familiarized to molecular phylogeny, Biological Databases, Sequence analysis, Genomics, Proteomics &amp; Comparative genomics</li> </ul>

<b>BO1643 Plant Breeding, Horticulture, and Research Methodology</b>	<ul style="list-style-type: none"> <li>• Students able to identify and use various horticultural implements.</li> <li>• Can propagate plants through grafting, budding and layering &amp; can prepare manures, fungicides etc.</li> <li>• Can effectively do plant breeding methods and understands their practical application in betterment of food crops.</li> <li>• Can devise an experimental design and carry out a project. Students trained about various steps for the conduct of a research project and write a project report</li> </ul>
<b>BO1644 Lab Practical III</b>	<ul style="list-style-type: none"> <li>• Ability to identify different types of inflorescences, flowers and fruits.</li> <li>• Preparation and maintenance of Herbarium. Identification of plants to their respective families. Identify ethnobotanically and pharmacological important of plants.</li> <li>• Understands and identify different ecosystems and ecosystem processes.</li> <li>• Have skills to identify polluted sites, its major pollutants etc. Identify the importance of phytogeographical sites in India.</li> <li>• Students have a better understanding of cell structure and cell organelles. Can prepare micro slides of cell divisions and identify various stages of mitosis and meiosis.</li> <li>• Able to work out problems in classical genetics, modified mendelian ratios and population genetics.</li> <li>• Able to understand genetic diseases and their inheritance, understand evolutionary principles and theories.</li> </ul>
<b>BO1645 Lab Practical IV</b>	<ul style="list-style-type: none"> <li>• Familiarization of basic physiological practical procedures related plant physiological functions.</li> <li>• Identification of protein, reducing and non reducing sugar by qualitative tests.</li> <li>• Know about features of a computer, different application and system software.</li> <li>• The safe use of internet and also become aware about health issues related to over usage of computers and mobile phones as well as cyber crimes and cyber laws.</li> <li>• Students will be familiarized to molecular phylogeny, Biological Databases, Sequence analysis, Genomics, Proteomics &amp; Comparative genomics.</li> <li>• Students able to identify and use various horticultural implements and can propagate plants through grafting, budding and layering &amp; can prepare manures, fungicides etc.</li> <li>• Can effectively do plant breeding methods like hybridization.</li> <li>• Students are familiarized in preparation of culture solutions, sterilization, inoculation of explants, induction of callus and morphogenesis. Use of equipments and tools in biotechnology.</li> </ul>



	<p><b>BO1651 Biotechnology and Nano biotechnology (Elective Course I)</b></p>	<ul style="list-style-type: none"> <li>• Students are familiarized in preparation of culture solutions, sterilization, inoculation of explants, induction of callus and morphogenesis.</li> <li>• They are familiarized in biotechnological tools like RFLP, RAPD and PCR techniques. Use of equipments and tools in biotechnology.</li> <li>• Understanding of ethical and legal issues in biotechnology and basic knowledge about IPR.</li> <li>• Better understanding of nanosystems, biosensors and application of nanotechnology in biological systems</li> </ul>
	<p><b>BO1646 Project</b></p>	<ul style="list-style-type: none"> <li>• The ultimate test devised to assess the research prowess of the students.</li> <li>• They are required to devise an experimental design and carry out a project.</li> <li>• Students trained about various steps for the conduct of a research project and trained on how to write a project report.</li> </ul>

## 2. DEPARTMENT OF CHEMISTRY

### B.SC. CHEMISTRY

#### PROGRAMME OUTCOME

At the end of this programme, students will have:

- An in-depth understanding of the basic concepts of Chemical Sciences which will enable them with tools needed for the practice of Chemistry.
- Detailed knowledge of the terms, concepts, methods, principles and experimental techniques of Chemistry.
- Skill in problem solving, critical thinking and analytical reasoning as applied to scientific problems.
- Proficient in the Chemistry lab with the ability to follow and understand general lab practice guidelines and safety measures, perform qualitative and quantitative chemical analysis, chemical synthesis and use modern chemical instrumentation.

#### COURSE OUTCOME

Sem.	Course Code	Title of The Course	Course Outcome
I	CH1141	<b>Inorganic Chemistry I</b>	<ul style="list-style-type: none"> <li>• Recognize structure of atom, dual character of electron, importance of hydrogen, its similarities and dissimilarities with other elements in the periodic table and as a fuel of next generation</li> <li>• Familiarity with the S- block elements in the periodic table</li> <li>• Recognize the importance of non-aqueous solvents and the difference between acids and bases, about the environment and causes of environmental pollution and its remedies -about causes of water pollution and its remedies</li> </ul>
II	CH1221	<b>Methodology and Perspectives of Sciences and General Informatics</b>	<ul style="list-style-type: none"> <li>• Understand safety measures in the laboratory.</li> <li>• Understand the methodology and perspectives of Science and the importance in the development of culture.</li> <li>• Able to understand scientific laws, and importance of models - ,simulations and virtual testing in Chemistry</li> <li>• Understand about the basic ideas of interdisciplinary areas involving Chemistry</li> <li>• Understand about Information Technology and Cheminformatics</li> <li>• Learn about Qualitative and Quantitative analysis in Chemistry</li> </ul>

III	CH1341	<b>Inorganic Chemistry II</b>	<ul style="list-style-type: none"> <li>• Provide a necessary foundation for Inorganic Chemistry</li> <li>• Build knowledge in Chemical bonding and compounds of non-transition elements</li> <li>• Give an elementary idea about nanomaterials</li> <li>• Lay a strong foundation in the area of Nuclear Chemistry</li> </ul>
	CH 1441	<b>Organic Chemistry I</b>	<ul style="list-style-type: none"> <li>• Familiarise basic concepts of Organic Chemistry</li> <li>• Introduce the mechanisms of organic reactions.</li> <li>• Understand the stereo chemical aspects of organic reactions.</li> <li>• Familiarise the static, photochemical reactions and concept of aromaticity.</li> <li>• Know about the theory of colour and dyes</li> </ul>
IV	CH1442	<b>Lab Practical</b>	<ul style="list-style-type: none"> <li>• Practice the qualitative inorganic analysis using micro scale methods of a mixture containing two acidic and two basic radicals</li> <li>• Prepare inorganic complexes in normal laboratory conditions</li> </ul>
	CH 1541	<b>Physical Chemistry I</b>	<ul style="list-style-type: none"> <li>• Gain exposure and practice in the area of different state of matter like gaseous state, liquid state and solid state.</li> <li>• Understand the Laws of Thermodynamics</li> <li>• Understand the chemistry of bulk systems</li> <li>• Understand Abnormal molecular mass, determination of degree of dissociation and association</li> <li>• Be aware of group theory and liquid crystals</li> </ul>
	CH1542	<b>Inorganic Chemistry III</b>	<ul style="list-style-type: none"> <li>• Understood the classification of organometallic compounds and their role in organic synthesis</li> <li>• Knew about the role of metal ions in biological systems and the chemistry behind the oxygen carrying role of haemoglobin</li> <li>• Understood about the different steps in the separation of metals from their ores. They knew about different instrumental methods of analysis like tg, dta and dsc</li> <li>• Familiarise the concept of co-ordination chemistry.</li> </ul>
V	CH1543	<b>Physical Chemistry II</b>	<ul style="list-style-type: none"> <li>• Familiarise Spectroscopic techniques</li> <li>• Understand the basic concepts of quantum mechanics</li> <li>• Understand the basic concepts of statistical thermodynamics</li> <li>• Able to derive essential methodological relationship in thermodynamics, quantum mechanics and spectroscopy.</li> </ul>

VI	<b>CH1551.2</b>	<b>Fundamentals of Chemistry &amp; Its Applications to Everyday Life (Open course)</b>	<ul style="list-style-type: none"> <li>• Understand the evolution of Chemistry</li> <li>• Understand the role of Chemistry as a central science connecting Physics, Biology and other branches of science.</li> <li>• Familiarise the Periodic table</li> <li>• Develop an understanding of Chemicals used in daily life.</li> </ul>
	<b>CH1544</b>	<b>Inorganic Volumetric Analysis (Lab)</b>	<ul style="list-style-type: none"> <li>• Prepare solutions of different concentrations</li> <li>• Understand the method standardization and estimation of solutions</li> <li>• Familiar with the quantitative analysis – volumetric analysis</li> </ul>
	<b>CH1545</b>	<b>Physical Chemistry Experiments (Lab)</b>	<ul style="list-style-type: none"> <li>• Understand the experiment and calculation of molecular masses of solute using depression in freezing point method</li> <li>• Familiar with conduct metric titrations and potentiometric titrations</li> <li>• Able to find out the critical solution temperature of phenol-water system</li> </ul>
	<b>CH1641</b>	<b>Organic Chemistry II</b>	<ul style="list-style-type: none"> <li>• Understand about the methods of preparation and properties of alcohols, aldehydes, ketones and carboxylic acids</li> <li>• Familiarise with the standard elucidation of natural products</li> <li>• Understand about the mechanism of several organic reactions and interconversions</li> <li>• Understand the difference between monosaccharide, disaccharides and polysaccharides in Carbohydrates</li> </ul>
	<b>CH1642</b>	<b>Organic Chemistry III</b>	<ul style="list-style-type: none"> <li>• Become experts in the identification of organic compounds using spectroscopy.</li> <li>• Familiarise with basic polymers and dyes.</li> </ul>
	<b>CH1643</b>	<b>Physical Chemistry III</b>	<ul style="list-style-type: none"> <li>• Understanding basics of electrochemistry and its importance to modern chemistry and technology.</li> <li>• Understanding various types of reactions and different factors that determine the rate of chemical changes.</li> <li>• Basic idea about diagrams</li> <li>• Elementary idea about photochemistry.</li> </ul>
	<b>CH1644</b>	<b>Organic Chemistry Experiments (Lab)</b>	<ul style="list-style-type: none"> <li>• Able to find out the melting and boiling points of different substances</li> <li>• Practice to prepare different organic compounds</li> <li>• Understand the qualitative organic analysis</li> </ul>
	<b>CH1645</b>	<b>Gravimetry (Lab)</b>	<ul style="list-style-type: none"> <li>• Be able to understand the difference between volumetric and gravimetric analysis</li> <li>• Get practice on gravimetric analysis</li> </ul>

	<b>CH1661.4 (Elective)</b>	<b>Biochemistry</b>	<ul style="list-style-type: none"> <li>• Overview of Blood, Urine</li> <li>• Understand the respiration</li> <li>• Know about Kidney Functions, Digestion and Absorption of Food</li> <li>• Knowledge of Biochemical Techniques</li> </ul>
	<b>CH1646</b>	<b>Chemistry Project &amp; Factory Visit</b>	<ul style="list-style-type: none"> <li>• Inculcate proficiency to identify appropriate Project.</li> <li>• Familiarise the preparation of project report and its presentation</li> <li>• Study tour in a factory or research institute help the student to visualize the</li> <li>• Chemical reactions and understand the working of sophisticated instruments.</li> </ul>
<b>Physics Major (Complementary Course)</b>			
<b>I</b>	<b>CH1131 .1</b>	<b>Principles of Chemistry</b>	<ul style="list-style-type: none"> <li>• Explain about the structure of atom and electronic configuration</li> <li>• Studied about the different types of bonding in atoms</li> <li>• Understand the basis of radioactivity</li> <li>• Came to know about the theory of volumetric analysis – Acid- Base titration, permanganometry, iodometry etc</li> </ul>
<b>II</b>	<b>CH1231 .1</b>	<b>Physical Chemistry I</b>	<ul style="list-style-type: none"> <li>• Deals about the First and second law of Thermodynamics</li> <li>• Explain about the heat changes taking place during Chemical reactions</li> <li>• Understand about reversible reactions and chemical equilibrium</li> <li>• Came to know about concepts of acids and bases, pH and its determination.</li> </ul>
<b>III</b>	<b>CH1331.1</b>	<b>Physical Chemistry II</b>	<ul style="list-style-type: none"> <li>• Students identify why real gases are deviating from ideal behaviour.</li> <li>• Understand the crystal systems</li> <li>• Study the structure of NaCl and KCl.</li> <li>• Develop concept of catalyst and photochemistry</li> <li>• Basic idea of group theory</li> <li>• Understand about emf, standard electrodes, fuel cells and potentiometric Titrations</li> </ul>
<b>IV</b>	<b>CH1431.1</b>	<b>Spectroscopy and Material Chemistry</b>	<ul style="list-style-type: none"> <li>• Students will be able to identify compounds using spectroscopy</li> <li>• Able to understand coordination Chemistry and Metallurgy</li> <li>• Understand the different methods used to separate metals from their ores</li> <li>• Study about the preparation and characterisation of nano materials</li> </ul>
<b>I, II, III &amp; IV</b>	<b>CH1432.1</b>	<b>Chemistry Practical (Lab Course)</b>	<ul style="list-style-type: none"> <li>• Study the methods for the inorganic qualitative analysis</li> <li>• Able to separate and identify Cations from mixtures</li> <li>• Study the different methods for volumetric analysis</li> </ul>

## Botany Major (Complementary Course)

I	<b>CH1131.3</b>	<b>Theoretical Chemistry</b>	<ul style="list-style-type: none"> <li>• Elucidate the structure of atom and electronic configuration</li> <li>• Study the different types of bonding in molecules</li> <li>• Understand the environment and causes of environmental pollution and its remedies</li> <li>• Know about the theory of volumetric analysis</li> </ul>
II	<b>CH1231.3</b>	<b>Inorganic and Bioinorganic Chemistry</b>	<ul style="list-style-type: none"> <li>• Understand the basis of organometallics</li> <li>• Lay a strong foundation in the area of Nuclear Chemistry</li> <li>• Study the application of metal complexes in qualitative and quantitative analysis</li> <li>• Understand the basis of bioinorganic Chemistry</li> </ul>
III	<b>CH1331.3</b>	<b>Physical Chemistry</b>	<ul style="list-style-type: none"> <li>• Study about Colloids and its properties</li> <li>• Understand the basis of Chemical kinetics</li> <li>• Understand the basis of spectroscopy</li> <li>• Understand the concept of Molarity and Molality</li> </ul>
IV	<b>CH1431.3</b>	<b>Organic Chemistry</b>	<ul style="list-style-type: none"> <li>• Learn different types of chromatographic techniques</li> <li>• Know about the synthesis of proteins from aminoacids</li> <li>• Study about oils, fats, alkaloids vitamins and terpenes, dyes and drugs</li> <li>• Familiarise the cleaning action of soaps and detergents</li> <li>• Basic idea about stereochemistry</li> </ul>
I, II, III & IV	<b>CH1432.3</b>	<b>Inorganic Quantitative Analysis &amp; Organic Quantitative Analysis (Lab Course)</b>	<ul style="list-style-type: none"> <li>• Study the methods for the organic qualitative analysis.</li> <li>• Able to identify organic substances</li> <li>• Study volumetric analysis</li> </ul>

