DEPARTMENT OF ECONOMICS

COURSE OBJECTIVES:

- **To provide the students with the opportunity to pursue courses that emphasizes quantitative, qualitative and theoretical aspects of economics.**
- **To facilitate students to enhance academic writing, critical thinking and research aptitude.**

PAPERS	OBJECTIVES
MICRO ECONOMIC ANALYSIS I	❖ To frame a strong theoretical and empirical base for employable graduates ❖ To familiarize the tool box of micro economic
MICRO ECONOMIC ANALYSIS II	➢ To extend the knowledge in basic theories and concepts to build their foundation for higher studies. ➢ Helps to understand the role of economic agents in decision making process.
MACRO ECONOMIC ANALYSIS I	· To make them understand the working of the economy at aggregate level. · It helps them to analyze the economic policies regarding various economic problems.
INTERNATIONAL ECONOMICS	✓ To enable the students to assess current international economic issues based on theory and evidence. ✓ To provide an opportunity to examine the trends in global economic phenomena.
MACRO ECONOMIC ANALYSIS II	To equip the students with a sound idea of advancement in macro economics with various economic tools. To develop critical thinking and research inquisitiveness in macro economics among students.
ENVIRONMENTAL ECONOMICS	• To provide necessary training and train them to deal with various issues in environmental sector. • To make the students aware of using economic tools and methods to minimize environmental damages.
BASIC TOOLS FOR ECONOMIC ANALYSIS I	o To develop skills in applying statistical techniques and mathematical concepts in studying theoretical and empirical economics. o To train the students to quantify economic variables and enable them to apply statistical techniques in economics.
ALTERNATIVE ECONOMICS	➢ To familiarize the different perspectives of alternative schools of thought. ➢ To enhance and diversify the knowledge

	profile of the students and to pursue them in higher studies and research in alternative economics.
RESEARCH METHODS AND TECHNIQUES FOR ECONOMIC ANALYSIS	❖ To provide basic skills required to execute the project work. ❖ To train students to understand different ways of looking at economic issues and different methods to tackle the matter in right way.
DEVELOPMENT ECONOMICS	➢ To make the students aware of the methodological and measurement issues relating to growth and development. ➢ To provide an understanding about the various development issues and development gap between policy and practice.
ECONOMICS OF BANKING AND FINANCE	• To expand the skill set of the students for higher studies and employment in finance. • To make them aware of the innovations and related trends in the field of banking and finance.
BASIC TOOLS FOR ECONOMIC ANALYSIS II	❖ To enable the students to understand and interpret economic concepts with the help of mathematical and statistical tools. ❖ To train students to analyze and interpret empirical data with the help of statistical tools.
CENTRAL THEMES IN INDIAN ECONOMY	· To give awareness to students regarding various sectors in the economy. · To impart idea about the economic development of the country.
PUBLIC FINANCE	• To facilitate an overall perspective of public policy and the development. • To give an explosure about resourse mobilization by the Government through fiscal instruments.
BASIC ECONOMETRIC ANALYSIS	✓ To impart a comprehensive introduction to basic econometric concepts, methodology and techniques of analysis. ✓ To make them perform econometric analysis relating to their project works and in research work in future.
PROJECT	○ To give an experience in their future research work. ○ To make them aware of various economic issues in the economic field.
INTRODUCTORY ECONOMICS-I(COMPLEMENTARY)	To give an idea about overall background of the economic theory. To provide specific inputs from micro economics covering fundamental concepts,

