

Department of Chemistry

Programme offered		B.Sc Chemistry M.Sc Chemistry
B.Sc Chemistry		
Programme Outcome		PO 1: Understand the basic concepts of chemical sciences and enable them with tools needed for the practice of chemistry. PO 2: Students should be able to interpret and analyse quantitative data, they should be able to recognize and apply the principles of atomic and molecular structure to predict chemical properties and chemical reactivity. PO 3: To know the role of chemistry in nature and society. PO 4: To be exposed to different techniques used in research and their applications
Course code	Course Name	Course Outcome
CH1141	Inorganic Chemistry I	CO 1: The course helps the students to understand the structure of atom, periodicity and non-aqueous solvents. CO 2: The student will be able to appreciate how the inner structure of elements dictates the chemical properties of the elements and also how the elements are arranged in the periodic table. CO 3: The students will learn the properties and application of s-block elements, the H atom and their compounds
CH1221	Methodology and Perspectives of Sciences and General Informatics	CO 1: The students will get a basic understanding to do self-directed experimentation work and research in chemistry under the guidance of and supervision of a mentor. CO 2: The student should be able to write the research projects, its implementation and presentation of the outcome. Also, how to overcome the difficulties posed during experiments, handling different reactions and analytical methods etc. CO 3: Analytical chemistry helps the students to understand about the experimental parts of the theory and safety measures which could follow when doing experiments using chemicals.
CH1341	Inorganic Chemistry II	CO 1: The course provides a fundamental to detailed knowledge in chemical bonding and compounds of non-transition elements and gives an elementary idea about nano materials. CO 2: The student will also get a strong idea about nuclear chemistry.
CH1441	Organic Chemistry I	CO 1: The student should get an idea about the behaviour of aliphatic and aromatic compound and the fundamental concepts about reaction mechanism of organic compounds. CO 2: The course provides an insight in to stereochemical aspects, photochemical reactions and aromaticity of compounds.
CH1442	Inorganic Qualitative Analysis	CO 1: The students will get idea about the systematic qualitative analysis by microscale methods of a mixture containing two acidic and two basic radicals. CO 2: Get an idea about identification and conformation of mixtures
CH1541	Physical Chemistry I	CO 1: Upon completion of this course, the students will gain an exposure and practice in the areas of physical chemistry. CO 2: The students are able to get concepts about gas, liquid properties and principles of thermodynamics and group theory. CO 3: The laws of thermodynamics forms the appropriate organizational tool to understand the chemistry of bulk systems.
CH1542	Inorganic Chemistry III	CO 1: This course helps the students to learn the important multidisciplinary areas of bio inorganic chemistry and organometallic chemistry. CO 2: The students will gain a thorough understanding of the classification of several organometallic reactions and able to identify the applications of organometallic compounds. CO 3: This also helps the students about analytical methods and techniques and general principle of isolation of elements helps the students to understand the isolation of elements from their ores
CH1543	Physical Chemistry II	CO 1: The students will be able to explain the concepts of thermodynamics, quantum mechanics and spectroscopy to chemical, physical and biochemical systems. CO 2: Students will be equipped to derive mathematical relationships in these areas of chemistry. CO 3: Students will evaluate the physical and chemical systems by non-spectroscopic techniques.
CH1544	Inorganic volumetric	CO 1: The students will get idea about the systematic qualitative analysis by microscale methods of a mixture containing two acidic and two basic radicals.

	analysis	CO 2: Get an idea about identification and confirmation of mixtures. CO 3: The students will be experienced in inorganic preparations. CO4: The students will get an exposure about acidimetry, alkalimetry, permanganometry etc.
CH1545	Physical chemistry experiments)	CO 1: The students will be experienced in the determination of partition coefficient of iodine between CCl ₄ and water, critical solution temperature of phenol -water system, conductometric titrations, potentiometric titrations, calorimetric experiments, kinetics of ester hydrolysis etc.
CH1551.3	Environmental Chemistry	CO1: This course helps the students to learn the important multidisciplinary areas of bio inorganic chemistry and organometallic chemistry. CO2: The students will gain a thorough understanding of the classification of several organometallic reactions and able to idea about role of organometallic compounds. CO 3: The students will get an insight in to analytical methods and techniques. CO 4: The general principles of isolation of elements gives an understanding about how to isolate elements from their ores.
CH1641	Organic Chemistry II	CO 1: The students will get an idea about the preparation, properties and mechanism of organic reactions. CO 2: Organic chemistry leaning should give the student a knowledge about reactions, reagents and products. CO3: They are getting ideas about reactive site, nucleophile, electrophiles, the movement of arrows etc. CO 4: The course also gives a sufficient knowledge about the structural elucidation of organic compounds from spectra. This course also gives other novel areas such as supramolecular chemistry and green chemistry.