<b>Zoology Major (complementary)</b>			
<b>I</b>	<b>CH1131.4</b>	<b>Theoretical Chemistry</b>	<ul style="list-style-type: none"> <li>• Understand the structure of atom and electronic configuration.</li> <li>• Studied about the different types of bonding in atoms</li> <li>• Understand Rock dating, Stability of atom, Atomic fission, atomic fusion</li> <li>• Came to know about the theory of volumetric analysis</li> </ul>
<b>II</b>	<b>CH1231.4</b>	<b>Inorganic and Bioinorganic Chemistry</b>	<ul style="list-style-type: none"> <li>• Understand the basis of organometallics</li> <li>• Develop a strong foundation in the area of Nuclear Chemistry</li> <li>• Study the application of metal complexes in qualitative and quantitative analysis</li> <li>• Know about the role of metal ions in biological systems</li> </ul>
<b>III</b>	<b>CH1331.4</b>	<b>Organic Chemistry</b>	<ul style="list-style-type: none"> <li>• Understand the mechanisms in organic substitution reactions</li> <li>• Basic idea about stereochemistry</li> <li>• Understand the basics of polymerisation</li> </ul>
<b>IV</b>	<b>CH1431.4</b>	<b>Physical Chemistry</b>	<ul style="list-style-type: none"> <li>• Understand the speed of chemical reaction and methods used to increase speed of reactions.</li> <li>• Understand the basis of spectroscopy</li> <li>• Understand the basic instrumental methods of chemical analysis</li> </ul>
<b>I, II, III &amp; IV</b>	<b>CH1432.4</b>	<b>Inorganic Quantitative Analysis &amp; Organic Quantitative Analysis (Lab Course)</b>	<ul style="list-style-type: none"> <li>• Study the methods for the organic qualitative analysis.</li> <li>• Develop the ability to identify organic substances</li> <li>• Study volumetric analysis</li> </ul>

**M.SC. ANALYTICAL CHEMISTRY****PROGRAMME OUTCOME**

At the end of this programme, students will demonstrate:

- In-depth knowledge of the fundamental theoretical concepts and experimental methods in Chemistry and have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistry.
- Expert knowledge of a well defined area of research with in Chemistry and will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments.
- Clear understanding of the results of scientific work in oral, written and electronic formats to both scientists and the public at large.
- Understanding of the relationship of Chemistry and other disciplines and applications of Chemistry.

**COURSE OUTCOME**

Sem.	Course Code	Title of The Course	Course Outcome
I	CL 211	<b>Inorganic Chemistry I</b>	<ul style="list-style-type: none"> <li>• Develop an understanding of the Theories of metal complexes</li> <li>• Understand Molecular symmetry and its applications</li> <li>• Understand the Chemistry of environment</li> <li>• Understand the analytical principles involved in chemistry</li> <li>• Understand the concept of nanochemistry</li> </ul>
	CL 212	• <b>Organic Chemistry I</b>	<ul style="list-style-type: none"> <li>• Familiarise the Stereochemistry of organic compounds</li> <li>• Know about the Structure, reactivity and intermediates</li> <li>• Understand Elimination and substitution reactions</li> <li>• Comprehend the role of Reagents in organic synthesis</li> </ul>
	CL 213	• <b>Physical Chemistry I</b>	<ul style="list-style-type: none"> <li>• Grasp the Postulates of Quantum Mechanics</li> <li>• Know about Classical Thermodynamics</li> <li>• Theories of reaction rates and the Kinetics of complex reactions</li> </ul>
	CL 214	• <b>Inorganic Practicals I</b>	<ul style="list-style-type: none"> <li>• Awareness of the Separation and identification of rare/less familiar cations</li> <li>• Know the complexometric analysis</li> <li>• Expertise in Colorimetric estimation of Cr, Fe, Mn, Ni, Cu etc.</li> <li>• Ability to Prepare metal complexes</li> </ul>



II	CL 215	<b>Organic Practicals I</b>	<ul style="list-style-type: none"> <li>• Familiarity with separation and identification of organic compounds</li> <li>• Ability to separate a mixture by column chromatography</li> <li>• Preparation of compounds by two stages</li> </ul>
	CL 216	<b>Physical Practicals I</b>	<ul style="list-style-type: none"> <li>• Know the determination of the composition of unknown mixture</li> <li>• Be able to determination of the concentration of given strong acid/alkali.</li> <li>• Find out the <math>K_f</math> of solid solvent, molar mass of non-volatile solute, mass of solvent and composition of given solution</li> </ul>
	CL 221	<b>Inorganic Chemistry II</b>	<ul style="list-style-type: none"> <li>• Learn the Sulphur, nitrogen, phosphorus and boron compounds</li> <li>• Understand Spectral and magnetic properties of transition metal complexes</li> <li>• Study the concepts of Crystalline state</li> <li>• Understand the differences and similarities of Lanthanides and actinide</li> </ul>
	CL 222	<b>Organic Chemistry II</b>	<ul style="list-style-type: none"> <li>• Knowledge on Physical organic chemistry</li> <li>• Thorough understanding of Molecular rearrangement and transformation reactions</li> <li>• Familiarization of Aromaticity and symmetry controlled reactions</li> <li>• In-depth knowledge of Organic photochemistry</li> <li>• Detailed study of Chemistry of natural products and bio molecules</li> </ul>
	CL 223	<b>Physical Chemistry II</b>	<ul style="list-style-type: none"> <li>• Thorough knowledge Quantum Chemistry</li> <li>• General awareness about Theory and applications Spectroscopy</li> <li>• Acquire knowledge about Applications of Thermodynamics</li> <li>• Understand Statistical Mechanics</li> <li>• Students get knowledge on the Electrochemistry</li> </ul>
	CL 214	<b>Inorganic Practicals I</b>	<ul style="list-style-type: none"> <li>• Awareness about separation and identification of rare cations</li> <li>• Understand complexometric as well as colorimetric analysis and inorganic preparations.</li> </ul>
	CL 215	<b>Organic Practicals I</b>	<ul style="list-style-type: none"> <li>• Understand Separation and identification of organic compounds using chromatographic techniques.</li> <li>• Learn preparation of compounds by two stages</li> <li>• Able to analysis of synthesized compounds by various spectroscopic methods</li> </ul>
	CL 216	<b>Physical Practicals I</b>	<ul style="list-style-type: none"> <li>• Practice experimental techniques using adsorption, kinetics, phase rule, distribution law, transition temperature, thermo chemistry etc.</li> <li>• Learn determination of the concentration of given strong acid/alkali by kinetic measurements</li> </ul>

III	CL 231	<b>Inorganic Chemistry III</b>	<ul style="list-style-type: none"> <li>Advanced knowledge about Organ metallic compounds</li> <li>Thorough understanding about Reactions of metal complexes</li> <li>Knowledge about Bioinorganic chemistry</li> <li>Familiarization about Spectroscopic Methods in Inorganic Chemistry</li> <li>In-depth knowledge about Nuclear chemistry</li> </ul>
	CL 232	<b>Organic Chemistry III</b>	<ul style="list-style-type: none"> <li>Thorough understanding on UV-Vis and IR Spectroscopy and Mass spectrometry</li> <li>Knowledge on NMR spectroscopy and structural elucidation</li> <li>In-depth knowledge on Organic synthesis, Methods in organic synthesis.</li> <li>Thorough knowledge about Separation techniques</li> </ul>
	CL 233	<b>Physical Chemistry III</b>	<ul style="list-style-type: none"> <li>Advanced knowledge about Chemical Bonding</li> <li>In-depth knowledge about Computational Chemistry</li> <li>Knowledge about various spectroscopic techniques and its application</li> <li>Thorough knowledge about Statistical Mechanics</li> <li>Awareness about Electro Analytical and Spectrophotometric methods.</li> </ul>
	CL 234	<b>Inorganic Practicals II</b>	<ul style="list-style-type: none"> <li>Understanding of Estimation of simple mixture of ions by volumetric and Gravimetric methods</li> <li>Understand analysis of typical alloys and ores; Ion exchange separation of binary mixtures</li> <li>Practice spectral Interpretation of metal complexes using IR, UV-Vis. Spectral data</li> <li>Interpretation of TG and DTA curves of metal oxalate hydrates.</li> </ul>
	CL 235	<b>Organic Practicals II</b>	<ul style="list-style-type: none"> <li>Learn volumetric estimation of organic compounds, Colorimetric estimation, Spectral identification, Separations of mixtures by Paper Chromatography</li> <li>Awareness about Single stage preparation of organic compounds by green chemistry</li> </ul>
	CL 236	<b>Physical Practicals II</b>	<ul style="list-style-type: none"> <li>Learn various physical chemistry experimental techniques using Conductometry, Potentiometry, ph metric titrations, Spectrophotometry, Polarimetry, Polarography, Surface tension, Viscosity and Refractometry</li> </ul>

IV	<b>CL 241</b>	<b>Chemistry of Advanced Materials</b>	<ul style="list-style-type: none"> <li>• Awareness of Nanomaterials</li> <li>• Knowledge of basic tools and applications of nanotechnology</li> <li>• Thorough understanding of Polymerization processes</li> <li>• Knowledge on Specialty Polymers</li> <li>• Familiarize Smart materials</li> </ul>
	<b>CL 242</b>	<b>Applied Analytical Chemistry</b>	<ul style="list-style-type: none"> <li>• Knowledge of various separation techniques</li> <li>• Understand the field of forensic science</li> <li>• Understand various instrumental methods for chemical analysis</li> <li>• Knowledge of different thermal and radiochemical methods of analysis</li> </ul>
	<b>CL 234</b>	<b>Inorganic Practicals II</b>	<ul style="list-style-type: none"> <li>• Helps develop research aptitude, understand methodology of research.</li> <li>• Estimation of simple mixture of ions by volumetric and Gravimetric methods.</li> <li>• Analysis of typical alloys and ores</li> <li>• Ion exchange separation of binary mixtures.</li> <li>• Spectral Interpretation of metal complexes using IR, UV-Vis. Spectral data.</li> <li>• Interpretation of TG and DTA curves of metal oxalate hydrates.</li> </ul>
	<b>CL 235</b>	<b>Organic Practicals II</b>	<ul style="list-style-type: none"> <li>• Volumetric estimation of Aniline, Phenol, glucose. Ascorbic acid and Aspirin</li> <li>• Colorimetric estimation</li> <li>• Single stage preparation of organic compounds by green chemistry</li> </ul>
	<b>CL 236</b>	<b>Physical Practicals II</b>	<ul style="list-style-type: none"> <li>• Knowledge of Conductometry and Potentiometry</li> <li>• Understanding of Precipitation titrations, ph metric titrations, Spectrophotometry</li> </ul>
	<b>CL 243(a)</b>	<b>Dissertation</b>	<ul style="list-style-type: none"> <li>• Practical application of theoretical knowledge acquired over the semesters in the form of a specific work.</li> </ul>
	<b>CL 243(b)</b>	<b>Visit to R &amp; D Centre</b>	<ul style="list-style-type: none"> <li>• Visual understanding</li> </ul>
		<b>Comprehensive viva-voce</b>	<ul style="list-style-type: none"> <li>• Testing of theoretical and practical knowledge acquired over the semesters.</li> </ul>

### **3. DEPARTMENT OF MATHEMATICS & STATISTICS**

#### **B.SC MATHEMATICS**

#### **PROGRAMME OUTCOME**

At the end of this programme, students will:

- Be able to solve arithmetic, algebraic, geometric, spatial, and statistical expressions, equations, functions, and problems using appropriate technology.
- Represent mathematical information numerically, symbolically, graphically, verbally, and visually using appropriate technology.
- Develop mathematical and statistical models such as formulas, functions, graphs, tables, and schematics using appropriate technology.
- Interpret mathematical and statistical models such as formulas, functions, graphs, tables, and schematics, drawing conclusions and making inferences based on those models.
- Explore mathematical systems utilizing rich experiences that encourage independent, nontrivial, constructive exploration in mathematics.
- Communicate mathematical thoughts and ideas clearly and concisely to others in the oral and written form.