	this will improve the analytical skills of students.
INTRODUCTORY ECONOMICS-II(COMPLEMENTARY)	• To familiarize the students about the subject matter of economics mainly micro economics and public finance. • To give awareness about development issues of Indian economy.
HISTORYOFECONOMICTHOGHT-I(COMPELEMTARY)	❖ To facilitate an insight into the evolution of economic theory from the earliest times to the present day. ❖ To broaden the human vision and create new possibilities of further contribution to the development of the subject.
HISTORYOFECONOMICTHOGHT-II(COMPELEMTARY)	○ To assist the students in tracing the origin and development of Economics with regard to other sciences. ○ To make them understand the nature, scope and relationship of economics with other subjects.
POPULATION STUDIES(COMPELEMTARY)	✓ To impart knowledge of basic concepts, scope, nature and subject matter of population studies. ✓ To enrich the knowledge of students on various issues of population.
REGIONAL ECONOMICS(COMPELEMTARY)	To make students understand about various regional economic development theories. To create awareness among students regarding five year plans and regional economic development.
KERALA ECONOMY(OPEN COURSE)	○ To make them understand the structural changes in Kerala Economy. ○ To facilitate a basic understanding about the developmental issues of Kerala economy.

PROGRAMME SPECIFIC OUTCOMES (PSOS), BSc CHEMISTRY, KANNUR UNIVERSITY

After successful completion of three Degree program in chemistry a student should be able to

PSO 1 Understand the fundamental concepts, principles and processes underlying the academic field of chemistry. Its different subfields (analytical .organic, inorganic and physical) and its linkages with related disciplinary areas or subjects;

PSO 2 Demonstrate procedural that creates different types of professionals in the field of Chemistry and related fields such as pharmaceuticals, chemical industry, teaching, research, environmental monitoring, product quality, consumer goods industry, food products, cosmetic industry etc..

PSO 3 Employ critical thinking and scientific method to design, carry out, record and analyse the results of chemical experiments and get an awareness of impact of chemistry on environment and society.

PSO 4 Use chemical techniques relevant to academia and industry, generic skills and global competencies including knowledge and skills that enable students to undertake further studies in the field of chemistry or a related field and work in the chemical and non chemical industry sectors.

PSO 5 Undertake hands on lab work and practical activities which develop problem solving abilities required for successful career in pharmaceutical chemical industry, teaching, research, environmental monitoring, product quality, consumer goods industry, food products, cosmetic industry etc..

PSO 6 Understand safety of chemicals,transfer and measurement of chemical ,preparation oof solutions and findout green route for chemical reactions for sustainable development**.**

PSO 7 Create an awareness of the impact of Chemistry on environment, society and development outside the scientific community**.**

SEMESTER 1

CORE COURSE: I - THEORETICAL AND INORGANIC CHEMISTRY

Course outcome

On successful completion of this course, students should be able to

CO 1: Correlate the structure and behavior of atom

CO2: Differentiate the various chemical interactions in molecules through bonding concepts

CO3: Analyze and interpret the gradation in the properties of elements in the periodic table

CO4: Predict the nuclear transmutations CO5: identify the role of radioactive materials in different applications

SEMESTER 2

CORE COURSE III: ANALYTICAL AND INORGANIC CHEMISTRY – I

Course Out come

On successful completion of this course, students should be able to

CO 1: Determine the error, standard deviation and relative standard deviation of analytical data.

CO 2: Understand statistical treatment of analytical data and the principles underlying volumetric titrations

CO 3: Understand basic principles behind selective precipitation of cation.

CO 4: Summarize the characteristics of s- and p- block elements

CO 5: Compare the various concepts of acids and bases

SEMESTER 3

CORE COURSE IV: ORGANIC CHEMISTRY – I

Course Outcome

On successful completion of this course, students should be able to

CO:1) Explain the types of electron displacement in organic molecules and predict the properties of molecules based on electron displacement effect

CO:2) Distinguish aromatic , anti aromatic and non-aromatic compounds and ions and analyse the mechanistic details of aromatic electrophylic substitution

CO:3) Classify stereo isomers, understand the property of chirality , apply CIP rules to recognize the configuration and explain the stability of conformations drawing energy profile diagram

CO: 4) Explain the mechanism of polymerization, synthesis and application of industrially important Polymers

CO: 5) Explain the classification and the methods of preparation of important dyes

CO: 6) Illustrate the preparative methods and synthetic applications of important synthetic reagents

SEMESTER 4

CORE COURSE VI : ORGANIC CHEMISTRY – II

Course Outcome

On successful completion of this course, students should be able to

CO :1) Describe mechanisms for substitution and elimination reactions, and predict the effect of nucleophile, leaving group, and solvent on the relative rates of SN1 versus SN2 reactions, and E1 versus E2 reactions, as well as on the relative rates of substitution versus elimination.