CH1642	Organic Chemistry III	CO 1: The students will get an idea about the preparation, properties and mechanism of organic reactions. CO 2: The students get an idea about carbohydrates, amino acids, proteins, nucleic acids, alkaloids, polymers and their properties.
CH1643	Physical Chemistry III	CO 1: The students learn the basics of electrochemistry and its application to modern industry and technology. CO 2: The course provides the different types of reactions and the various factors that determine the rate of the reactions. CO3: The course gives an understanding about the phase diagrams of one to and three component systems and elementary ideas of photochemistry
CH1644	Organic chemistry experiments	CO 1: The students should be able to develop laboratory skills. CO 2: Apply principles of separation and isolation of organic compounds
CH1645	Gravimetry	CO 1: Gravimetry gives the basic concepts of analytical methods. CO 2: Also get idea about the precipitation coprecipitation and post precipitation possibilities.
CH1661.1	Supramolecular, Nano Particles and Green Chemistry	CO 1: Supramolecular chemistry gives idea about chemistry beyond molecules. CO 2: The learners should get knowledge about the importance of self-assembly. CO 3: Relevance of supramolecular chemistry to mimic biological systems. CO 4: Green chemistry knowledge should equip the student to handle environmentally benign reactions and the minimum use of hazardous chemicals and proper way of chemical waste management
CH1646	Project and Factory visit	CO 1: The students should develop an aptitude for research in chemistry, learn research methodology and literature search. To inculcate proficiency to identify appropriate research topic and presentation.
M. Sc. Chemistry		
Programme Outcome:		PO 1: Provide an in-depth knowledge in chemistry as theory and practical, provide research aptitude in chemistry PO 2: students can work in the pure, interdisciplinary and multidisciplinary areas of chemical sciences and its applications PO 3: analyse data obtained from sophisticated instruments (like UV-Vis, Fluorescence, FTIR, NMR, GCMS, HPLC, GCMS and TGA) for the structure determination and chemical analysis. PO 4: apply green chemistry approach towards planning and execution of research in frontier areas of chemical sciences PO5: Present scientific and technical information resulting from laboratory experimentation in both written and oral formats
Course code	Course Name	Course Outcome
CH 211	Inorganic Chemistry I	CO 1: The students should be able to identify the structure and bonding of selected transition metal complexes, interpret their electronic spectrum and explain various electronic transitions. CO 2: To understand the basic concepts of analytic chemistry, interpret TG, DTA and DSC curves, know the basic instrumentation and working principles,

		<p>CO 3: To understand the basic concept of symmetry, hybridisation and point groups</p> <p>CO 4: To learn the structure and properties of various halogen and interhalogen compounds and their applications</p> <p>CO 5: To learn the chemical processes occurring in the various environmental segments, effect of certain pollutants to air, water and soil</p>
CH 212	Organic Chemistry I	<p>CO 1: Students should be able to predict the stereochemistry of various compounds, to name complex chemical compounds, to do conformational analysis and to assign the configuration of molecules</p> <p>CO 2: The learners will understand the basics about electron displacement effects and apply the underlying principles to predict the acidity, basicity and reactivity of organic compounds, to predict the stability and reactivity of various intermediates,</p> <p>CO 3: To know the fundamentals of organic reaction mechanisms and to alter the conditions of reactions to get desired products with improved yields and to predict the formation of specific products,</p> <p>CO 4: To understand how certain specific reagents induce functional group transformations.</p>
CH 213	Physical Chemistry I	<p>CO 1: The learners should be able to solve elementary problems in quantum chemistry, predict term symbols</p> <p>CO 2: Use Langmuir and Freundlich isotherms to predict adsorption, thermodynamics of adsorption and understand catalysis in detail</p> <p>CO 3: Understand and derive basic thermodynamic relations, predict the feasibility of reactions, solve mathematical problems, learn the laws of thermodynamics and their applications</p> <p>CO 4: Students will know how to derive rate equations for various reactions, basic principles underlying photochemical processes and linear free energy relationship</p> <p>CO 5: Learners will gain in depth knowledge on gaseous and liquid state of matter.</p>
CH 221	Inorganic Chemistry II	<p>CO 1: The learners will know details on the structure, preparation and bonding properties of various sulphur, nitrogen, phosphorous and boron compounds,</p> <p>CO 2: In depth knowledge in the field of coordination chemistry, students will be able to understand and predict the spectral properties of various compounds, know the term symbols</p> <p>CO 3: Learners will get a thorough understanding on crystal systems, how unit cells are arranged</p> <p>CO 4: Learners will apply the basic knowledge in coordination chemistry to lanthanides and actinides, predict their spectral properties</p> <p>CO 5: The students will get an in-depth knowledge on the structure of solids, superconductivity, photovoltaic effect, etc.</p>
CH 222	Organic Chemistry II	<p>CO 1: the learners will use Hammett equation to predict the reactivity of various substrates and learn how to determine the mechanism of organic reactions.</p> <p>CO 2: The basic mechanistic principles learned in the previous semester will be exploited to understand and predict the paths of various rearrangements.</p> <p>CO 3: Learn the basic aspects of pericyclic reactions and to predict the feasibility and stereochemistry of various reactions, understand and predict whether a molecule is aromatic or antiaromatic.</p> <p>CO 4: learners will get an in-depth knowledge in organic photochemistry and the various processes accompanying photosynthesis and vision.</p> <p>CO 5: the students will know how to reach to the structure of various complex natural products in a stepwise manner and how to use existing methods to lead to the final structure.</p>