#### **COURSE OUTCOME**

Sem.	Course Code	Title Of The Course	Course Outcome
I	MM 1141	Methods of Mathematics	<ul style="list-style-type: none"> <li>• Knowledge about Theory of Numbers and its application to cryptography.</li> <li>• Understanding of Functions, graphs, concept of limits, continuity and differentials</li> <li>• Impart knowledge on Conic sections, sketching of conics.</li> </ul>
II	MM 1221	Foundations of Mathematics	<ul style="list-style-type: none"> <li>• Understanding of Foundations of Algebra</li> <li>• Impart knowledge on Foundations of Calculus and Analytic geometry and Polar coordinates in coordinate geometry</li> </ul>
III	MM 1341	Algebra And Calculus – I	<ul style="list-style-type: none"> <li>• Knowledge about Basic concepts of abstract Algebra.</li> <li>• Familiarity with Vectors in three dimensional space.</li> <li>• Understanding of Calculus of vector valued functions, Polynomials and division theorem.</li> </ul>
IV	MM 1441	Algebra And Calculus -II	<ul style="list-style-type: none"> <li>• Familiarity with Calculus of functions of two or more variables.</li> <li>• Understanding of Surface area and volume of solids.</li> <li>• Knowledge of Triple integral and using it to compute volume.</li> </ul>

V	ST 1332.1	Lab Practical	<ul style="list-style-type: none"> <li>• Practical application of topics covered.</li> </ul>
	MM 1541	Real Analysis I	<ul style="list-style-type: none"> <li>• Understanding of Applications of completeness property</li> <li>• Knowledge about Basic idea of mathematical analysis</li> </ul>
	MM 1542	Complex Analysis I	<ul style="list-style-type: none"> <li>• Knowledge with Properties differentiable complex functions of open sets.</li> <li>• Knowledge in Harmonic functions</li> <li>• Understanding of concepts of conformal mapping.</li> </ul>
	MM 1543	Differential Equations And Their Applications	<ul style="list-style-type: none"> <li>• Awareness of Applications to physics, chemistry and biology.</li> <li>• Understanding of Differential equations with constant coefficients and their solutions.</li> <li>• Familiarity with Second order equations with variable coefficient and their solutions.</li> <li>• Understanding of Laplace transform</li> </ul>
	MM 1544	Vector Analysis	<ul style="list-style-type: none"> <li>• Understanding directional derivatives, divergence of vector field, Green's Theorem.</li> <li>• Insight into Surface integral, Gauss' theorem, Stoke's theorem and their applications.</li> </ul>
	MM 1545	Abstract Algebra I	<ul style="list-style-type: none"> <li>• Develop Ideas of binary operation on a set, groups, subgroups, cyclic groups.</li> <li>• Detailed knowledge of permutation, Lagrange's theorem, finitely generated Abelian groups.</li> </ul>
	MM 1551.1	Operations Research (Open Course)	<ul style="list-style-type: none"> <li>• Define and formulate linear programming problems and appreciate their limitations.</li> <li>• Solve linear programming problems using appropriate techniques and optimization solvers, interpret the results obtained and translate solutions into directives for action.</li> <li>• Develop mathematical skills to analyse and solve integer programming and network models arising from a wide range of applications.</li> </ul>
VI	MM 1641	Real Analysis II	<ul style="list-style-type: none"> <li>• Develop skill in Study of Real - valued functions, properties of continuity, differentiability and Riemann integral.</li> <li>• Establish the links between anti-differentiation and Riemann integrals.</li> </ul>
	MM 1642:-	Linear Algebra	<ul style="list-style-type: none"> <li>• Develop Ideas of Algebra of matrices and some applications of matrices to conic sections, system of linear equations, etc.</li> <li>• Familiarity with Invertible matrix and linear mappings.</li> <li>• Understanding of Matrix connection.</li> </ul>
	MM 1643:	Complex Analysis II	<ul style="list-style-type: none"> <li>• Idea of Power series representatives for functions analytic in a disc.</li> <li>• Know application of residue theorem, application of contour integral method to evaluation and estimation of sums</li> </ul>
	MM 1644	Abstract Algebra II	<ul style="list-style-type: none"> <li>• Understanding of Homomorphism of groups and factor group</li> <li>• Understanding of Ring Homomorphism and factor rings</li> </ul>
	MM 1645	Computer Programming	<ul style="list-style-type: none"> <li>• Develop idea of fundamental of GNU/ LINUX</li> <li>• Develop idea of latex tutorials, (lab)</li> </ul>

	MM 1661.1	Graph Theory (Elective)	<ul style="list-style-type: none"> <li>• Understanding of history of graph theory, graphs, subs graphs etc.</li> <li>• Knowledge of Enable to understand Trees and their properties, planar graphs characterization of planar graph.</li> </ul>
<b>Complementary For Physics</b>			
I	MM 1131.1:-	Differentiation And Analytic Geometry	<ul style="list-style-type: none"> <li>• Give basic ideas about Applications of mathematical methods to physics.</li> <li>• Enable to understand Functions and it graphs with examples from physics.</li> <li>• Familiarity with Inverse functions, hyperbolic functions, differentiation with</li> <li>• Applications to physics.</li> </ul>
II	MM 1231.1	Integration And Vectors	<ul style="list-style-type: none"> <li>• Develop Ideas of Applications of integral calculus and vectors to problems in physics.</li> <li>• Give basic ideas about Vector calculus and its applications.</li> </ul>
III	MM 1331.1.	Theory of Equations, Differential Equations & Theory of Matrix	<ul style="list-style-type: none"> <li>• Give basic ideas about Analytical methods for solving polynomial equations.</li> <li>• Create Basic concepts about differential equations and their solutions.</li> </ul>
I V	MM 1431.1	Complex Analysis, Fourier Series & Fourier Transforms.	<ul style="list-style-type: none"> <li>• Create Basic concepts about complex numbers.</li> <li>• Give basic ideas about Complex integration, differentiation.</li> </ul>
<b>(Complementary For Chemistry</b>			
I	MM 1131.2.	Differentiation And Matrices	<ul style="list-style-type: none"> <li>• Create awareness in Differentiation with application to chemistry.</li> <li>• Ideas in Basic concepts of matrices.</li> </ul>
II	MM 1231.2:-	Integration, Differential Equations And Analytic Geometry.	<ul style="list-style-type: none"> <li>• Create awareness in Integration with application to chemistry.</li> <li>• Create ideas in Basic concepts about differential equations and their solutions.</li> </ul>
III	MM 1331.2:-	Theory of Equations And Vector Analysis	<ul style="list-style-type: none"> <li>• Familiarity with Applications of fundamental theorem to equations.</li> <li>• Familiarity with Vector differentiation and integration.</li> </ul>
IV	MM 1431.2	Abstract Algebra, Linear Transformations And Coordinate Systems	<ul style="list-style-type: none"> <li>• Create awareness in Groups, Rings, Vector spaces.</li> <li>• Create ideas in Linear transformation from <math>\mathbb{R}^n</math> to <math>\mathbb{R}^m</math>.</li> <li>• Familiarity with Co-ordinate systems; Integration in spherical Co-ordinates.</li> <li>• Complementary to Psychology</li> </ul>

## 4. DEPARTMENT OF PHYSICS

### B.SC. PHYSICS

#### PROGRAMME OUTCOME

At the end of this programme, students will demonstrate:

- Proficiency in basic physical sciences and related technologies needed for a proper understanding of physics.
- Knowledge of classical mechanics, electromagnetism, quantum mechanics, sub atomic physics, high energy physics and space physics, and be able to apply this knowledge to analyze a variety of physical phenomena.
- Laboratory skills, enabling them to take measurements in a physics laboratory and analyse the measurements to draw valid conclusions.
- Capability to understand and analyse the new trends in technology and applied sciences.
- Capability of oral and written scientific communication, and will prove that they can think critically and work independently.

#### COURSE OUTCOME

Sem.	Course Code	Title of The Course	Course Outcome
I	PY 1141	<b>Basic Mechanics and Properties of Matter</b>	<ul style="list-style-type: none"> <li>• Get the basic idea and apply the ideas of rotational motion, oscillatory motion and wave motions to practical systems.</li> <li>• Get an idea about the conservation laws.</li> <li>• Acquire engineering skills and practical knowledge in mechanics and dynamics</li> <li>• Identify the requirements physically stable systems.</li> </ul>
II	PY 12 21	<b>Classical Mechanics</b>	<ul style="list-style-type: none"> <li>• Have a deep understanding of basic laws of physics in mechanics and dynamics.</li> <li>• Be able to apply the basic laws to practical applications.</li> <li>• Capability of understanding the dynamics of many particle systems and rigid bodies.</li> <li>• Develop the basic concepts of Lagrangian and Hamiltonian mechanics.</li> </ul>
III	PY 1341	<b>Thermodynamics and Statistical Physics</b>	<ul style="list-style-type: none"> <li>• Analyse laws of thermodynamics and its applications to real systems.</li> <li>• Understand the working principle of diesel engine and petrol engine</li> <li>• Understand the heat transfer mechanism</li> <li>• Get an introduction to thermo dynamic variables and functions.</li> <li>• Be able to understand the basics of statistical mechanics including the distribution laws.</li> </ul>

IV	PY 1441	<b>Electrodynamics</b>	<ul style="list-style-type: none"> <li>• Attain knowledge and develop skills in the basic concept of electric forces and calculate electric fields due to various charge distributions.</li> <li>• Gain an understanding of magnetic fields and their relationship to electrical fields</li> <li>• Have a deep understanding of the theoretical foundations of electromagnetic phenomena.</li> <li>• Gain knowledge about the generation and propagation of electromagnetic waves.</li> <li>• Develop skill to solve complicated electric circuits.</li> </ul>
	PY 1442	<b>Mechanics, Properties of Matter, Heat Acoustics</b>	<ul style="list-style-type: none"> <li>• Understand the basic concepts related to modulus of elasticity</li> <li>• Learn the basic concepts and application of fluid dynamics</li> <li>• Understand rotational dynamics of rigid bodies</li> </ul>
V	PY 1541	<b>Methodology in Physics &amp; Relativistic Mechanics</b>	<ul style="list-style-type: none"> <li>• Have knowledge of research-methodology, experimentation and error analysis.</li> <li>• Preliminary understanding of Hamiltonian dynamics.</li> <li>• Get an introduction to theory of relativity and its consequences.</li> </ul>
	PY 1542	<b>Quantum Mechanics</b>	<ul style="list-style-type: none"> <li>• Awareness of Inadequacies of classical mechanics.</li> <li>• Knowledge of basic formulation of quantum mechanics.</li> <li>• Develop skill to solve basic quantum mechanical problems.</li> </ul>
	PY 1543	<b>Electronics</b>	<ul style="list-style-type: none"> <li>• Acquire knowledge about semiconductor physics.</li> <li>• Understand the basic operation and working of electronic components. .</li> <li>• Get a clear picture about various design and working of common practical circuits.</li> </ul>
	PY 1544	<b>Atomic and Molecular Physics</b>	<ul style="list-style-type: none"> <li>• Knowledge of the origin and application of spectroscopic techniques.</li> <li>• Practical applications of spectroscopy.</li> <li>• Get an introduction about the working principle and applications of spectroscopic techniques.</li> </ul>
	PY 1551	<b>Energy Physics (Open Course)</b>	<ul style="list-style-type: none"> <li>• Know the importance of conservation of energy.</li> <li>• Get an idea about the sources of energy crisis and its remedies.</li> <li>• Understand the various possibilities to generate energy without affecting nature.</li> </ul>
	VI	PY 1641	<b>Solid State Physics</b>



<b>PY 1642</b>	<b>Nuclear and Particle Physics</b>	<ul style="list-style-type: none"> <li>• Knowledge of the central concepts, laws and models in nuclear and particle physics</li> <li>• Idea about the experimental techniques in nuclear physics.</li> <li>• Understand the basics of subatomic physics.</li> </ul>
<b>PY 1643</b>	<b>Classical &amp; Modern Optics</b>	<ul style="list-style-type: none"> <li>• Knowledge of basic concepts of modern optics.</li> <li>• Understand the nature of light, its' properties, propagation and interaction with matter.</li> <li>• Know the principle of propagation of light in <i>optical</i> fibers, holography and its applications,</li> <li>• Fabricate modern optical and electro optical devices.</li> <li>• Understand basic concepts of Lasers : Production and applications</li> </ul>
<b>PY 1644</b>	<b>Computer Science &amp; Digital Electronics</b>	<ul style="list-style-type: none"> <li>• Skills to examine the structure of various number systems and its application in digital design.</li> <li>• Basic knowledge of digital logic circuits to design logic circuits of their own.</li> <li>• Ability to identify basic requirements for a design application and propose a cost effective solution.</li> <li>• Understanding of the basics of <i>computer science</i> with the introduction of programming in C.</li> <li>• Skills in object-oriented programming, algorithm design, and problem solving with the introduction of computer science.</li> </ul>
<b>PY 1661.2</b>	<b>Space Science (Elective Course)</b>	<ul style="list-style-type: none"> <li>• Understand the large-scale structure of Universe</li> <li>• Classify and catalogue of various astronomical bodies</li> <li>• Understand the dynamic activity of Sun</li> <li>• Understand the structure and composition of Earth's magnetosphere</li> </ul>
<b>PY 1645</b>	<b>Optics, Electricity &amp; Magnetism (Lab Practical)</b>	<ul style="list-style-type: none"> <li>• Understand various phenomena of optics with the help of simple experiments</li> <li>• Familiar with some simple experiments in electricity and magnetism</li> </ul>
<b>PY 1646</b>	<b>Electronics &amp; Computer Science (Lab Practical)</b>	<ul style="list-style-type: none"> <li>• Knowledge in construction of rectifiers, amplifiers and oscillators</li> <li>• Ability to solve problems in physics using numerical methods in C programming language</li> </ul>
<b>PY 1647</b>	<b>Project</b>	<ul style="list-style-type: none"> <li>• Develop research culture</li> <li>• Understand the research methodology</li> <li>• Interpretation of data and improved scientific writing</li> </ul>

### Chemistry Major (Complementary Course)

I	<b>PY 1131.2</b>	<b>Rational Dynamics and Properties of Matter</b>	<ul style="list-style-type: none"> <li>• Understand the basic concepts related to modulus of elasticity</li> <li>• Knowledge of molecular theory of surface tension</li> <li>• Understand rotational dynamics of rigid bodies</li> </ul>
II	<b>PY 1231.2</b>	<b>Thermal Physics</b>	<ul style="list-style-type: none"> <li>• Knowledge of laws of thermodynamics and its applications to real world.</li> <li>• Understand the working principle of diesel engine and petrol engine</li> <li>• Understand the heat transfer mechanism</li> </ul>
III	<b>PY 1331.2</b>	<b>Optics, Magnetism and Electricity</b>	<ul style="list-style-type: none"> <li>• Detailed knowledge of Interference and Diffraction, Polarization and Dispersion</li> <li>• Understand preliminaries of Fiber optics and Lasers</li> </ul>
IV	<b>PY 1431.2</b>	<b>Atomic Physics, Quantum Mechanics &amp; Electronics</b>	<ul style="list-style-type: none"> <li>• Knowledge of various atom models.</li> <li>• Understand and analyse atomic and molecular spectra.</li> <li>• Understand the principle of diodes, transistors, field effect transistors.</li> </ul>
I, II, III & IV	<b>PY 1432</b>	<b>Lab Practicals</b>	<ul style="list-style-type: none"> <li>• Understand various phenomena of optics with the help of simple experiments</li> <li>• Familiar with some simple experiments in electricity and magnetism.</li> <li>• Apply the knowledge of diodes in various circuits</li> </ul>

### Mathematics Major (Complementary Course)

I	<b>PY 1131</b>	<b>Mechanics and Properties of Matter</b>	<ul style="list-style-type: none"> <li>• Understand the basic concepts related to modulus of elasticity</li> <li>• Learn the molecular theory of surface tension</li> <li>• Understand rotational dynamics of rigid bodies</li> </ul>
II	<b>PY 1231.1</b>	<b>Heat and Thermodynamics</b>	<ul style="list-style-type: none"> <li>• Analyse laws of thermodynamics and its applications to real world. 2. Understand the working principle of diesel engine and petrol engine 3. Understand the heat transfer mechanism</li> </ul>
III	<b>PY 1331.1</b>	<b>Optics, Magnetism and Electricity</b>	<ul style="list-style-type: none"> <li>• Knowledge of Interference and Diffraction, Polarization and Dispersion</li> <li>• Understand preliminaries of Fiber optics and Lasers</li> </ul>
IV	<b>PY 1431.1</b>	<b>Modern Physics and Electronics</b>	<ul style="list-style-type: none"> <li>• Study various atom models.</li> <li>• Understand and analyse atomic and molecular spectra.</li> <li>• Understand the principle of diodes, transistors, field effect transistors.</li> </ul>
I, II, III & IV	<b>PY 1432</b>	<b>Lab Practicals</b>	<ul style="list-style-type: none"> <li>• Understand various phenomena of optics with the help of simple experiments.</li> <li>• Familiar with of some simple experiments in electricity and magnetism.</li> <li>• application of diodes in various circuits</li> </ul>

## M.SC. PHYSICS

### PROGRAMME OUTCOME

At the end of this programme, students will demonstrate:

- Knowledge, general competence and analytical skills on an advanced level, needed in industry, consultancy, education, research, or public administration.
- Their work on their Thesis gives special expertise within one of the following areas: Astro and Particle Physics and Modern Field Theory, Biophysics and Medical Physics, Energy and Environmental Physics, Optics and Condensed Matter Physics, and Physics Education and Dissemination.