CO 2) Explain Chugaev and Cope eliminations and E1CB mechanism

CO 3) Illustrate the preparative methods and important properties of Hydro carbons,halogen compounds , Hydroxy compounds and Carbonyl Compounds

CO: 4) Explain the mechanism of important name reactions including rearrangements involving hydroxyl and Carbonyl functional groups

SEMESTER 5

CORE COURSE VII : ANALYTICAL AND INORGANIC CHEMISTRY-II

Course Outcome

On successful completion of this course, students should be able to

CO: 1 Understand the qualitative and quantitative aspects of analysis and separation techniques

CO: 2 Explain instrumentation and working principle of different analytical techniques –TGA, DTA and radio chemical method of analysis.

CO: 3 Familiarize with the preparation, properties and uses of some inorganic compounds like hydrides of boron, sulphur and silicon based inorganic polymers and understand their importance

CO :4 Explain the classification of refractories.

CO :5 Know the position, electronic configuration and physical properties of noble gases and explain hybridization and geometry of different xenon compounds

CO :6 Explain various steps involved in metallurgical operations and power metallurgy and understand Corrosion, theories of Corrosion and factors affecting Corrosion

SEMESTER 5

CORE COURSE VIII : INORGANIC CHEMISTRY

Course Outcome

On successful completion of this course, students should be able to

CO:1) Understand the behavior of transition and inner transition elements and explain the separation of lanthanides by ion exchange method and lanthanide contraction

CO: 2) Understand key features of co-ordination compounds and illustrate the theories of coordination complexes, stability of complexes and explain factors affecting crystal field splitting.

CO: 3) Explain biological functions of metal ions. CO:

4) Familiarize new elements in periodic table and Understand recent developments in inorganic chemistry.

SEMESTER 5

CORE COURSE IX : PHYSICAL CHEMISTRY I

Course outcome

On successful completion of this course, students should be able to

CO1)Recognize and relate the properties of ideal and real gases

CO2) Describe the properties of liquids.

CO3) Identify and distinguish the types of solutions

CO4) Explain colligative properties of dilute solution and determine the molecular weight of a solute

CO 5) Identify different crystallographic systems and various types of crystal defects

CO 6) Describe X ray diffraction to explain internal structure of solids

SEMESTER 5

CORE COURSE X : PHYSICAL CHEMISTRY II

Course outcome

On successful completion of this course, students should be able to

CO 1) Identify the fundamental concepts of thermodynamics

CO2) Relate and Interpret the various laws of thermodynamics

CO3) Understand the concept of entropy and how the whole universe is related to it.

CO 4) Construct phase diagrams and study the equilibrium exists between various states of matter.and apply principles phase diagram to separation processes and for property modification of different type of system.

CO 5) Understand basic principles of surface chemistry and its application in various fields

CO 6) Correlate the types of colloids with its properties and to explore the applications in day today life.

SEMESTER 6

CORE COURSEXIV: ORGANIC CHEMISTRY – III

Course Outcome

On successful completion of this course, students should be able to

CO1 Acquaint with the classification, structures and properties of carbohydrates, explain the configuration of glucose and fructose, their inter conversion , illustrate Killiani-Fischer synthesis and Ruff degradation

CO2 Illustrate the preparative methods and the properties of different classes of organic acids , nitrogen containing compounds and heterocyclic compounds

CO3Classify amino acids and peptides and explain the synthesisof simple peptides by Nprotection (t-butyloxycarbonyl and phthaloyl) &C-activating groups and Merrifield solidphase synthesis.Explain the methods of determination of primary structure of peptides

CO4 Distinguish the components of nucleic acids and lipids and their roles in biological system and the biological importance of various natural products .Familiarise with important drugs and their therapeutic applications

CO 5Recognisethe types and characteristics of pericyclic reaction and analyse the pericyclic reactions by FMO methods. Understand the photochemistry of carbonyl compounds

CO 6Understand the principles of Green Chemistry and the importance of green synthesis and recognize the impact of green chemistry on human health and the environment

SEMESTER 6

CORE COURSEXV: PHYSICAL CHEMISTRY – III

Course outcome

On successful completion of this course, students should be able to

CO 1) Understand the mechanism of electrical conductance, theories of electrical conductance, and coductometric titrations

CO 2) Understand the basic principle of ionic equilibrium and its application in laboratories

CO 3) Design different types of electro chemical cell and able to calculate its potential.