CH 223	Physical Chemistry II	<p>CO 1: The basic concept of quantum chemistry learned in the previous semester is applied on more complex systems, the learners will understand and derive quantum mechanics of hydrogen like systems.</p> <p>CO 2: Students will gain a thorough knowledge on the concepts of various spectroscopy thereby enabling them to use this for further applicational level problems.</p> <p>CO 3: Students will get familiarised with irreversible thermodynamics, phase rule and how this can be applied for the purification of metals and alloys</p> <p>CO 4: Learners will get conceptual idea about ensembles and various statistical approaches</p> <p>CO 5: Students will learn the concepts used in electrochemistry, how a cell can be created and what are the underlying theoretical aspects.</p>
CH 214	Inorganic Practicals I	<p>CO 1: Identifications of individual components from a mixture of rare earths, quantitative determination of transition metal ions using volumetric and colorimetric estimations</p>
CH 215	Organic Practicals I	<p>CO 1: separation of mixtures of organic compounds, determination of the purity using chromatographic techniques, multistage preparation of various organic compounds</p>
CH 216	Physical Practicals I	<p>CO 1: Determining the kinetics of ester hydrolysis, determination of molecular weight of different compounds, predicting the composition of three component systems</p>
CH 231	Inorganic Chemistry III	<p>CO 1: Students will learn about structure and bonding properties of various organometallic compounds, the mechanism of catalysis using such compounds and the various steps in the catalytic reactions</p> <p>CO 2: Learners will now understand advanced coordination chemistry, how to predict the</p>

		<p>stability of metal complexes and explain inorganic reaction mechanism</p> <p>CO 3: The learners will understand the various ways in which enzymes utilise metal ions to perform its functions, how a cell works and different transport phenomena.</p> <p>CO 4: Learners will understand basic principles of spectroscopy and apply this knowledge in predicting the spectral behaviours of various inorganic compounds</p> <p>CO 5: Learners will understand how a nuclear reaction happens, the various methods to determine radioactivity and the principles of radioactive equilibria.</p>
CH 232	Organic Chemistry III	<p>CO 1: The learners will get a thorough understanding on various spectroscopic techniques used in organic chemistry, how electronic transition happens, and how can we predict the fragmentation pattern in mass spectra</p> <p>CO 2: Theoretical aspects of nmr spectroscopy and its applications to predict the structure of various complex organic compounds</p> <p>CO 3: Various carbon-carbon bond forming reactions will be learned and these will be used in predicting the reaction conditions and product formation of various reactions</p> <p>CO 4: The students will now be able to design efficient strategies to synthesise complex molecules using disconnection approach and retrosynthetic analysis and to perform various organic synthesis using protection and deprotection strategies</p> <p>CO 5: The learners will understand various techniques used in the separation of mixtures of compounds</p>
CH 233	Physical Chemistry III	<p>CO 1: The students will learn how to approach molecules based on various theories like Born - Oppenheimer approximation</p> <p>CO 2: Understand computational chemistry,</p> <p>CO 3: Students will understand advanced spectroscopic techniques</p> <p>CO 4: Students will gain an in-depth knowledge in the concepts of statistical mechanics,</p> <p>CO 5: The learners will know the principles and applications of various electroanalytical and spectrophotometric methods like electrogravimetry, conductometry, coulometry, etc.</p>
CH 241	Chemistry of Advanced Materials	<p>CO 1: Students will know how to synthesise nano materials using various methods and how to control the size of these materials</p> <p>CO 2: Learners will be exposed to the working principles of various instruments used for the characterisation of the nanomaterials</p> <p>CO 3: Students will understand the various techniques used for polymerisations and can utilise this knowledge to synthesise polymers of a desired molecular weight distribution.</p> <p>CO 4: Students will learn about synthesis and characterisation of various conducting polymers and how these can be applied in various fields of science</p> <p>CO 5: Learners will understand the basic concepts of photochromism and mechanochromism</p>
CH 242.2	Organic Chemistry IV	<p>CO 1: The learners will utilise the knowledge gained for using various organometallic reagents to bring about a desired organic conversion.</p> <p>CO 2: The student will understand the concept of various non covalent interaction and how these interactions can be exploited for molecular recognition</p> <p>CO 3: The learners will utilise the concepts of linear free energy relationship in the development of lead compounds for drug delivery applications.</p> <p>CO 4: The learners will be able to understand how to do protein sequencing and how stereoregular polymers can be synthesised</p> <p>CO 5: The student will utilise his/her knowledge on green chemistry to reduce, recycle and reuse chemicals, implement various green strategies for organic synthesis</p>
CH 234	Inorganic Practicals II	CO 1: The student will utilise his knowledge on analytical chemistry for quantitative separation of inorganic mixtures employing volume
CH 235	Organic Practicals II	CO 1: The student will utilise his knowledge in organic chemistry to do multi step preparations and estimate glucose, paracetamol
CH 236	Physical Practicals II	<p>CO 1: The student will do conductometry for the determination of strength of acids and bases, to determine order of reactions</p> <p>CO 2: To carry out potentiometric and spectrophotometric titrations</p> <p>CO 3: Find out surface tension using Stalagmometric method</p>
CH 243(a)	Dissertation	CO 1: The student will use the knowledge gained to carry out project work in the college as well as other research institutions. This training will enable them to develop research aptitude and lure themselves towards research.