### COURSE OUTCOME

Sem.	Course Code	Title of The Course	Course Outcome
I	PH 211	<b>Classical Mechanics</b>	<ul style="list-style-type: none"> <li>• Demonstrate the ability to analyse and solve introductory problems in Physics.</li> <li>• Demonstrate an advanced level knowledge and understanding of the laws of classical mechanics to include representing these laws in mathematical expressions with appropriate units for physical quantities.</li> </ul>
	PH 212	<b>Mathematical Physics</b>	<ul style="list-style-type: none"> <li>• Generate skill to solve mathematical problems in the physical world.</li> <li>• Develop skill to apply mathematics to physical problems.</li> </ul>
	PH213	<b>Basic Electronics</b>	<ul style="list-style-type: none"> <li>• Understand the basic signals and systems.</li> <li>• Design bandpass, lowpass, and highpass filter.</li> <li>• Basic knowledge of electronic instrumentation</li> <li>• Basic formulation of optical fibres.</li> <li>• Knowledge of principles of digital electronics and logic systems.</li> <li>• Ability to solve introductory dc and ac circuits, design, construct, and analyze dc and ac circuits.</li> </ul>
	PH251	<b>General Physics (Lab Practicals)</b>	<ul style="list-style-type: none"> <li>• Develop observational, analytical and evaluation skills in mechanical and optical properties of materials.</li> </ul>
	PH2252	<b>Electronics and Computer Science (Lab Practicals)</b>	<ul style="list-style-type: none"> <li>• Develop observational, analytical and evaluation skills in electronics</li> </ul>

II	PH221	<b>Modern Optics and Electromagnetic Theory</b>	<ul style="list-style-type: none"> <li>• Knowledge of Electromagnetic field theory to able to design emission , propagation and reception of electro- magnetic wave systems</li> <li>• Ability to identify, formulate and solve fields and electromagnetic waves propagation problems in a multi-disciplinary frame individually or as a member of a group.</li> <li>• Ability to acquire the knowledge of Non-linear optics and linear optics.</li> </ul>
	PH222	<b>Thermodynamics, Statistical Physics and Basic Quantum Mechanics</b>	<ul style="list-style-type: none"> <li>• Ability to pinpoint the historical aspects of development of quantum mechanics and explain the differences between classical and quantum mechanics</li> <li>• Understanding the basic principles of wave mechanic, solve the schrodinger equation for simple configurations and the effect of symmetries in quantum mechanics.</li> <li>• Knowledge and understanding of the concept that quantum states live in a vector space</li> </ul>
	PH223	<b>Computer Science and Numerical Techniques</b>	<ul style="list-style-type: none"> <li>• Understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.</li> <li>• Analyse and evaluate the accuracy of common numerical methods.</li> <li>• Implement numerical methods in c++.</li> <li>• Demonstrate the basic working of 8085 <math>\mu</math> p.</li> <li>• Master an understanding of scripting and the contributions of scripting languages and python.</li> </ul>
	PH251	<b>General Physics (Lab Practicals)</b>	<ul style="list-style-type: none"> <li>• Get the students the basics of advanced experiments.</li> <li>• Develop the skill of independent thinking and solving</li> </ul>
	PH2252	<b>Electronics and Computer Science (Lab Practicals)</b>	<ul style="list-style-type: none"> <li>• Design and construction of electronic circuits.</li> <li>• Develop skill to solve the problems in electronic circuits.</li> </ul>
	III	PH231	<b>Advanced Quantum Mechanics</b>
PH232		<b>Advanced Spectroscopy</b>	<ul style="list-style-type: none"> <li>• Understand general tools of spectroscopy</li> <li>• Detailed understanding of Molecular, rotational, IR, Electronic, Raman</li> <li>• Distinguish ESR, NMR, Mossbauer, Photo electron and Photo acoustic spectroscopy A</li> </ul>
PH233		<b>Communication Electronics</b>	<ul style="list-style-type: none"> <li>• Knowledge of optical fiber modes, configurations and its signal degradation factors, optical sources, detectors and their use in the optical communication system.</li> <li>• Knowledge of digital transmission and its associated parameters on system performance.</li> <li>• Basic understanding of necessary for transmitting and receiving information</li> <li>• Understand different types of modulation and demodulation</li> <li>• Ability to solve analog and digital modulation problems.</li> <li>• Understand fundamentals of mobile and wireless communications</li> </ul>

<b>IV</b>	<b>PH241</b>	<b>Condensed Matter Physics</b>	<ul style="list-style-type: none"> <li>• Knowledge of elate crystal structure and degree of ordering to atom binding and packing</li> <li>• Ability to classify condensed matter upon its degree of order</li> <li>• Know about thermal properties in solids in particular heat capacity,</li> <li>• Ability to classify condensed matter upon its electrical and transport properties,</li> <li>• Ability to apply the obtained concepts to challenges in condensed matter physics.</li> </ul>
	<b>PH242</b>	<b>Nuclear and Particle Physics</b>	<ul style="list-style-type: none"> <li>• Understand Nuclear forces, nuclear models and nuclear reactions</li> <li>• Know the details of Nuclear fission and fusion, Nuclear detectors, particle accelerator and Elementary particle physics</li> </ul>
	<b>PH261</b>	<b>Advanced Physics (Lab Practicals)</b>	<ul style="list-style-type: none"> <li>• Develop observational, analytical and evaluation skills in electrical and magnetic properties of materials.</li> </ul>
	<b>PH243</b>	<b>Advanced Electronics (Lab Practicals)</b>	<ul style="list-style-type: none"> <li>• Skill in performing advanced experiments using op-amps, ICs and microprocessors</li> </ul>
	<b>PH201</b>	<b>Project</b>	<ul style="list-style-type: none"> <li>• Get a chance to work in the advanced fields.</li> <li>• Develop the skill to solve practical issues.</li> <li>• Develop the skill of team work</li> <li>• Develop skill to write a paper / dissertations.</li> </ul>
	<b>PH202</b>	<b>Viva-Voce</b>	<ul style="list-style-type: none"> <li>• Evaluate students' awareness about the basic physics.</li> <li>• Evaluate students' awareness about the present needs of society for the existence/ development.</li> </ul>

## **5. DEPARTMENT OF ZOOLOGY**

### **B. SC. ZOOLOGY**

#### **PROGRAMME OUTCOME**

At the end of this programme, students will demonstrate:

- In-depth knowledge on the methodology and perspectives of Science in general so as to enable the students to systematically pursue Zoology in relation to other disciplines that come under the rubric of science.
- Preparedness for various competitive exams in government and private sectors.
- Knowledge of opportunities of continuing education and professional development.
- Knowledge of various branches of zoology and general biology meant both for a graduate terminal course and for higher studies.
- In-depth knowledge on the diversity and relationships in animal world.
- Love and understanding of the fascinating world of animals.
- Hands-on training experience in anatomy through simple dissection and mountings.
- Basic informatics skill and attitudes relevant to the emerging society and also to equip the student to effectively utilize the digital knowledge resources for the study of zoology.
- Positive attitude towards sustainable development. Understand the unity of life with the rich diversity of organisms and their ecological and evolutionary significance.
- Basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation.

## COURSE OUTCOME

Sem.	Course Code	Title of Course	Course Outcome
I	ZO1141	<b>Animal Diversity I</b>	<ul style="list-style-type: none"> <li>Understand the basic systematic and hierarchy of different categories.</li> <li>Identify the diagnostic characters of each phyla through brief studies of typical examples</li> <li>Obtain an overview of economically important invertebrate fauna</li> </ul>
	ZO1131	<b>Animal Diversity I (Complementary)</b>	<ul style="list-style-type: none"> <li>Impart a concrete idea of the evolution, hierarchy and classification of invertebrate phyla.</li> <li>Understand basics of systematics by learning diagnostic and general characters of various groups</li> <li>Getting an overview of typical examples in each phyla</li> <li>Get awareness about economic importance of invertebrates with the special reference to insect pests</li> </ul>
II	ZO1241	<b>Animal Diversity II</b>	<ul style="list-style-type: none"> <li>Familiarise with the general characteristics and classification of different classes of vertebrates.</li> <li>Understand the vertebrate evolutionary tree.</li> <li>Realize the general aspects of applied interest.</li> </ul>
	ZO1231	<b>Animal Diversity II (Complementary)</b>	<ul style="list-style-type: none"> <li>Learn the evolution, hierarchy and classification of different classes of chordates</li> <li>Provide an overview of the morphology and physiology of typical examples.</li> <li>Familiarize with the adaptations and economic importance of specific vertebrates</li> </ul>
III	ZO1341	<b>Methodology and Perspectives of Zoology</b>	<ul style="list-style-type: none"> <li>Realise the fundamental characteristics of science as a human enterprise.</li> <li>Apply scientific methods independently.</li> </ul>
	ZO1331	<b>Functional Zoology (Complementary)</b>	<ul style="list-style-type: none"> <li>Understand the structure and function of each system in the human body.</li> <li>Realize the etiology of common physiological disorders, syndromes and diseases</li> </ul>
IV	ZO1441	<b>Cell Biology</b>	<ul style="list-style-type: none"> <li>Develop deeper understanding of what life is and how it functions at cellular level.</li> </ul>
	ZO1431	<b>Applied Zoology (Complementary)</b>	<ul style="list-style-type: none"> <li>Understand the basic principles involved in the culture and breeding of common edible and ornamental fishes of Kerala and the art of aquarium keeping.</li> <li>Familiarize with human genomics and reproductive biology including stem cell research and prenatal diagnostic techniques</li> </ul>
	ZO1432	<b>Complementary Lab Practical (Functional Zoology and Applied Zoology)</b>	<ul style="list-style-type: none"> <li>Familiarize students with conventional organ system in common, easily available animals.</li> <li>Economically important specimen (preserved) to be studied.</li> <li>Perform and carry out routine clinical analysis of blood and urine</li> </ul>

V	<b>ZO1541</b>	<b>Genetics and Biotechnology</b>	<ul style="list-style-type: none"> <li>• Understand the mechanism of crossing over and inheritance patterns in man.</li> <li>• Familiarize with the principles and techniques involved in DNA technology and modern techniques like PCR, Hybridoma technology, Gene therapy and human cloning.</li> </ul>
	<b>ZO1542</b>	<b>Immunology and Microbiology</b>	<ul style="list-style-type: none"> <li>• Understand the principles and mechanism of immunology</li> <li>• Familiarize with the malfunctioning and disorders of the immune system</li> <li>• Acquire a broad understanding of microbes and their economic importance with specific reference to pathogenic forms.</li> </ul>
	<b>ZO1543</b>	<b>Physiology and Biological Chemistry</b>	<ul style="list-style-type: none"> <li>• Understand the different system and the inherent disorders/ deficiencies involved therein.</li> <li>• Familiarize with the structure and function of bio molecules and their role in metabolism.</li> </ul>
	<b>ZO1442</b>	<b>Lab Practical I (Methodology and Perspectives of Zoology, Animal Diversity I and II)</b>	<ul style="list-style-type: none"> <li>• Familiarize students with conventional organ system in common, easily available animals.</li> <li>• Emphasize the adage that ‘seeing is believing’ typical examples and economically important</li> </ul>
	<b>ZO1641</b>	<b>Lab Practical II (Cell Biology, Genetics, Biotechnology, Immunology and Microbiology)</b>	<ul style="list-style-type: none"> <li>• Apply the knowledge to prepare and observe chromosomal arrangements during cell division</li> <li>• Get awareness about the chromosomal aberrations in human</li> <li>• Gain broad knowledge of conventional biotechnological procedures</li> <li>• Apply the knowledge to perform routine blood analysis.</li> </ul>
	<b>ZO1551.1</b>	<b>Public Health and Hygiene (Open Course I)</b>	<ul style="list-style-type: none"> <li>• Understand the principles of nutrition and dietetics</li> <li>• Familiarize with the ill effects of modern lifestyle</li> <li>• Get awareness about the advantages of being hygienic</li> </ul>
VI	<b>ZO1621</b>	<b>General Informatics, Bioinformatics and Molecular Biology</b>	<ul style="list-style-type: none"> <li>• Review the basic concepts and functional knowledge in the field of informatics.</li> <li>• Create awareness about the nature of the emerging digital knowledge society.</li> <li>• Get awareness about social issues and concerns in the use of digital technology</li> <li>• Understand the nature, application and scope of bioinformatics.</li> </ul>
	<b>ZO1642</b>	<b>Developmental Biology and Experimental Embryology</b>	<ul style="list-style-type: none"> <li>• Familiarize with the various stages involved in the developing embryo</li> <li>• Understand the initial developmental procedures involved in <i>Amphioxus</i>, frog and chick</li> <li>• Procure information on state of the art experimental procedures in embryology.</li> </ul>



<b>ZO1643</b>	<b>Ecology, Ethology, Evolution and Zoogeography</b>	<ul style="list-style-type: none"> <li>• Emphasize the principles, application and management of environmental science</li> <li>• Familiarize with the inherent morphological and physiological bases of behaviour pattern exhibited by vertebrates.</li> <li>• Provide an exhaustive knowledge of organic evolution with special reference to man.</li> </ul>
<b>ZO1644</b>	<b>Lab Practical III (Physiology and Biological Chemistry, Molecular Biology and Bioinformatics)</b>	<ul style="list-style-type: none"> <li>• Familiarize with clinical procedures for blood &amp; urine analysis</li> <li>• Make students skilful in simple biochemical laboratory procedures.</li> </ul>
<b>ZO1645</b>	<b>Lab Practical IV (Developmental Biology, Ecology, Ethology, Evolution and Zoogeography)</b>	<ul style="list-style-type: none"> <li>• Introduce the concepts and process in developmental biology</li> <li>• Understand the genetic mechanisms and the unfolding of the same during development</li> <li>• Expose the learner to the new developments in embryology and its relevance to Man</li> </ul>
<b>ZO1646</b>	<b>Zoology Project &amp; Field Study</b>	<ul style="list-style-type: none"> <li>• Inculcate proficiency to identify appropriate research topic and presentation</li> </ul>
<b>ZO1651.1</b>	<b>Economic Zoology Vermiculture and Apiculture (Elective Course I)</b>	<ul style="list-style-type: none"> <li>• Understand the basic procedure and methodology of vermiculture.</li> <li>• Emphasize the scope and methodology of apiculture</li> </ul>

## **M SC. ZOOLOGY**

### **PROGRAMME OUTCOME**

At the end of this programme, students will demonstrate:

- Ability to take certification of Master's degree in Zoology.
- Preparedness for various competitive exams like CSIR, GATE, DBTJRF and also in government and private sectors.
- Ability to carry out original research in biology.
- Knowledge of the underlying genetic mechanism operating in man and state of the art bio-techniques
- Academically sound research abilities in the area of general biology, Molecular biology, Biotechnology, Genetics, Cell biology, and Environmental Conservation
- Awareness about the tools/gadgets and accessories of biological research
- In-depth knowledge on the methodology and perspectives of applied branches of zoology with a view of educating youngsters on the possibilities of self-employment.
- Knowledge of career opportunities in teaching, industry and research.
- In depth knowledge on the diversity and relationships in animal world.
- Critical evaluation ability in debates and take a stand based on science and reason.