CO 4) Familiarise with electro analytical methods CO

5) Acquaint with kinetics of simple, complex, enzymatic and surface reactions CO6) Understand basic principles of photochemistry and its application in spectrophotometry.

SEMESTER 6

CORE COURSEXVI: PHYSICAL METHODS IN CHEMISTRY

Course outcome

On successful completion of this course, students should be able to

CO 1 i) Explain the important principles of spectroscopy ii) Apply spectroscopic techniques in analyzing the structure of simple organic molecules

CO 2 Acquainting the working principles of various instruments and their functions

CO 3 Understand the basic principles of symmetry and group theory and its applications in chemistry

CO 4 Study the basic principles of nanochemistry and understand the various nanofabrication methods CO 5 Explain the important principles for quantum chemical and molecular mechanic methods of computing the geometry and energy of molecules

B.Sc. ZOOLOGY

Programme Specific Outcome of BSc Zoology Programme

PSO1: Skill development for the proper identification, naming and classification of life forms especially animals.

PSO2: Acquisition of knowledge on structure, life cycle and life processes that exist among animal diversity through certain model organism studies.

PSO3: Understanding of various interactions that exist among plants animals and microbes; to develop the curiosity and love on the dynamicity of nature.

PSO4: Understanding of the major elements of variation that exist in the living world through comparative morphological and anatomical study.

PSO5: Ability to explain the diversity and evolution based on the empirical evidences in Morphology, Anatomy, Embryology, Physiology, Biochemistry, Molecular Biology and Life history.

PSO6: Skill development in the observation and study of nature, biological techniques and scientific investigation

PSO7: Making aware of the scientific and technological advancements in the fields of Information and Communication, Biotechnology and Molecular Biology for further learning and research.

PSO8: Internalisation of the concept of conservation and evolution through the channel of spirit of inquiry.

I Semester B.Sc. Degree Programme (Theory)

Zoology Core Course -1

PROTISTA AND NONCHORDATA - I

Code: 1B01ZLG

COURSE OUTCOMES

CO1. To understand the basic methods in zoology and animal classification.

CO2. Able to appreciate the process of evolution (unicellular cells to complex, multicellular organisms)

CO3. Familiar with the protist and non-chordate world (from Phylum Porifera to Mesozoa) that surrounds us.

CO4. Able to identify the invertebrates (from Phylum Porifera to Mesozoa) and classify them up to the class level with the basis of systematic

CO5. Understand the basis of life processes in the non-chordates (from Phylum Porifera to Mesozoa) and recognize the economically important invertebrate fauna.

II Semester B.Sc. Degree Programme (Theory)

Zoology Core Course -2

PROTISTA AND NONCHORDATA - 2

Code: 2B02ZLG

COURSE OUTCOMES

CO1. Familiar with the non-chordate world (Coelomates - from Phylum Annelida to Hemichordata) that surrounds us.

CO2. Able to identify the invertebrates (Coelomates - from Phylum Annelida to Hemichordata) and classify them up to the class level with the basis of systematic

CO3. Understand the basis of life processes in the non-chordates (from Coelomates – from Phylum Annelida to Hemichordata) and recognize the economically important invertebrate fauna.

III Semester B.Sc. Degree Programme

Zoology Core Course – 3

Chordata – I

Code: 3B03ZLG

Course outcomes

CO1: Understand the origin and evolutionary relationship in different subphyla of chordates.

CO2: To understand the diversity of chordates (from urochordates to reptiles).