CH 243(b)	Visit to R & D Centre	CO 1: Visit to industries will enable the students to compare the laboratory environment with the industry
	Comprehensive viva-voce	CO 1: The students will be evaluated based on their performance
Complementary courses		
Programme Outcome:		PO 1: These courses will give a deep insight about chemistry to students from other disciplines there by enabling them, to understand the concepts associated with the representative subject with more clarity.
Course code	Course Name	Course Outcome

CH1131 .1	Theoretical Chemistry (Complementary Chemistry)	<p>CO1: The students can thoroughly understand the concept of Atoms. They can also understand the Bohr concept and also the Quantum numbers.</p> <p>CO2: After studying the module of chemical bonding they can understand the common themes such as Ionic, covalent and metallic descriptions of chemical bonding.</p> <p>CO3: This helps the students to describe the phenomenon of radioactivity and its basics. It also helps them to explain how they are used in various fields including agriculture and medicine.</p> <p>CO4: Analytical principles emphasises the role of Analytical Chemistry in basic science. This helps them to evaluate quantitative and qualitative analysis.</p>
CH1131 .3	Theoretical Chemistry (Complimentary Chemistry)	<p>CO1: The students can thoroughly understand the concept of atoms. They can also understand the Bohr concept and also the Quantum numbers.</p> <p>CO2: After studying the module of chemical bonding they can understand the common themes such as Ionic, covalent and Metallic descriptions of chemical bonding.</p> <p>CO3: Analytical principles emphasises the role of Analytical Chemistry in basic science. This helps them to evaluate quantitative and qualitative analysis.</p> <p>CO4: After studying the environmental chemistry the students can understand the chemistry and toxicology of substances. They can also use the analytical skills to quantify the level and effects of toxicity in environment.</p>
CH1131 .4	Theoretical Chemistry (Complimentary Chemistry)	<p>CO1: The students can thoroughly understand the concept of atoms. They can also understand the Bohr concept and also the Quantum numbers.</p> <p>CO2: After studying the module of chemical bonding they can understand the common themes such as Ionic, covalent and Metallic descriptions of chemical bonding.</p> <p>CO3: Analytical principles emphasises the role of Analytical Chemistry in basic science. This helps them to evaluate quantitative and qualitative analysis.</p> <p>CO4: After studying the environmental chemistry the students can understand the chemistry and toxicology of substances. They can also use the analytical skills to quantify the level and effects of toxicity in environment.</p>
CH1131 .5	Inorganic and Analytical Chemistry	<p>CO1: The students can thoroughly understand the concept of atoms. They can also understand the Bohr concept and also the Quantum numbers.</p> <p>CO2: Analytical principles emphasises the role of Analytical Chemistry in basic science. This helps them to evaluate quantitative and qualitative analysis.</p> <p>CO3: This helps them to understand the principles underlying fission and fusion, atomic bomb, nuclear bomb etc. They will also be aware of the nuclear powerplants their working principle etc.</p> <p>CO4: This helps to describe the importance of metals in biological systems. Their biological functions are also studied.</p>
CH1131.7	Basic Theoretical and Analytical Chemistry	<p>CO1: The students can thoroughly understand the concept of atoms. They can also understand the Bohr concept and also the Quantum numbers.</p> <p>CO2: After studying the module of chemical bonding they can understand the common themes such as Ionic, covalent and Metallic descriptions of chemical bonding.</p> <p>CO3: This helps them to understand the principles underlying fission and fusion, atomic bomb, nuclear bomb etc. They will also be aware of the nuclear powerplants their working principle etc.</p> <p>CO4: At the end of this module the student will be able to understand the fundamentals of spectroscopy. It helps them to explain the basic principles of IR, microwave and UV-Vis spectroscopy.</p> <p>CO5: Analytical principles emphasises the role of Analytical Chemistry in basic science. This helps them to evaluate quantitative and qualitative analysis.</p> <p>CO6: After studying the environmental chemistry the students can understand the chemistry and toxicology of substances. They can also use the analytical skills to quantify the level and effects of toxicity in environment.</p>
CH1231 .1	Physical Chemistry I (Complimentary Chemistry)	<p>CO1: The student can understand the basic concepts of thermodynamics. It also helps them to learn how they can be applied in various applications.</p> <p>CO2: The student will be able to understand the concepts of chemical equilibrium. It helps them to describe the concept of free energy and reaction rates.</p> <p>CO3: The student will be able to describe the properties of acids and bases. It also helps them to understand the concept of pH.</p> <p>CO4: After studying this module the student will be able to describe various thermochemical aspects. It also helps them to describe the nature of energy.</p>