## COURSE OUTCOME

Sem.	Course Code	Title of Course	Course Outcome
I	ZO 211	<b>Systematics and Evolutionary Biology</b>	<ul style="list-style-type: none"> <li>Understand how natural selection ultimately underpins all biological processes and how evolution has generated biological diversity.</li> <li>Knowledge of transitions in evolution, from the origin of life, sex, to hominid evolution.</li> <li>Investigate the evolutionary basis of behaviour in animals, including primates and man.</li> <li>Develop practical biological skills.</li> <li>Understand theoretical basis of modern biological systematics and classification.</li> </ul>
	ZO 212	<b>Biochemistry</b>	<ul style="list-style-type: none"> <li>Demonstrate knowledge and understanding of the molecular machinery of living cells;</li> <li>Knowledge of principles that govern structures of macromolecules and their participation in molecular recognition;</li> <li>Understanding of the basic mechanisms of metabolic control and molecular signalling;</li> <li>Use basic laboratory skills and apparatus to obtain reproducible data from biochemical experiments.</li> </ul>
	ZO 213	<b>Biophysics, Instrumentation, and Computer science</b>	<ul style="list-style-type: none"> <li>Review the basic concepts and functional knowledge in the field of informatics.</li> <li>Create awareness about the nature of the emerging digital knowledge society.</li> <li>Makes use of physical concepts and techniques to address problems in biology and ecology.</li> </ul>
	ZO 214	<b>Practical Systematics and Evolutionary Biology</b>	<ul style="list-style-type: none"> <li>Develop skill in principles and practice of systematics</li> <li>Acquire an in-depth knowledge on the diversity and relationships in animal world</li> <li>Develop a holistic appreciation on the phylogeny and adaptations in animals</li> </ul>
II	ZO 221	<b>Advanced physiology and Functional Anatomy</b>	<ul style="list-style-type: none"> <li>Understand the fundamental scientific concepts relating to a broad range of topics in animal physiology.</li> </ul>
	ZO 222	<b>Genetics, Quantitative Analysis and Research Methodology</b>	<ul style="list-style-type: none"> <li>Portray accurately the characteristics of a particular individual, situation or a group(studies with this object in view are known as descriptive research studies);</li> <li>Understand to test a hypothesis of a causal relationship between variables (such studies are known as hypothesis testing research studies).</li> </ul>
	ZO 223	<b>Cell Biology, Molecular Biology and Bioinformatics</b>	<ul style="list-style-type: none"> <li>Review the nature, application and scope of bioinformatics</li> </ul>

III	ZO 224	<b>Practical Advanced Physiology and Functional Anatomy</b>	<ul style="list-style-type: none"> <li>• Compare the functioning of organ systems across the animal world</li> <li>• Understand the comparative functioning of different systems in animals</li> <li>• Learn more about human physiology</li> </ul>
	ZO 231	<b>Microbiology and Biotechnology</b>	<ul style="list-style-type: none"> <li>• Recognise economic importance of microbes with specific reference to pathogenic forms.</li> <li>• Apply the knowledge to various conventional biotechnological procedures</li> </ul>
	ZO 232	<b>Ecology, Ethology, and Biodiversity Conservation</b>	<ul style="list-style-type: none"> <li>• Familiarize with the principles, application and management of environmental science</li> <li>• Understand morphological/physiological bases of behaviour pattern exhibited by vertebrates</li> <li>• Create awareness for the conservation of nature.</li> </ul>
	ZO 233	<b>Immunology and Developmental Biology</b>	<ul style="list-style-type: none"> <li>• Understand the cellular and molecular basis of immune responsiveness.</li> <li>• Awareness of the roles of immune system in maintaining health and contributing to diseases.</li> <li>• Aware about modern implications of developmental biology by impartment of knowledge regarding teratogenesis, invitro fertilization, stem cells and amniocentesis techniques.</li> </ul>
IV	ZO 234	<b>Practical Microbiology, Biotechnology, Ecology, Immunology &amp; Developmental Biology</b>	<ul style="list-style-type: none"> <li>• Familiarize the students with public policy, bio safety, and intellectual property rights issues related to biotechnology.</li> <li>• Develop Observational, Analytical and Evaluation skills related to Microbiology, Biotechnology, Ecology, Immunology &amp; Developmental Biology</li> </ul>
	ZO 201	<b>Project</b>	<ul style="list-style-type: none"> <li>• Develop scientific attitude and Problem solving ability.</li> <li>• Understand, think and evolve strategies towards problems in their day to day life.</li> </ul>
	ZO 202	<b>Comprehensive Viva Voce</b>	<ul style="list-style-type: none"> <li>• In-depth knowledge in the area of Zoology</li> <li>• Develop confidence to appear for professional interviews</li> </ul>
IV Special Paper	ZO 241	<b>Environmental Physiology</b>	<ul style="list-style-type: none"> <li>• Redress problems associated with current environmental issues based on ecological principles.</li> <li>• Motivation for further studies and research in the field.</li> </ul>
	ZO 242	<b>Environmental management</b>	<ul style="list-style-type: none"> <li>• Understanding on human influence on environment</li> <li>• Enable the learner to understand, think and evolve strategies for management and conservation of environment for sustaining life on earth.</li> </ul>
	ZO 243	<b>Practical I Pollution Biology and Environmental Physiology</b>	<ul style="list-style-type: none"> <li>• Familiar with ecological adaptations</li> <li>• Equip the students to use various tools and techniques for the study of environment.</li> </ul>
	ZO 244	<b>Practical II Environmental Management</b>	<ul style="list-style-type: none"> <li>• Recognise the importance of conservation</li> <li>• Broad and deep understanding on environment and influence of man on environment.</li> </ul>

## 6. DEPARTMENT OF ENGLISH

### **B. A. ENGLISH LANGUAGE AND LITERATURE**

#### **PROGRAMME OUTCOME**

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

- Opportunity to study a range of modules in English Literature and to study the history and structure of the English Language with specialist tutors in Linguistics.
- Develop deep insight into the world of literatures and enables the student to critically appreciate the major literary works
- Introduction to the political, social, cultural, economical and intellectual background of the various periods in literary history, thereby enabling him/her to acquire an understanding of life
- Strengthen the linguistic capabilities of the student through theory and practical sessions.
- Help in identifying area of specialization

#### **COURSE OUTCOME**

Sem.	Course Code	Title of the Course	Course Outcome
I	EN 1141	<b>Reading Poetry</b>	<ul style="list-style-type: none"> <li>• Enhanced reading and critical skill.</li> <li>• Sensitivity to the language, forms and types of poetry.</li> <li>• Awareness of the diverse poetic devices and strategies.</li> <li>• Ability to read, analyze and appreciate poetry.</li> <li>• Develop creative response to the level of literary and aesthetic experience</li> </ul>
	EN 1131	<b>History of English Literature I (Complementary)</b>	<ul style="list-style-type: none"> <li>• Wholesome understanding of British History.</li> <li>• Comprehension of social and political organisations in Britain.</li> <li>• Understanding of Britain culture &amp; kinds of literature that emerged out of these conditions</li> </ul>
II	EN1241	<b>Reading Drama</b>	<ul style="list-style-type: none"> <li>• Knowledge of different aspects of the theatre and its production.</li> <li>• Sensitivity to the verbal and visual language of drama</li> <li>• Ability to read, analyse and appreciate drama.</li> </ul>

III	EN 1231	<b>History of English Literature-II</b>	<ul style="list-style-type: none"> <li>• Insight into different time periods and English literature of those times.</li> <li>• Knowledge of evolution of important works in literature and significant English writers</li> </ul>
	EN 1341	<b>Reading Fiction (Core)</b>	<ul style="list-style-type: none"> <li>• Ability to identify different fictional forms</li> <li>• Skill to analyse and appreciate fictional writings.</li> <li>• Ability to write imaginatively and creatively.</li> </ul>
	EN 1342	<b>20<sup>th</sup> Century Malayalam Literature in English</b>	<ul style="list-style-type: none"> <li>• Discern the richness of twentieth century Malayalam writing</li> <li>• Understand the distinctiveness of twentieth century Malayalam writing</li> <li>• Knowledge of salient features of works of major twentieth century Malayalam writers</li> <li>• Analyse and appreciate twentieth century Malayalam writing</li> </ul>
IV	EN 1331	<b>History of English Literature – III (Complementary)</b>	<ul style="list-style-type: none"> <li>• Acquire adequate knowledge of the later periods in English literature.</li> <li>• Awareness of socio-political changes in of contemporary age and its impact on literary works and writers</li> </ul>
	EN 1411.1	<b>Readings In Literature</b>	<ul style="list-style-type: none"> <li>• Understand and appreciate literary discourse.</li> <li>• Critically evaluate literary writings.</li> <li>• Analyze literature as a cultural and interactive phenomenon</li> </ul>
	EN 1441	<b>Reading Prose</b>	<ul style="list-style-type: none"> <li>• Write creatively and critically in an expository or argumentative manner.</li> <li>• Recognize various types of prose writings.</li> <li>• Analyse, understand and appreciate prose writings</li> </ul>
V	EN 1421	<b>Informatics (Foundation Course II)</b>	<ul style="list-style-type: none"> <li>• Update and expand knowledge in the field of informatics</li> <li>• Understand the nature of the emerging digital knowledge society</li> <li>• Use digital knowledge resources effectively in studies</li> </ul>
	EN 1431	<b>History Of English Language (Complementary)</b>	<ul style="list-style-type: none"> <li>• Identify various language families</li> <li>• Trace the evolution of English language</li> <li>• List the changes in the different areas of the language</li> </ul>
	EN 1541	<b>Literary Criticism (Core)</b>	<ul style="list-style-type: none"> <li>• Historical overview of the critical practices from classical period to the present.</li> <li>• Understanding of concepts that influenced development of critical thought.</li> <li>• Critical perspective and capacity to compare critical practices and schools.</li> <li>• Read and analyze literary texts from different perspectives.</li> </ul>
	EN 1542	<b>Indian Literature In English (Core)</b>	<ul style="list-style-type: none"> <li>• Trace the development of Indian writing in English.</li> <li>• Understand the indigenous element in Indian literature in English.</li> <li>• Read and appreciate Indian literature.</li> <li>• Analyse the strength and constraints of Indian English as a literary medium.</li> </ul>
	EN 1543	<b>Film Studies</b>	<ul style="list-style-type: none"> <li>• Discover the language of cinema</li> <li>• Explain key concepts in film studies.</li> <li>• Analyse films as texts and critically evaluate them.</li> </ul>

<b>VI</b>	<b>EN 1544</b>	<b>Linguistics and Phonetics</b>	<ul style="list-style-type: none"> <li>• Explain the key concepts in linguistics</li> <li>• Develop a neutral accent and improve their general standard of pronunciation</li> <li>• Speak globally intelligible English</li> </ul>
	<b>EN 1545</b>	<b>Post Colonial Literatures In English</b>	<ul style="list-style-type: none"> <li>• Identify distinctly Post Colonial literature</li> <li>• Read and appreciate Post Colonial literature with insight</li> <li>• Knowledge of Post Colonial culture and its varying modes of literary expression</li> </ul>
	<b>EN 1551.1</b>	<b>Communicative Applications in English (Open Course)</b>	<ul style="list-style-type: none"> <li>• Use English for international communication.</li> <li>• Engage in communication activities – informal, formal/business related and academic.</li> <li>• Knowledge of how to perform well in language tests and competitive examination</li> </ul>
	<b>EN 1641</b>	<b>World Classics</b>	<ul style="list-style-type: none"> <li>• Read and appreciate Classical works.</li> <li>• Evaluate classical texts critically.</li> <li>• Place and assess one's own culture and classics.</li> </ul>
	<b>EN 1642</b>	<b>Methodology and Perspectives of Humanities</b>	<ul style="list-style-type: none"> <li>• Knowledge of key concepts in literary theory and criticism</li> <li>• Make sense of literature</li> <li>• Read literature critically from a theoretical perspective.</li> </ul>
	<b>EN 1643</b>	<b>English for the Media</b>	<ul style="list-style-type: none"> <li>• Understand the nature and scope of communication media</li> <li>• Ability to write headlines and articles for newspapers &amp; magazines and design content</li> <li>• Produce and present scripts and programmes for radio and Television</li> <li>• Design and write web Pages, Blogs and Advertisements</li> </ul>
	<b>EN 1644</b>	<b>Women's Writing</b>	<ul style="list-style-type: none"> <li>• Awareness of class, race and gender (social constructs) and their influence on women's lives.</li> <li>• Acquired skill to understand feminism as a social movement and a critical tool.</li> <li>• Explore the plurality of female experiences.</li> <li>• Equipped with analytical, critical and creative skills to interrogate the biases in the construction of gender and patriarchal norms.</li> </ul>
	<b>EN 1661.3</b>	<b>Creative Writing (Elective Course)</b>	<ul style="list-style-type: none"> <li>• Identify different poetic forms.</li> <li>• Analyse and appreciate poems and short stories.</li> <li>• Write book and film reviews.</li> <li>• Appreciate literary works</li> </ul>
	<b>EN 1645</b>	<b>Project/Dissertation</b>	<ul style="list-style-type: none"> <li>• Carry out group-wise research in viable areas of language and culture.</li> <li>• Develop an understanding of theoretical approaches to research in English language and literature</li> <li>• Grasp mechanics of writing with respect to the latest 8th edition of style, modern language association (MLA)</li> </ul>