CO3: Understand the unique characters of urochordates, cephalochordates and vertebrates

CO4: Recognize life functions of chordates (from urochordates to reptiles).

IV Semester B.Sc. Degree Programme

Zoology Core Course – 4

Chordata – II and Comparative Anatomy

Code: 4B04ZLG

Course Outcomes

CO1: Understand the general and unique characteristics and classification of Aves and Mammals

CO2: Understand the diversity and relation in form and structure of chordates.

V Semester B.Sc. Degree Programme

Zoology Core Course – 5

BIOCHEMISTRY AND ENDOCRINOLOGY

Code: 5B05ZLG

Course outcomes

CO1. Understand the importance of Bio molecules

CO2. Familiar with various biochemical pathways

Zoology Core Course – 6

BIOPHYSICS, BIOSTATISTICS AND METHODOLOGY

Code: 5B06ZLG

Course outcomes

CO1. Understand the importance of Bio molecules

CO2 : Develop knowledge about equipment like microscopes, spectrophotometers,centrifuges etc

Zoology Core Course – 7

CELL BIOLOGY AND IMMUNOLOGY

CODE: 5B07ZLG

Course outcomes

CO1. Structural and functional aspects of basic unit of life i.e. cell concepts

CO2. Gather basic concepts of Cell Biology along with various cellular functions

CO3. Understand the basic concepts of immunity

CO3. Understand the diversity of microbes and their use and harm

Zoology Core Course – 8

HEREDITARY SCIENCE

CODE: 5B08ZLG

COURSE OUTCOMES

1. Comprehensive and detailed understanding of the chemical basis of heredity.

2. Understanding about the role of genetics in evolution.
3. The ability to evaluate conclusions that are based on genetic data.
4. The ability to understand results of genetic experimentation in animals.

Zoology Core Course – 9

COMPARATIVE ANIMAL PHYSIOLOGY AND HUMAN PHYSIOLOGY

Code: 5B09ZLG

COURSE OUTCOMES

CO1. Understand the function of various systems at cellular and system levels

CO2. Understand the mechanisms that work to keep the body alive and functioning

CO3. Apply the knowledge to lead a healthy life

Zoology Open Course

APICULTURE AND SERICULTURE

CODE : 5 D 02 ZLG

Course outcomes

CO 1 :Develop self-employment capabilities.

CO 2 : Acquires scientific knowledge of profitable farming.

VI Semester B.Sc. Degree Programme

Zoology Core Course – 10

MOLECULAR BIOLOGY & BIOINFORMATICS

CODE: 6B10ZLG

Course outcomes:

CO1. Understand the importance of Bio molecules

CO2.Familiar with various tools and applications of Bioinformatics

Zoology Core Course – 11

ENVIRONMENTAL SCIENCE AND CONSERVATION
BIOLOGY CODE: 6B11ZLG

CO1. Able to describe the relation between abiotic and biotic factors.

CO2. Students are able to describe various biological interactions.

CO3. Students are able to understand how change in population affect the ecosystem

Zoology Core Course – 12

DEVELOPMENTAL BIOLOGY, TERATOLOGY AND GERONTOLOGY CODE: 6B12ZLG

CO 1 : Understand the major steps in embryological development.

CO 2: Understand the intricate mechanisms involved in the development of animals

Zoology Core Course – 13
EVOLUTION, ETHOLOGY AND ZOOGEOGRAP

Code: 6B13ZLG

Course outcomes

CO1.Realise that the whole living system has a common ancestry and so all are related

CO2. Realise the fundamental characteristics of science as a human enterprise

CO3. Apply scientific methods in day to day life

CO4. Able to design a research work on a topic

Zoology Complementary Course – 1

DIVERSITY OF LIFE I

1C01ZLG

CO1.Familiar with the non-chordate world that surrounds us.

CO2.Able to identify the invertebrates and classify them up to the class level with the basis of systematics

CO3. Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.

Zoology Complementary Course – 2

DIVERSITY OF LIFE II

2C02ZLG

Course outcomes

CO1: Understand the origin and evolutionary relationship in different subphyla of chordates.