CH1231 .3	Inorganic and bioinorganic chemistry (Complimentary Chemistry)	<p>CO1: The students will get a firm foundation in the fundamentals on organ chemistry. They will also be able to explore new compounds and the applications in organometallic compounds.</p> <p>CO2: This helps them to understand the principles underlying fission and fusion, atomic bomb, nuclear bomb etc. They will also be aware of the nuclear powerplants their working principle etc.</p> <p>CO3: This helps to know the examples of coordination compounds and also the properties of</p>

		<p>them. This deals with the theories behind this and its vast applications and importance.</p> <p>CO4: This helps to describe the importance of metals in biological systems. Their biological functions are also studied.</p>
CH1231 .4	Inorganic and bioinorganic Chemistry (Complimentary Chemistry)	<p>CO1: The students will get a firm foundation in the fundamentals on inorganic chemistry. They will also be able to explore new compounds and the applications in organometallic compounds.</p> <p>CO2: This helps them to understand the principles underlying fission and fusion, atomic bomb, nuclear bomb etc. They will also be aware of the Nuclear powerplants their working principle etc.</p> <p>CO3: This helps to know the examples of coordination compounds and also the properties of them. This deals with the theories behind this and its vast applications and importance.</p> <p>CO4: This helps to describe the importance of metals in biological systems. Their biological functions are also studied.</p>
CH1231 .5	Organic Chemistry	<p>CO1: This helps them to understand the basic concepts also the major types of carbohydrates and examples for each food source. Also gets a view about the reactions involved in carbohydrates.</p> <p>CO2: Helps to understand the basic concepts of vitamins.</p> <p>CO3: This describes the structure of amino acids, their physical and chemical properties. Also describes the primary, secondary, tertiary and quaternary structure in proteins.</p> <p>CO4: This helps to understand the various enzymes and hormones and their reactions.</p>
CH 1231.7	Physical Chemistry	<p>CO1: The student can understand the basic concepts of thermodynamics. It also helps them to learn how they can be applied in various applications.</p> <p>CO2: The student will be able to understand the concepts of chemical equilibrium. It helps them to describe the concept of free energy and reaction rates.</p> <p>CO3: The students can understand the basic concepts of dilute solution and how to calculate the molecular weight of unknown solutes.</p> <p>CO4: The learners will understand the basic concepts of solution equilibria</p> <p>CO5: This helps the students to know the aspects of first order, second order, pseudo order reactions. Also helps to understand the order and molecularity of a reaction. The students can utilise their knowledge to find out the rate of simple reactions.</p> <p>CO6: This explains the definitions, classifications, preparations, purification, properties, applications, etc of colloids.</p>
CH1331.1	Physical Chemistry II (Complimentary Chemistry)	<p>CO1: The student will be able to understand the concept of different velocities of gases. It helps them to understand various aspects like liquefaction of gases, Joule Thomson effect.</p> <p>CO2: This module gives them a clear understanding of the solid state. It gives them an idea about the structure of crystals and applications like diffraction of x-rays by crystals.</p> <p>CO3: Student will be able to understand the fundamentals of electro chemistry. The syllabus is designed in such a way that they will be able to apply it practically.</p> <p>CO4: The student will be able to understand concepts of catalysis. Also, they will understand the basic fundamentals of photochemistry.</p> <p>CO5: The student will be able to determine the unit of rate constant. It helps them to describe how rate of a reaction changes with time and various other aspects.</p> <p>CO6: After the module the student will be able to define the basic concepts of group theory like the various elements of symmetry. It gives them an idea of how to write a group multiplication table and understand the concept of point group.</p>
CH1331 .3	Physical Chemistry (Complimentary Chemistry)	<p>CO1: This helps the students to know the aspects of first order, second order, pseudo order reactions. Also helps to understand the order and molecularity of a reaction. The students can utilise their knowledge to find out the rate of simple reactions.</p> <p>CO2: This describes the difference between completion for irreversible and reversible chemical reactions. Also describes a system at chemical equilibrium. The students can understand the basic concept of ionic equilibrium and use this knowledge to calculate the pH of different solutions and predict the hydrolysis of various salts</p> <p>CO3: The students can understand the basic concepts of dilute solution and how to calculate the molecular weight of unknown solutes.</p> <p>CO4: It explains the working principle, also able to interpret UV-Vis spectrum. The relevant terms are also explained.</p> <p>CO5: The students should be able to prepare the standard solution and dilute solution. Also help to determine the concentration of solution in various units.</p> <p>CO6: This explains the definitions, classifications, preparations, purification, properties, applications, etc of colloids.</p> <p>CO7: The learners will understand the basic concepts of solution equilibria</p>