## General English Courses

<b>EN1111.1</b>	<b>Listening, Speaking And Reading (Gen English Course I)</b>	<ul style="list-style-type: none"> <li>• Proficiently communicate in English</li> <li>• understand English in a wide range of contexts</li> <li>• Understand the nuances of listening, speaking and reading English</li> <li>• Ability to face situations with confidence</li> <li>• Rudimentary understanding of English phonetics</li> <li>• Enhanced standard of spoken English.</li> <li>• Knowledge of phonetic alphabets/symbols to refer dictionary for correct pronunciation</li> </ul>
<b>EN 1121</b>	<b>Writings On Contemporary Issues (Foundation Course)</b>	<ul style="list-style-type: none"> <li>• Have an overall understanding of some of the major issues in the contemporary world.</li> <li>• Respond empathetically to the issues of society.</li> <li>• Read literary texts critically</li> </ul>
<b>EN 1212.1</b>	<b>Modern English Grammar And Usage</b>	<ul style="list-style-type: none"> <li>• Good understanding of modern English grammar.</li> <li>• Improved verbal communication skills.</li> <li>• Minimise mother tongue influence</li> <li>• Ability to produce grammatically and idiomatically correct language.</li> <li>• Produce grammatically and idiomatically correct spoken and written discourse.</li> <li>• Spot language errors and correct them.</li> </ul>
<b>EN 1311.1</b>	<b>Writing And Presentation Skills</b>	<ul style="list-style-type: none"> <li>• Understand the mechanism of general and academic writing.</li> <li>• Recognize the different modes of writing.</li> <li>• Improve their reference skills, language course - readings in literature</li> <li>• Take notes, refer and document data and materials.</li> <li>• Prepare and present seminar papers and project reports effectively.</li> </ul>
<b>EN1211.1</b>	<b>Environmental Studies</b>	<ul style="list-style-type: none"> <li>• Sensitivity towards the threats faced by environment</li> <li>• Knowledge of means &amp; methods for environmental protection through student community.</li> </ul>



## M. A. ENGLISH LANGUAGE AND LITERATURE

### PROGRAMME OUTCOME

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

- Develop an ability to engage critically with a wide range of selected texts by offering multiple perspectives
- Demonstrate an understanding of the formal structure of the various genres.
- Show an awareness of the literariness of literary language.
- Demonstrate the ability to analyse and explain the complexities of subtleties of human experience
- Relate the socio politico historical context to the evolution of the forms, styles and themes of texts.
- Demonstrate the research and language skills necessary to do independent, innovative research
- Show they have understood contemporary pedagogic principles and practices in teaching both language and literature.
- Demonstrate the ability to communicate effectively in a variety of language situations.

### COURSE OUTCOME

Sem.	Course Code	Title of Course	Course Outcome
I	EL 211	<b>Chaucer to the Elizabethan Age</b>	<ul style="list-style-type: none"> <li>• Awareness of major historical events and socio-cultural context which shaped the medieval and early Renaissance period and literature.</li> <li>• Knowledge of the impact of Renaissance on the thought and literature of the period.</li> <li>• Understanding of similarities and differences between various types of drama of the age</li> <li>• Critical perspectives of readings of selected texts</li> </ul>
	EL 212	<b>Shakespeare studies</b>	<ul style="list-style-type: none"> <li>• Awareness of major historical events and socio-cultural context which shaped the Elizabethan age</li> <li>• Identify genres/subgenres of texts and their formal /stylistic/literary features</li> <li>• Identify discourses addressed in the plays and critically evaluate them</li> <li>• Identify the similarities and differences between the various types of drama</li> <li>• Critically review Shakespearean plays based on contemporary theoretical perspectives and their adaptations.</li> </ul>

II	EL 213	<b>The Augustan Age</b>	<ul style="list-style-type: none"> <li>• Comprehensive understanding of Puritanism, its aftermath and subsequent fall and the restoration of the monarchy in England</li> <li>• Awareness of specific features of Neoclassicism in English literature</li> <li>• Critical understanding of emergence and popularity of prose/novel during the period</li> <li>• Assess critically the conflicting trends in the literature of the age.</li> </ul>
	EL 214	<b>Romantics and Victorians</b>	<ul style="list-style-type: none"> <li>• Identify genres/subgenres of texts and their formal /stylistic/literary features</li> <li>• Awareness of the contributions of the poets, novelists and prose writers</li> <li>• Critically analyze different types of novels of the romantic and Victorian ages</li> <li>• Understand the social and literary changes that influenced drama in the century.</li> <li>• Evaluate the implications of the critical responses of the period</li> </ul>
	EL 221	<b>From Modernism to the Present</b>	<ul style="list-style-type: none"> <li>• Demonstrate an understanding of how the age affected literature and various genres</li> <li>• knowledge of the major movements that influenced British and European literature</li> <li>• Analyze critically and explain the features of modernism</li> <li>• Evaluate critically the texts in terms of their stylistic and formal features</li> </ul>
	EL 222	<b>Indian Writing in English</b>	<ul style="list-style-type: none"> <li>• 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</li> <li>• Analyze sociological, historical, cultural and political contexts that impacted selected texts</li> <li>• Evaluate critically the contributions of major Indian English Poets, dramatists, prose writers, novelists and short story writers</li> <li>• Develop a literary sensibility and display an emotional response to the literary texts and cultivate a sense of appreciation for them</li> <li>• Apply the ideas encapsulated in Indian Aesthetics to literary texts</li> </ul>
	EL223	<b>American Literature</b>	<ul style="list-style-type: none"> <li>• Demonstrate an awareness of the socio-political and cultural history of America</li> <li>• Identify key ideas and characteristic perspective/attitudes as expressed in American Literature</li> <li>• Demonstrate knowledge of the contribution of major literary periods, works and persons in American literature and recognize their continuing significance</li> <li>• Evaluate the thoughts, beliefs, customs, struggles and visions of African American Writers</li> <li>• Compares/contrast literary works through an analysis of genre, theme, character and other literary devices</li> </ul>
	EL224	<b>Critical Studies I</b>	<ul style="list-style-type: none"> <li>• Sharpened analytical and critical faculties drawing inspiration from the readings provided</li> <li>• Idea of the evolution of critical thinking in Europe and India in the 20th and 21st centuries</li> <li>• Understand of the function of language in the construction and analysis of literary and cultural phenomena</li> <li>• Insight into the interconnected nature of major schools of thought</li> </ul>

III	EL231	<b>Linguistics and Structure of the English Language</b>	<ul style="list-style-type: none"> <li>• Develop an awareness of the basic nature, branches and history of linguistics</li> <li>• Familiarity with contrastive linguistics</li> <li>• Analyse language units based on phonological, morphological and syntactical features</li> <li>• Develop an awareness of the principles and limitations of ICA and PSG</li> <li>• Explain the transformation of sentences based on TG grammar</li> </ul>
	EL232	<b>Critical Studies II</b>	<ul style="list-style-type: none"> <li>• Understand the critical methods of Post Modernism, New Historicism and Post colonialism</li> <li>• Gain an insight into the inter-connected nature of these major schools of thought</li> </ul>
	EL 233.5 (Elective)	<b>Women’s Writing</b>	<ul style="list-style-type: none"> <li>• Describe and evaluate the roles of such categories as race, gender and sexuality, disability, Class, ethnicity, and religion</li> <li>• Critical understanding of the cultural history of women’s writing</li> <li>• Ability to use and respond to historicist, feminist and other critical approaches</li> </ul>
	EL 234.1 (Elective)	<b>European Fiction</b>	<ul style="list-style-type: none"> <li>• Identify the main themes of the texts and examine them from a different perspective</li> <li>• Display understanding of historical, cultural, political, religious, stylistic, structural outlooks that shaped European fiction</li> <li>• Demonstrate ability to critically read, enjoy, think, and respond to European fiction</li> </ul>
IV	EL241	<b>English Language Teaching</b>	<ul style="list-style-type: none"> <li>• Acquire knowledge of the historical and current theories in ELT</li> <li>• Assess critically the implications of the various approaches, methods, techniques</li> <li>• Develop the ability to critically evaluate syllabi, teaching material and evaluation procedures</li> </ul>
	EL242	<b>Introduction to Cultural Studies</b>	<ul style="list-style-type: none"> <li>• Ability to relate bring a new perspective of culture to the notions regarding ‘texts’ and ‘meanings’ and thereby relating it to the study of literatures, cultures and societies.</li> <li>• Knowledge of theoretical tools and critical perspective to interrogate the media</li> </ul>
	EL243	<b>American Literatures</b>	<ul style="list-style-type: none"> <li>• Insight into the historical background, colonization and European heritage along with an essence of American writings and the recent trends in American literature.</li> </ul>
	EL244	<b>Comprehensive Paper</b>	<ul style="list-style-type: none"> <li>• Summary of the learning output the student has achieved through the learning of literature</li> <li>• Test of student’s cognitive abilities in this regard</li> </ul>
	EL245	<b>Project &amp; Project Based Viva</b>	<ul style="list-style-type: none"> <li>• Sharpened research capabilities of the students by analyzing and arriving at their findings</li> </ul>

## 7. DEPARTMENT OF ECONOMICS

### B.A. ECONOMICS

#### PROGRAMME OUTCOME

- The first degree program in Economics contains a core group of theory courses, a series of quantitative skills courses, and specialization courses that involve the applications of economic theory and quantitative analysis to major areas of study within the discipline.
- Students who graduate from this programme will be able to apply economic theory to issues in fields of economics, explain basic estimators and their properties, estimate economic models using data, test hypotheses, forecast, and interpret estimates.

#### COURSE OUTCOME

Sem.	Course Code	Title of The Course	Course Outcome
I	EC1141	<b>Methodology and Perspectives of Social Sciences</b>	<ul style="list-style-type: none"> <li>• Gain an understanding of what Social Science is and what are its various disciplines. How they emerged as a discipline over the years.</li> <li>• Gain an understanding of the nature, scope and subject matter of Economics as a discipline.</li> <li>• Understand the main contributions and differences between the major Schools of Thought.</li> <li>• Gain a peripheral knowledge of what research is its importance, types and steps involved in it.</li> </ul>
	EC1131	<b>Foundations of Economic Theory</b>	<ul style="list-style-type: none"> <li>• Have a basic understanding on the various concepts of Economics</li> <li>• Develop knowledge on the different market structures in an economy</li> </ul>
II	EC1241	<b>Micro Economics I</b>	<ul style="list-style-type: none"> <li>• Understand the importance of economic concepts</li> <li>• Identify determinants of supply and demand; demonstrate the impact of shifts in both market supply and demand curves on equilibrium price and output.</li> <li>• Summarize the concept of diminishing marginal utility and utility maximization.</li> <li>• Calculate supply and demand elasticities, identify the determinants of price elasticity of demand and supply, and demonstrate the relationship between elasticity and total revenue.</li> <li>• Describe the production function and the Law of Diminishing Marginal Productivity; calculate and graph short-run and long-run costs of production.</li> </ul>

III	EC1131	<b>Money And Banking</b>	<ul style="list-style-type: none"> <li>• Develop a clear understanding on the nature and functions of money.</li> <li>• Acquires Knowledge on the different banking System in India and their functions.</li> </ul>
	EC 1321	<b>Informatics</b>	<ul style="list-style-type: none"> <li>• Explains the fundamentals of computer hardware and software.</li> <li>• Apply knowledge and skills in creation and manipulation of data, data analysis.</li> <li>• Apply knowledge and skills on presentation techniques.</li> <li>• Awareness about cyber crimes and cyber laws.</li> <li>• Develop insights on proper usage of computers and cyber ethics.</li> </ul>
	EC1341	<b>Micro Economics II</b>	<ul style="list-style-type: none"> <li>• Students will understand about the various forms of market structures, their features and price and output determination in all market structures</li> <li>• Understand distribution of factors of production and their prices determination</li> <li>• Students will get an understanding about the various criteria of social welfare and the problem in considering GDP as a measure of welfare.</li> <li>• Students are able to understand about the economic decision making under risk and uncertainty situations and about the preferences towards risks</li> <li>• Students are able to learn how to optimise the economic variables given the constraints through Linear Programming</li> </ul>
IV	EC1331	<b>Public Finance And Trade</b>	<ul style="list-style-type: none"> <li>• The course inculcates the students about the significance of public finance in the context of increasing role of Government.</li> <li>• The students will understand the basic theoretical framework of budgetary mechanism in India, State activities and various aspects of International Trade.</li> </ul>
	EC 1441	<b>Basic Tools for Economics I</b>	<ul style="list-style-type: none"> <li>• To understand the economic concepts with simple mathematical tools.</li> <li>• The students will be inculcated analytical ability in finding solutions to mathematically formulated economic problems.</li> </ul>
	EC1442	<b>Macro Economics I</b>	<ul style="list-style-type: none"> <li>• Explain various macro economic variables and explain why it is important.</li> <li>• The learners will be able to understand the basic national economic concepts and their relationships.</li> <li>• A clear understanding of the various economic systems and its principles and different approaches will enable the learner to gain a solid foundation on macroeconomics.</li> <li>• Compare and contrast the complexities of classical and Keynesian approach.</li> </ul>
	EC1431	<b>Indian Economy Since Independence</b>	<ul style="list-style-type: none"> <li>• Will get a basic understanding of the Indian Economy.</li> <li>• It familiarises the students about the various concepts of National Income, methods and difficulties in its measurement.</li> <li>• Also the course creates awareness about the significance of agriculture, industry and service sector in the economy.</li> </ul>