CO2: Understand the diversity of chordates

CO3: Understand the unique characters of urochordates, cephalochordates and vertebrates

CO4: Recognize life functions of chordates

Zoology Complementary Course – 3

MEDICAL ZOOLOGY

4C04ZLG

Course outcomes

CO 1: Understanding of the various causative organisms and factors and also how and what preventive measures can be adopted against these.

Programme Specific Outcome of BSc Physics Programme

PSO1: Understand and apply the principles of Classical mechanics, Quantum mechanics, Thermodynamics, Nuclear physics and Electrodynamics

PSO 2: Understand and apply the principles of Solid state physics, Optics, Photonics and Spectroscopy

PSO 3: Understand the principles of Electronics, Design and test electronic circuits
PSO 4: Understand and apply the principles of Mathematical Physics and Computational Physics

PSO 5: Understand the numerical methods and programming language for solving equations.

COURSE OUTCOMES

1B01PHY Physics primers

2B02PHY Electronics-I

COURSE OUTCOME CO1: Understand the basics of PN junction diode, Zener diode and their applications CO2: Understand the structure, operations and characteristics of BJT and FET CO3 :Understand the biasing methods and design of BJT and FET circuits CO4: Understand the different number systems, conversions and binary arithmetic operations CO5 : Understand the basic combinational logic gates CO6 : Understand the Boolean algebra &logic simplification using Boolean algebra

3B03PHY Allied Physics

4B04PHY Optics

CO1:Understand the concept of interference and diffraction CO2: Distinguish between Fresnel and Fraunhoffer diffraction CO3: Analyse mathematically diffraction pattern due to slits and apertures CO4: Understand the concept of polarization and double refraction

4B05PHY Practical

CO1: Familiarize with apparatus for mechanical, electrical, magnetic and optical experiments. CO2:Familiarise active and passive electronic components. CO2: Familiarisemultimeter, power supply Develop skill in soldering and use of breadboard CO3: Develop skill in setting up of apparatus for accurate measurement of physical quantities. CO4: Understand multiple experimental techniques for determining physical quantities.

5B06PHY Electrodynamics-I

CO1: Understand the concept of Electric field, electric potential, magnetic field and magnetic potentials CO2: Use the principle of superposition and law of Gauss to calculate electric field Intensity CO3: Determine Electric potential of charge distributions and hence specify electric field intensity CO4: Understand the basic properties of conductors and capacitors CO5: Calculate the magnetic fields due to currents using Biot-Savart and Ampere laws. CO6: Compare Magnetostatics and Electrostatics. CO7: Understand Diamagnets, Paramagnets and Ferro magnets.

5B07PHY Thermal Physics

CO1: Understand the concept of temperature, the thermodynamic state and equilibrium. CO2: Explain the first law of thermodynamics through work and heat and its Mathematical Formulation. CO3: Understand the ideal gas equation and kinetic theory of gases CO4: Understand the second law of thermodynamics and thermodynamic temperature scale. CO5: Define entropy and thermodynamic potentials CO6: Understand the basic concepts of Statistical mechanics.

5B08PHY Classical Mechanics & Relativity

5B09PHY Python programming

CO1: Develop skills in creating program sketches of scientific problems CO2: Develop basic skills in logical thinking and programming CO3: To make real-life scientific problems easier on a computer with user interaction and graphics

5B10PHY Atomic, Nuclear andParticle Physics

CO 1: Understand the structure atom and its constituents CO2: Understand the structure nucleus and nuclear constituents CO3: Define nuclear forces and nuclear reactions CO4: Familiarize elementary particles and their properties

6B11PHY Electrodynamics- II

CO 1 : Understand the basic concepts of Electrodynamics CO2 : Explain the mathematical theoryof Electromagnetic waves

6B12PHY Photonics&Spectroscopy

CO1: Explain different types of lasers CO2:Understand the principle of holography and its applications CO3:Understand the principle of total internal reflection and propagation of light through optical fibres CO3:Compare different types of optical fibres and their applicationsOptics and PhotonicsCO4: Describe various regions of EM spectrum CO5: Distinguish between microwave and infrared spectroscopy CO6: Define Raman Effect and explain its quantum theory