CH1331 .4	Organic Chemistry	<p>CO1: After studying this module students can predict the reaction mechanism involved in a chemical reaction. They can firmly understand the concepts of Inductive mechanism, Hyperconjugation, resonance etc.</p> <p>CO2: This helps them to understand the basic concepts such as</p>

		<p>Isomers, Chiral, Achiral molecules etc.</p> <p>CO3: This helps them to understand the basic concepts also the major types of carbohydrates and examples for each food source. Also gets a view about the reactions involved in carbohydrates.</p> <p>CO4: This describes the structure of amino acids, their physical and chemical properties. Also describes the primary, secondary, tertiary and quaternary structure in proteins.</p> <p>CO5: This helps to understand the various nucleic acids and their reactions. Also understands the basic concepts of lipids.</p> <p>CO6: Helps them to understand monomers, polymers and polymerization. Also helps them to understand the polymeric materials related with their daily life.</p>
CH1331 .5	Organic Chemistry II	<p>CO1: This explains the definitions, classifications, preparations, purification, properties, applications, etc of colloids</p> <p>CO2: This helps to understand the basic principles of adsorption and chromatography.</p> <p>CO3: This describes the colour and constitution of dyes.</p> <p>CO4: This helps to understand the various terpenes and their reactions.</p> <p>CO5: Helps them to understand about alkaloids and their reactions.</p> <p>CO6: Helps them to understand monomers, polymers and polymerization. Also helps them to understand the polymeric materials related with their daily life.</p>
CH 1331.7	Bioinorganic Chemistry	<p>CO1: This helps them to understand the basic concepts also the major types of carbohydrates and examples for each food source. Also gets a view about the reactions involved in carbohydrates.</p> <p>CO2: Helps them to understand monomers, polymers and polymerization. Also helps them to understand the polymeric materials related with their daily life.</p> <p>CO3: After studying this module students can predict the reaction mechanism involved in a chemical reaction. They can firmly understand the concepts of Inductive mechanism, Hyperconjugation, resonance etc.</p> <p>CO4: This helps them to understand the basic concepts such as Isomers, Chiral, Achiral molecules etc</p> <p>CO5: At the end of this module the student will be able to explain the basic principles of Raman and NMR spectroscopy. It also enables them to use the fundamental concepts in simple molecules.</p> <p>CO6: Gives idea about basic chromatographic techniques.</p>
CH1431 .1	Spectroscopy and Material Chemistry (Complimentary Chemistry)	<p>CO1: At the end of this module the student will be able to understand the fundamentals of spectroscopy. It helps them to explain the basic principles of IR, microwave and UV-Vis spectroscopy.</p> <p>CO2: At the end of this module the student will be able to explain the basic principles of Raman and NMR spectroscopy. It also enables them to use the fundamental concepts in simple molecules.</p> <p>CO3: The student will be able to understand the fundamentals of coordination chemistry, the theories governing it, their drawbacks. It also helps them to understand how coordination complexes find application in qualitative and quantitative analysis.</p> <p>CO4: This module is designed with the aim of giving the students a basic understanding in the general principles and extraction of metals.</p> <p>CO5: This will help the student to get a basic understanding on the evolution of nano science, preparation of nano particles, tools for measuring nano structure. It also gives them an idea of how nano particles can be used in various applications.</p> <p>CO6: This module helps the students to understand the aspects of magnetic materials, conducting polymers and liquid crystals. This module covers the basic aspects including their classification, synthesis and application.</p>
CH1431 .3	Organic Chemistry (Complimentary Chemistry)	<p>CO1: This helps the students to explain different types of chromatographic techniques, Theory, Instrumentation working principle and its applications.</p> <p>CO2: This describes their structure, properties and also the type of interactions etc</p> <p>CO3: Understands the basic concepts such as Isomers, chiral centres. Also helps them to draw enantiomers, name enantiomers etc</p> <p>CO4: Definition of oils, fats detergents their examples, properties, synthesis etc.</p> <p>CO5: Familiarise them various types of dyes, examples, Formation and principle and its examples</p> <p>CO6: This helps them to understand the concept, their synthesis, properties, chemical reactions and examples</p>