<b>V</b>	<b>EC1541</b>	<b>Money and Modern Banking</b>	<ul style="list-style-type: none"> <li>• Knowledge about the evolution and role of money in the economy.</li> <li>• An insight into the innovative role of banks in the changing economic set up.</li> <li>• Identify the functions of commercial bank and RBI.</li> <li>• Have an idea about basic banking operations and terminology.</li> <li>• Acquainted with banking sector reforms in India.</li> </ul>
	<b>EC1542</b>	<b>Macro Economics II</b>	<ul style="list-style-type: none"> <li>• Utilize a simple contemporary economic model such as the aggregate supply/aggregate demand model and describe the interrelationships among prices, income and interest rates as they affect consumption, saving and investment.</li> <li>• Define money and the money supply; describe the process of money creation by the banking system and the role of the central bank.</li> <li>• Identify the phases of the business cycle and the problems caused by cyclical fluctuations.</li> <li>• Construct aggregate demand and supply model of the macro economy and use it to illustrate macroeconomic problems and potential monetary and fiscal policy solutions</li> </ul>
	<b>EC 1543</b>	<b>Economics of Growth and Development</b>	<ul style="list-style-type: none"> <li>• Understanding of the difference between growth and development.</li> <li>• Analyse the various schools of thought and its contribution in the development of various economies.</li> <li>• Give an idea on the development issues faced by developed and developing countries.</li> <li>• Identify models which are suitable for the Indian economy.</li> </ul>
	<b>EC1544</b>	<b>Indian Economy</b>	<ul style="list-style-type: none"> <li>• Explain the trend, pattern and features of demography of Indian economy.</li> <li>• Know the development process in India since independence and understands the problems and measures in their contextual perspectives.</li> <li>• Identify issues and performance of Indian agriculture, industry and service sector.</li> </ul>
	<b>EC 1545</b>	<b>Public Economics</b>	<ul style="list-style-type: none"> <li>• Helps to create an understanding on the Scope and the central themes of Public Economics.</li> <li>• Gains Knowledge about the Budgeting Procedure in India</li> <li>• Gets an understanding about the different taxes and tax system in India</li> <li>• Acquire the ability to analyse and understand the key issues in the field of Public economics using standard micro economic tools.</li> </ul>
	<b>EC 1551</b>	<b>Human Resource Management (Open Course)</b>	<ul style="list-style-type: none"> <li>• Understand the significance of Human Resource in constituting economic growth.</li> <li>• Acquire the basic principles of strategic human resource management and the various aspects of Human Resource Planning.</li> </ul>
<b>VI</b>	<b>EC1641</b>	<b>Kerala Economy</b>	<ul style="list-style-type: none"> <li>• Creates an awareness of the various aspects of Kerala economy-like demographics, sectoral contribution, and contribution to GSDP etc.</li> <li>• Helps to create an understanding of Kerala model of development.</li> <li>• Know about the various emerging issues of Kerala economy.</li> <li>• Industrial visit gives a practical insight into the working of industries in Kerala.</li> </ul>

<b>EC1642</b>	<b>Financial Economics</b>	<ul style="list-style-type: none"> <li>• Have a holistic understanding of the structure and components of the financial system in a country.</li> <li>• Know in detail about the various money market and capital market instruments and institution.</li> <li>• Have an understanding of the practical side of financial investment and the method of conducting a fundamental and technical analysis.</li> </ul>
<b>EC 1643</b>	<b>Basic Tools for Economics-II</b>	<ul style="list-style-type: none"> <li>• Familiarize students with statistical tools and techniques.</li> <li>• Apply statistical tools in economics and in their project work.</li> <li>• Identify the association between variables.</li> <li>• Learn predictive analysis while studying regression and the impact of independent variable on the dependent variables.</li> <li>• Understand the concept of partial and multiple correlations.</li> <li>• Measure changes that occur in prices, production, cost of living etc.</li> <li>• Learn the basic concepts of probability theory and also give an understanding about discrete and continuous distribution.</li> </ul>
<b>EC1644</b>	<b>International Economics</b>	<ul style="list-style-type: none"> <li>• Gains knowledge on various theories on International trade.</li> <li>• Identify balance of payments components, equilibrium and disequilibrium concepts.</li> <li>• Learn international liquidity management, exchange rate concepts foreign exchange risks, hedging and speculation.</li> <li>• Develop knowledge and skill on commercial policies, regionalism, free trade and different economic integration worldwide.</li> </ul>
<b>EC 1661.1</b>	<b>Agricultural Economics</b>	<ul style="list-style-type: none"> <li>• Create an understanding regarding the basic principles and concepts of Agriculture.</li> <li>• Acquire knowledge about the role of agriculture and rural areas in the economy</li> <li>• Create an understanding about the role of producer, institutions, services and development problems of agriculture</li> <li>• Acquire the ability to recognise ,identify and solve problems in areas of agricultural economics.</li> </ul>
<b>EC 1645</b>	<b>Project/Dissertation</b>	<ul style="list-style-type: none"> <li>• Practical application of economic tools in a field study based research work.</li> </ul>



## M.A. ECONOMICS

### PROGRAMME OUTCOME

At the end of the programme, students will develop:

- Analytical and economic reasoning skills: deduce reasonable predictions about possible economic outcomes based upon economic conditions and economic theories.
- Quantitative analytical skills: collect and analyze data to support economic decision making using statistical and econometric techniques.
- Critical thinking skills: evaluate and critique alternative economic policies.
- Self development skills: learn new theories about economic activities; create explanations for new economic phenomena and devise innovative approaches to solve various economic problems.

### COURSE OUTCOME

Sem.	Course Code	Title of The Course	Course Outcome
I	EC 211	<b>Micro Economics – I</b>	<ul style="list-style-type: none"> <li>• Learner is able develop understanding on recent development in demand theory.</li> <li>• Explain various production functions and cost theories.</li> <li>• Built knowledge on imperfect market structures.</li> <li>• Develop implicational skills on game theory.</li> <li>• Critically understand and develop knowledge on different managerial and behavioral theories.</li> </ul>
	EC 212	<b>Economics of Growth and Development</b>	<ul style="list-style-type: none"> <li>• Learn about the various approaches to Development which focuses on sustainable Development, responsible well being and quality of life</li> <li>• Understand about the various theories of Economic Growth and Development relating to the Classical, neoclassical ,endogenous and Modern Growth theories</li> <li>• Understanding about the structural aspects of Development</li> <li>• Aware of the emerging issues of the economy especially the impact of globalization on Development and Sustainable Development.</li> </ul>
	EC 213	<b>Indian Economic Policy - I</b>	<ul style="list-style-type: none"> <li>• Creates an understanding on the meaning ,rationale and strategies of Economic Planning</li> <li>• Helps to create an in-depth knowledge on the various structural adjustment reforms of India</li> <li>• Identifies and analyses the issues, problems and measures faced by the agriculture, industry and service sector in their contextual perspective of the economy</li> <li>• Provides students with an insight on the current issues that the economy faces</li> </ul>



II	EC 214	<b>Quantitative Methods for Economics</b>	<ul style="list-style-type: none"> <li>Insight into the importance of quantitative methods in Economics.</li> <li>Comprehend the basic quantitative techniques used in economic analysis and they will acquire analytical ability in finding solutions to mathematically formulated economic problem.</li> <li>Determine optimal allocation of scarce resources among competing activities and constraints.</li> <li>Understand thoroughly the concept of lagged models and its application in Economics.</li> <li>Familiarize with statistical tools and techniques which will enable the students to apply these tools in economics and in their project/research work.</li> </ul>
	EC 221	<b>Micro Economics – II</b>	<ul style="list-style-type: none"> <li>Explain different macro theories of distribution.</li> <li>Develop ideas on general equilibrium concepts.</li> <li>Built critical knowledge on concerns of welfare economics.</li> <li>Develop ideas on economics of information and asymmetric information.</li> <li>Understands behavioral economics and bounded rationality.</li> </ul>
	EC 222	<b>Economics Of Social Sector And Environment</b>	<ul style="list-style-type: none"> <li>Learn about the Economics of Education – benefits, costs, role - in economic development</li> <li>Understanding of the economic dimensions of Health care – demand and supply of health care</li> <li>Understanding about the linkage between economy and environment, the various methods of valuing environment which is a public good</li> <li>Understand Global Environmental externalities and instruments in reducing the externalities</li> <li>Learn about the optimum use of the natural resources both renewable and non renewable and the importance of incorporating the value of Environment into the system of national accounts</li> <li>Understanding about the tradeoff between environment and development and thus stressing the need for sustainable development</li> </ul>
	EC 223	<b>Indian Economic Policy – II</b>	<ul style="list-style-type: none"> <li>Creates an understanding on the basic concepts of economics for learning Kerala Economy</li> <li>Provides an in-depth Knowledge on the Financial sector and Social Sector of Kerala Economy</li> <li>Develop critical and creative thoughts on the different issues of the economy.</li> <li>Students Discussion brings out certain measures for Policy implications.</li> </ul>
	EC 224	<b>Econometrics And Research Methodology</b>	<ul style="list-style-type: none"> <li>The students will get a basic understanding on econometric methodology.</li> <li>Students will know how to apply the economic theories to real economic data by constructing empirical models.</li> <li>Generate comprehensive idea on the research methodology which will be beneficial for their final project work.</li> </ul>
III	EC 231	<b>Macro Economics - I</b>	<ul style="list-style-type: none"> <li>Creates understanding of development of macro economics after Keynesian thought- neo classical and Keynesian synthesis and the use of IS LM as a tool in economic analysis.</li> <li>Creates a theoretical understanding of demand for money and supply of money.</li> <li>Helps to compare and contrast various Consumption and Investment theories.</li> <li>Helps to analyse macro economics in an Open economy framework.</li> </ul>

<b>IV</b>	<b>EC 232</b>	<b>International Economics – I</b>	<ul style="list-style-type: none"> <li>Understand the main theoretical tools and policies that are central to the study of international trade, with an emphasis on application to the trade flows, trading blocks and international macroeconomic events that characterize the global economy.</li> <li>Ability to use economic analysis to reach a deeper understanding of international trade who intend to develop careers in international business and management.</li> </ul>
	<b>EC 233</b>	<b>Public Economics</b>	<ul style="list-style-type: none"> <li>Have an overview of the regulatory and developmental responsibilities of government in a country.</li> <li>Analyze the principles behind fiscal management.</li> <li>Understand the theoretical and empirical dimensions of public goods and public choice, fiscal instruments and fiscal federalism with special reference to Indian context.</li> </ul>
	<b>EC 201</b>	<b>Agricultural Economics</b>	<ul style="list-style-type: none"> <li>Develop knowledge and understanding of basic principles and practice of Economics as required in Agricultural Economics.</li> <li>Equip with the knowledge and skills required to analyze agricultural economic issues.</li> <li>Get an insight for efficient use of scarce resources in agriculture sector and its development, consistent with the interest of all stake holders.</li> </ul>
	<b>EC 241</b>	<b>Macro Economics - II</b>	<ul style="list-style-type: none"> <li>Helps understand the issues of inflation, unemployment and trade cycles and the theoretical developments in this area.</li> <li>Modern developments in Classical and Keynesian schools of thought are understood in depth.</li> <li>Policy prescriptions and policy outcomes are understood.</li> <li>Updated on the various issues and developments in Macro Economics.</li> </ul>
	<b>EC 242</b>	<b>International Economics - II</b>	<ul style="list-style-type: none"> <li>Learn the theories of international finance flows, determination of interest and exchange rates in interconnected economies, macroeconomic policies available to the government, and the nature of financial crises.</li> <li>Generate framework for consistent reasoning about international flows of goods, factors of production, and financial assets, trade policy and monetary policy in open economy.</li> </ul>
	<b>EC 243</b>	<b>Financial Securities Market Analysis</b>	<ul style="list-style-type: none"> <li>Understand primary, secondary, derivatives and Mutual Funds market.</li> <li>Knowledge of stock investment decisions and its analysis</li> <li>Practical idea of stock market trading in India.</li> </ul>
	<b>EC 2010</b>	<b>Industrial Economics</b>	<ul style="list-style-type: none"> <li>Get an idea on use of theoretical models to understand industries and regulatory decision making.</li> <li>Exposure to use diagrams and some basic mathematical models.</li> <li>Provide guidelines to the students on the basic issues in the industrial development of India.</li> <li>Acquire fair knowledge of international experience of industrial progress.</li> </ul>
	<b>EC 244</b>	<b>Dissertation</b>	<ul style="list-style-type: none"> <li>Practical application of economic theories and tools.</li> </ul>

## 8. DEPARTMENT OF HISTORY

### B.A. HISTORY

#### PROGRAMME OUTCOME

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

- Understand the past with in-depth knowledge of specific historical periods
- Understand about the cultures and traditions of societies
- Show familiarity with major events, personalities and issues related to the period being taught
- Demonstrate the ability to compare and contrast different processes, modes of thought, and modes of expression from different historical time periods and in different geographic areas.
- Demonstrate in research topic choices and resulting papers the ability to recognize and articulate the diversity of human experience, including ethnicity, race, language, sex, gender, as well as political, economic, social, and cultural structures over time and space.