6B13PHY Quantum mechanics

CO1: Understand the limitations of classical mechanics CO2: Explain Blackbody radiation problem, Photoelectric effect and Compton Effect using quantum theory of radiation CO3: Understand Rutherford,Bohr atom models and concept of energy and angular momentum quantisation CO4: Understand de-Broglie hypothesis,concept of wave nature of matter and Heisenberg uncertainty principle CO5: Determine probability of finding a particle and expectation values of variable using its wave function CO6: Write and solve Schrodinger equation for

simple quantum mechanical systems CO7: State and explain Pauli's exclusion principle

6B14PHY Electronics-II

CO1: Understand the AC analysis of BJT circuits and CE amplifiers CO2:Understand the feedback circuits, oscillators and power amplifiers CO3:Understand OPAMP basics and different OPAMP circuits CO4:Understand the standard forms Boolean Expressions, Functions of Combinational Logic and K map simplifications.

6B15PHYElective Astronomy & Astrophysics

CO1: Understand stellar classifications CO2: Understand basic concepts of birth of the star CO3: Identify different stars in HR diagram CO4: Understand the theory of death of the star CO5: Define white dwarf, neutron star and black hole

6B16PHYPractical II

CO1 :Familiarise with apparatus for mechanical, electrical, magnetic and optical experiments. CO2: Develop skill in setting up of apparatus for accurate measurement of physical quantities. CO3: Understand multiple experimental techniques for determining physical quantities. CO4: systematic trouble shooting.

6B17PHY Practical III

CO1: Familiarise active and passive electronic components. CO2: Familiarisemultimeter, power supply, signal generator and cathode ray oscilloscope. CO3: Develop skill in soldering and use of breadboard. CO4: Develop skill in construction of rectifiers, voltage regulators, amplifiers and oscillators. CO5: Observe, measure and analyse electrical signals. CO6: Develop skill for trouble shooting circuits and components.

6B18PHYProject

CO1: To develop investigation aptitude in Physics/Life. CO2: Familiarisation of books/journals CO3: Familiarisation of software such as Mathematica, Matlab, Origin, Grapher, Latex etc. are also expected. CO4: Promoting scientific report writing practice

6B19PHY Study tour

CO1: Visiting of a science institute is aimed to get an awareness/idea of the set up/working/research occurring in institutes/laboratory.

Open Physics Course5D01PHY: B. Joy of star watching

CO 1: Understand Our Universe and its origin CO2:Understand simple constellations CO3:Explain the stars in Kerala culture CO4:Understand the techniques of star watching

C01PHY Complementary Physics IMechanics

CO 1: Understand the basic concepts of Properties of matter CO2: Explain the dynamics of rigid bodies. CO3: Understand the basic concepts of wave motion and oscillations

2C02PHY Complementary Physics IIElectricity,Magnetism and Thermal Physics

CO 1: Understand the basic concepts of Magnetism &electricity CO2: Explain the magnetic effects of electric currents CO3: Understand the basic principles of Thermodynamics

3C03PHY Complementary Physics Optics and Photonics

CO 1: Understand the basic concepts of Interference CO2:Understand the basic concepts of Diffraction CO3: Understand the basic concepts of Polarization CO4: Understand the basic concepts of Photonics and Fibre Optics

4C04PHY Complementary Physics IVModern Physics and Electronics

CO 1: Understand the basic concepts of Basic electronics CO2: Understand the basic concepts of Digital electronics CO3: Understand the basic concepts of Nuclear Physics CO4: Understand the basic concepts of Particle physics and Astrophysics

4C05PHY Complementary Physics practical

CO1: Familiarise with apparatus for experiments in mechanics, optics, electricity and magnetism and electronics and electronics experiments. CO2: Develop skill in setting up of apparatus for accurate measurement of physical quantities. CO3: Understand multiple experimental techniques for determining physical quantities. CO4: Develop skill in systematic way of measurements by minimizing possible errors.