CH1431 .4	Physical Chemistry (Complimentary Chemistry)	<p>CO1: This helps the students to know the aspects of first order, second order, pseudo order reactions. Also helps to understand the order and molecularity of a reaction.</p> <p>CO2: This describes the difference between completion for irreversible and reversible chemical reactions. Also describes a system at chemical equilibrium.</p> <p>CO3: This explains definition, classification, preparation, Important properties, Applications etc.</p> <p>CO4: This helps the students for understanding instrumentation, various principles underlying</p>

		<p>them and its applications.</p> <p>CO5: This also explains its working principle, relevant terms, Instrumentation, etc.,</p> <p>CO6: This interprets the nature of solutions, focused approach including the underlying assumptions etc.</p>
CH1431 .5	Organic and Medicinal Chemistry	<p>CO1: This helps the students to explain different types drugs in chemotherapy and their applications.</p> <p>CO2: This gives a brief idea about food additives.</p> <p>CO3: This describes about heterocyclic compounds and their important reactions.</p> <p>CO4: This gives a brief idea about insecticides and pesticides</p> <p>CO5: Understands the basic concepts of environmental chemistry and different types of environmental pollution, its causes and control measures.</p>
CH1431.7	Bioinorganic and Electrochemistry	<p>CO1: This helps to know the examples of coordination compounds and also the properties of them. This deals with the theories behind this and its vast applications and importance.</p> <p>CO2: This helps to describe the importance of metals in biological systems. Their biological functions are also studied.</p> <p>CO3: Student will be able to understand the fundamentals of electro chemistry. The syllabus is designed in such a way that they will be able to apply it practically.</p> <p>CO4: Gives idea about different types of cells</p> <p>CO5: Describes about the basic principles, instrumentation and fragmentation modes in mass spectrometry.</p> <p>CO6: Detailed study of different reaction mechanisms like substitution, elimination, addition in aromatic and aliphatic compounds.</p>
CH1432 .1	Lab for Physics Majors (Complimentary Chemistry)	<p>CO1: The knowledge on inorganic chemistry will be utilised for the identification of inorganic radicals present in a mixture.</p> <p>CO2: The knowledge gained on analytical chemistry will be utilised for the quantitative estimation of various inorganic ions</p>
CH1432 .3	Lab for Botany Majors (Complimentary Chemistry)	<p>CO1: The students will be able to develop their laboratory skills Also develops their ability to analyse an organic compound by experiment, observation, inference etc.</p> <p>CO2: They will also develop their skills in volumetric analysis. By repeating the experiments will get an idea about equivalence point end point, titrations etc. Also understands to do acidimetry, alkalimetry, permanganometry etc.</p>
CH1432 .4	Lab for Zoology Majors (Complimentary Chemistry)	<p>CO1: The students will be able to develop their laboratory skills Also develops their ability to analyse an organic compound by experiment, observation, inference etc.</p> <p>CO2: They will also develop their skills in volumetric analysis. By repeating the experiments will get an idea about equivalence point end point, titrations etc. Also understands to do acidimetry, alkalimetry, permanganometry etc.</p>
CH1432 .5	Lab for Home Science Majors (Complimentary Chemistry)	<p>CO1: The students will be able to develop their laboratory skills Also develops their ability to analyse an organic compound by experiment, observation, inference etc.</p> <p>CO2: They will also develop their skills in volumetric analysis. By repeating the experiments will get an idea about equivalence point end point, titrations etc. Also understands to do acidimetry, alkalimetry, permanganometry etc.</p>
CH 1432.7	Lab for IMB Majors (Complimentary Chemistry)	<p>CO1: The students will be able to develop their laboratory skills Also develops their ability to analyse an organic compound by experiment, observation, inference etc.</p> <p>CO2: They will also develop their skills in volumetric analysis. By repeating the experiments will get an idea about equivalence point end point, titrations etc. Also understands to do acidimetry, alkalimetry, permanganometry etc.</p>

Department of Commerce

Programme Offered		B.Com M.Com
B. Com		
Programme Outcome		PO 1: Equipping the students to cope with the emerging trends and challenges in the industrial and business world
Course Code	Title of Courses	Course Outcome
CO 1121	Methodology and Perspectives of Business Education	<p>CO1: To create a basic awareness about the business environment and the role of business in economic development.</p> <p>CO2: To provide a holistic, comprehensive and integrated perspective to business education</p> <p>CO3: To give a fundamental understanding about ethical practices in business.</p>
CO 1141	Environmental Studies	<p>CO1: To enable the students to acquire basic ideas about environment and emerging issues about environmental problems.</p> <p>CO2: To give awareness about the need and importance of environmental protection</p>
CO 1142	Management	CO1: To equip learners with knowledge of management concepts and their application in

	Concepts and Thought	contemporary organizations CO2: To facilitate overall understanding of the different dimensions of the management process.