#### COURSE OUTCOME

Sem.	Course Code	Title of The Course	Course Outcome
I	HY 1141	<b>Methodology and Perspectives of Social Science</b>	<ul style="list-style-type: none"> <li>• Familiarity with the main concerns of social science disciplines</li> <li>• Understanding of the broad contours of social science and its methodology</li> </ul>
	HY 1131.1	<b>History of Modern India (1857-1900)</b>	<ul style="list-style-type: none"> <li>• Understanding Background of the Revolt of 1857 and different Theories of the Revolt.</li> <li>• Knowledge of the Socio-Religious Reform Movements in India.</li> <li>• Understanding of the Background of Indian Nationalism</li> </ul>
II	HY1241	<b>Cultural Formation of the Pre-Modern World</b>	<ul style="list-style-type: none"> <li>• Awareness of the conceptual and general issues regarding culture and civilization of the ancient period evolution of early Indian society and culture</li> </ul>
	HY 1231.1	<b>History of Modern India (1901-1920)</b>	<ul style="list-style-type: none"> <li>• Awareness of the Moderates, Extremists and Emergence of Militant Nationalism.</li> <li>• Knowledge of the Minto-Morley Reforms</li> <li>• Understanding of the Impact of First World War on Indian Nationalism</li> </ul>

III	<b>HY1321</b>	<b>Informatics</b>	<ul style="list-style-type: none"> <li>• Understanding of basic computers and their accessories</li> <li>• Importing functional knowledge in the field of Informatics.</li> </ul>
	<b>HY1341</b>	<b>Evolution of the Early Indian Society &amp; Culture</b>	<ul style="list-style-type: none"> <li>• Insight into early history, society, polity and economy of India</li> <li>• Understanding of the features of pre-historic and proto historic culture in India.</li> </ul>
	<b>HY1541</b>	<b>Major Trends in Indian Historical Thought and Writings</b>	<ul style="list-style-type: none"> <li>• Enabling students to understand the history of historical writings.</li> <li>• Intellectually equipping the students to evaluate the works in the light of new theories and concepts.</li> </ul>
IV	<b>HY 1331.1</b>	<b>History of Modern India (1921-1947)</b>	<ul style="list-style-type: none"> <li>• Knowledge of the Advent of Gandhi on the Political Scene of India</li> <li>• Knowledge of the Emergence of Socialist Ideas during independence struggle.</li> </ul>
	<b>HY 1441</b>	<b>Medieval India : Socio-cultural Processes</b>	<ul style="list-style-type: none"> <li>• Equip with ideas on social-cultural and administrative features during the medieval period</li> </ul>
	<b>HY 1131.1</b>	<b>History of Contemporary India (After 1948)</b>	<ul style="list-style-type: none"> <li>• Understanding of the Nehruvian Era.</li> <li>• Knowledge of The Domestic Reforms and India's Foreign Policy.</li> <li>• Understanding of India's Role In World Affairs</li> </ul>
V	<b>HY 1442</b>	<b>History of Modern World I</b>	<ul style="list-style-type: none"> <li>• Familiarity with the changes in the history of modern world</li> </ul>
	<b>HY 1542</b>	<b>Colonialism Resistance Movements in India</b>	<ul style="list-style-type: none"> <li>• Insight of circumstances that led to the establishment of colonialism in India and analyze the resistance movements against the British</li> </ul>
	<b>HY 1543</b>	<b>History of Modern World II</b>	<ul style="list-style-type: none"> <li>• Insight of the first and second world wars and the achievements and failures of the international organizations</li> </ul>
	<b>HY 1544</b>	<b>History of Pre-Modern Kerala</b>	<ul style="list-style-type: none"> <li>• Understanding of early and medieval Kerala history, society, polity and economy</li> </ul>
	<b>HY 1545</b>	<b>Making of Indian Nation</b>	<ul style="list-style-type: none"> <li>• Aware about the various stages in the Indian national movements</li> <li>• Understanding the circumstances that led to the formation of Indian union</li> </ul>
	<b>HY 1551.3</b>	<b>History of Human Rights Movements (Open Course)</b>	<ul style="list-style-type: none"> <li>• Understanding of human rights, violation and racial discrimination.</li> <li>• Understanding of movements led by great leaders</li> <li>• Knowledge of Indian experiments of human rights</li> <li>• Understanding of women's movements and environmental movements</li> </ul>

<b>VI</b>	<b>HY 1641</b>	<b>Making of Modern Kerala</b>	<ul style="list-style-type: none"> <li>• Familiarity with European advances, socio-political agitations, social reform movements and the formation the state of Kerala</li> </ul>
	<b>HY 1642</b>	<b>Major Trends in Western Historical Thought &amp; Writings</b>	<ul style="list-style-type: none"> <li>• Understanding the origin and development of historical writings in India.</li> <li>• Understanding the recent schools and historiography</li> </ul>
	<b>HY 1643</b>	<b>Contemporary India</b>	<ul style="list-style-type: none"> <li>• Knowledge of the challenges, achievements and development of various sectors like education, science, technology, etc. in modern India.</li> </ul>
	<b>HY 1644</b>	<b>Twentieth Century Revolutions</b>	<ul style="list-style-type: none"> <li>• Knowledge of the four major revolutions of the 20th century</li> </ul>
	<b>HY 1661.3</b>	<b>Contemporary World (Elective Course)</b>	<ul style="list-style-type: none"> <li>• Understanding of contemporary history</li> <li>• Familiarity with the role of India in world affairs</li> <li>• Knowledge of new international economic order</li> </ul>
	<b>HY 1645</b>	<b>Project/Dissertations</b>	<ul style="list-style-type: none"> <li>• Understanding of any social problem relevant to the study of history</li> </ul>

## **9. DEPARTMENT OF COMMERCE**

### **B. COM (COMPUTER APPLICATION)**

#### **PROGRAMME OUTCOME**

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

- Critically evaluate new ideas, research findings, methodologies and theoretical frameworks in a specialised field of study.
- Develop problem solving skills through the application of appropriate theories, principles and data.
- Use basic mathematical and statistical tools of analysis.
- Teach students how to undertake group activities, work collaboratively and productively in groups.
- Apply critical and analytical skills and methods to the identification, evaluation and resolution of complex problems.
- Communicate ideas effectively in both written and oral formats. Operate effectively in multicultural and diverse environments.
- Develop proficiency in the use of appropriate information technologies.
- Recognise and understand the ethical responsibilities of individuals and organisations in society.
- Analysis and evaluation of evidence in the commerce disciplines in support of an argument, proposition or solution to problems in organisations and in society. Strategic and critical thinking in relation to business and commerce related issues.
- Develop skill in the use of computer systems and software used in commerce and business.
- Develop awareness of cultural differences and ability to account for these in developing solutions to commerce related problems.
- Effectively communicate on matters related to economics and commerce.
- Participate in discussions and debates on national and international issues related to the disciplines of the faculty.
- Effectively decide on making in business and commerce.

**COURSE OUTCOME**

Sem.	Course Code	Course Title	Course Outcome
I	CO 1121	<b>Methodology And Perspectives Of Business Education (Foundation)</b>	<ul style="list-style-type: none"> <li>• Appreciate business and its role in society.</li> <li>• Ascertain the significance of entrepreneurship and its heuristics</li> <li>• Comprehend the business environment</li> <li>• Instigate the students to undertake business activities</li> <li>• Ensure a holistic, comprehensive and integrated perspective to business education</li> </ul>
	CO 1141	<b>Environmental Studies</b>	<ul style="list-style-type: none"> <li>• Enable students to acquire basic ideas about environment and emerging environmental issues.</li> <li>• Develop Awareness about the need and importance of environmental protection</li> <li>• Extend knowledge and understanding of the environment and enable the students to contribute towards maintaining and improving the quality of the environment.</li> </ul>
	CO 1142	<b>Functional Application Of Management</b>	<ul style="list-style-type: none"> <li>• Introduce students to various aspects of organizational management.</li> <li>• Give an understanding on the functional application of management</li> </ul>
	CO 1131	<b>Managerial Economics (Complementary )</b>	<ul style="list-style-type: none"> <li>• Introduce students to the economic principles and theories underlying various business decisions.</li> <li>• Equip the students to apply the economic theories in different business situations.</li> <li>• Acquaint students with the application of economics in the context of managerial decision making.</li> </ul>
II	CO 1221	<b>Informatics And Cyber Laws (Foundation )</b>	<ul style="list-style-type: none"> <li>• Review the basic concepts and fundamental knowledge in the field of informatics.</li> <li>• Aware about the nature of the emerging digital knowledge society and the impact of informatics on business decisions.</li> <li>• Awareness about the cyber world and cyber regulations.</li> <li>• Update and expand informatics skills and attitudes relevant to the emerging knowledge society and to equip the students to effectively utilise the digital knowledge resources for business studies</li> </ul>

<b>III</b>	<b>CO 1241</b>	<b>Business Communication And Office Management</b>	<ul style="list-style-type: none"> <li>• Develop communication skills among students relevant to various business situations</li> <li>• Impart knowledge on the management of Modern Offices.</li> <li>• Explore the talents in business communication and enable the students to understand the appointment and role of a Company Secretary in business.</li> </ul>
	<b>CO 1242</b>	<b>Financial Accounting</b>	<ul style="list-style-type: none"> <li>• Introduce students to Accounting Standards.</li> <li>• Equip the students to prepare the accounts of special business areas.</li> <li>• Impart knowledge and understanding of principles and concepts of financial accounting and develop the skill required for the preparation of financial statements and accounts of various business areas.</li> </ul>
	<b>CO 1231</b>	<b>Business Regulatory Framework</b>	<ul style="list-style-type: none"> <li>• Supply a brief idea about the framework of Indian business Laws</li> <li>• Enable the students to apply the provisions of business laws in business activities</li> <li>• Motivate the students to take up higher studies in business Laws</li> </ul>
	<b>CO 1341</b>	<b>Entrepreneurship Development</b>	<ul style="list-style-type: none"> <li>• Introduce students to the latest programs of the government authorities in promoting small and medium industries.</li> <li>• Impart knowledge regarding how to start new ventures.</li> <li>• Equip the students to have a practical insight for becoming an entrepreneur.</li> </ul>
	<b>CO 1342</b>	<b>Company Administration</b>	<ul style="list-style-type: none"> <li>• Introduce students to the salient provisions of Indian Companies Act 2013.</li> <li>• Acquaint the students about Management and Administration of Companies, Compliance requirements, investigation into the affairs of the company and Winding up procedure.</li> </ul>
	<b>CO 1343</b>	<b>Advanced Financial Accounting</b>	<ul style="list-style-type: none"> <li>• Create awareness of accounts related to dissolution of partnership firms.</li> <li>• Acquaint students with the system of accounting for different branches and departments.</li> <li>• Enable students to prepare accounting of consignments and joint venture.</li> <li>• Equip the students with the preparation of accounts of various business areas</li> </ul>
	<b>CO 1331</b>	<b>Information Technology In Business (Complementary)</b>	<ul style="list-style-type: none"> <li>• Review the basic concepts and functional knowledge in the field of IT.</li> <li>• Introduce students to computer application in the field of Business, its potential application in business.</li> </ul>



IV	Co 1361.5	<b>Computer Application For Publication (Elective)</b>	<ul style="list-style-type: none"> <li>• Supply functional knowledge in the field of free software.</li> <li>• Develop practical skills in students to meet the demands of the industry.</li> </ul>
	CO 1441	<b>Capital Market</b>	<ul style="list-style-type: none"> <li>• Offer students a clear-cut idea about the functioning of Indian Capital Market</li> <li>• Endow with an in-depth knowledge on Capital Market</li> </ul>
	CO 1442	<b>Banking Theory And Practice</b>	<ul style="list-style-type: none"> <li>• Offer basic knowledge of the theory and practices of banking.</li> <li>• Introduce students to the changing scenario of Indian banking.</li> <li>• Expose the students to the changing scenario of Indian banking.</li> </ul>
	CO 1443	<b>Corporate Accounting</b>	<ul style="list-style-type: none"> <li>• Facilitate the students to develop awareness about corporate accounting in conformity with the provisions of Companies Act, IAS and IFRS.</li> <li>• Facilitate the students to prepare and interpret financial statements of joint stock companies in different situations. 3. Expose the students to the accounting practices prevailing in the corporate.</li> </ul>
	CO 1431	<b>Business Statistics (Complementary)</b>	<ul style="list-style-type: none"> <li>• Aid students to gain understanding of statistical techniques as are applicable to business.</li> <li>• Enable the students to apply statistical techniques for quantification of data in business.</li> <li>• Develop skills in applying appropriate statistical tools and techniques in different business situations.</li> </ul>
	CO 1461.5	<b>Web Designing And Production For Business (Elective)</b>	<ul style="list-style-type: none"> <li>• Provide practical skills on web designing and production for business organisations.</li> </ul>
V	CO – 1541	<b>Fundamentals Of Income Tax</b>	<ul style="list-style-type: none"> <li>• Introduce the students about the fundamental concepts of Income Tax</li> <li>• Enable the students to acquire the skills required to compute Gross Total Income with more emphasis on income from salary and income from house property.</li> <li>• Impart basic knowledge and understanding of concepts and practices of Income Tax Law in India.</li> </ul>
	CO 1542	<b>Cost Accounting</b>	<ul style="list-style-type: none"> <li>• Introduce the students to cost concepts.</li> <li>• Make students learn cost accounting as a separate system of accounting</li> <li>• Impart knowledge of cost accounting system and acquaint the students with cost control. measures</li> </ul>

VI	CO 1543	<b>Accounting For Specialised Institutions</b>	<ul style="list-style-type: none"> <li>• Introduce students to accounting practices prevailing in various specialised institutions.</li> <li>• Acquaint the students with the preparation of final accounts of the specialized</li> <li>• Develop the skill for the preparation of final accounts of specialised institutions and enable the students to acquire professional competence in accounting.</li> </ul>
	CO 1551	<b>Principles Of Management (Open Course)</b>	<ul style="list-style-type: none"> <li>• Provide knowledge in the fundamentals of management principles and functions.</li> </ul>
	Co 1561 .5	<b>Software For Data Management (Elective)</b>	<ul style="list-style-type: none"> <li>• Expand practical skills inn spreadsheet applications, statistical software and database.</li> </ul>
	CO 1644	<b>Project</b>	<ul style="list-style-type: none"> <li>• Develop skills to analyse the problems in the present scenario and solutions to such problems in a systematic way</li> </ul>
	CO 1641	<b>Auditing</b>	<ul style="list-style-type: none"> <li>• Appreciate the principles and practice of auditing</li> <li>• Introduce the students to the principles and procedure of auditing.</li> <li>• Enable the students to understand the duties and responsibilities of auditors.</li> </ul>
	CO 1642	<b>Applied Costing</b>	<ul style="list-style-type: none"> <li>• Familiarise students with different methods and techniques of costing.</li> </ul>
	CO 1643	<b>Management Accounting</b>	<ul style="list-style-type: none"> <li>• Widen professional competence and skill in applying accounting information for decision making.</li> <li>• Equip the students to interpret financial statements with specific tools of management accounting.</li> </ul>
	CO 1661.7	<b>Management Of Foreign Trade</b>	<ul style="list-style-type: none"> <li>• Familiarise students with India’s foreign trade, international trade and services.</li> </ul>
	CO 1661.5	<b>Computerised Accounting (Elective)</b>	<ul style="list-style-type: none"> <li>• Expose students to computer applications in the field of accounting.</li> <li>• Develop practical skills in the application of tally package.</li> </ul>
	CO 1644	<b>Project</b>	<ul style="list-style-type: none"> <li>• Practically apply their learning in studying a problem/issue in commerce</li> </ul>