CO 1131	Managerial Economics	CO1: To familiarise students with the economic principles and theories underlying various business decisions. CO2: To equip the students to apply the economic theories in different business situations.
CO 1221	Informatics and Cyber Laws	CO1: To review the basic concepts and fundamental knowledge in the field of informatics and to create an awareness about the nature of the emerging digital knowledge society and the impact of informatics on business decisions. CO2: To create an awareness about the cyber world and cyber regulations.
CO 1241	Financial Accounting	CO1: To familiarize the students with different methods of depreciation. CO2: To equip the students to prepare the accounts of specialised business enterprises.
CO1242	Business Regulatory Framework	CO1: To provide a brief idea about the framework of Indian business Laws CO2: To enable the students to apply the provisions of business laws in business activities
CO 1231	Business Mathematics	CO1: To familiarise the students with the basic mathematical tools. CO2: To impart skills in applying mathematical tools in business practice
CO 1341	Entrepreneurship Development	CO1: To familiarize the students with the latest programmes of Government in promoting small and medium industries. CO2: To impart knowledge regarding starting of new ventures.
CO 1342	Advanced Financial Accounting	CO1: To create awareness of accounts related to dissolution of partnership firms. CO2: To acquaint students with the system of accounting for different branches and departments. CO3: To enable students to prepare accounts of consignments.
CO 1343	Company Administration	CO1: To familiarize the students about the salient provisions of Indian Companies Act 2013. CO2: To acquaint the students with Management and Administration of Companies, Compliance requirements, investigation into the affairs of the company and Winding up procedure.
CO 1361.1	Financial Management	CO1: To familiarize the students with the conceptual framework of financial management. CO2: To enable the students to understand the practical application of financial management.
CO 1331	E-Business	CO1: To provide students a clear-cut idea of e-commerce and e-business and their types and models. CO2: To acquaint students with some innovative e-business systems. CO3: To impart knowledge on the basics of starting online business.
CO 1441	Indian Financial Market	CO1: To provide a clear-cut idea about the functioning of Indian Financial Market in general and Capital market operations in particular.
CO1442	Banking and Insurance	CO1: To provide a basic knowledge about the theory and practice of banking CO2: To provide a basic understanding of Insurance business. CO3: To familiarize the students with the changing scenario of Indian Banking and Insurance.
CO 1443	Corporate Accounting	CO1: To create awareness about corporate accounting in conformity with the provisions of Companies Act, IAS and IFRS. CO2: To help the students in preparation of accounts of banking and insurance companies. CO3: To enable the students to prepare and interpret financial statements of joint stock companies.
CO1461.1	Project Finance	CO1: To familiarise the students with the types of project appraisal, risk analysis, project financing costing and valuing; CO2: To provide an overview of global project appraisal issues.
CO 1431	Business Statistics	CO1: To enable the students to gain understanding of statistical techniques those are applicable to business. CO2: To enable the students to apply statistical techniques in business.
CO 1541	Fundamentals of Income Tax	CO1: To familiarize the students about the fundamental concepts of Income Tax. CO2: To enable the students to acquire the basic skills required to compute the tax liability of individual assessee with more emphasis on Income from Salaries and Income from Houseproperty.
CO 1542	Cost Accounting	CO1: To familiarize the students with cost and cost accounting concepts CO2: To make the students learn cost accounting as a distinct stream of accounting
CO 1543	Marketing Management	CO1: To provide an understanding of the contemporary marketing process in the emerging business scenario. CO2: To study various aspects of application of modern marketing techniques for obtaining a competitive advantage in business organizations.
CO 1551.1	Fundamentals of Financial Accounting	CO1: To enable the students to acquire knowledge in the basic principles and practices of financial accounting. CO2: To equip the students to maintain various types of ledgers and to prepare final accounts.
CO 1561.1	Financial Services in India	CO1: To familiarize the students with the structure and functioning of financial service sector in India.

CO 1641	Auditing	CO1: To provide students the knowledge of auditing principles, procedures and techniques in accordance with current legal requirements and professional standards. CO2: To familiarize students with the audit of Companies and the liabilities of the auditor.
CO 1642	Applied Costing	CO1: To acquaint the students with different methods and techniques of costing. CO2: To enable the students to apply the costing methods and techniques in different types of industries.
CO 1643	Management Accounting	CO1: To enable students to acquire sound knowledge of concepts, methods and techniques of management accounting CO2: To make the students develop competence with management accounting usage in managerial decision making and control.
CO 1651.3	Management of Foreign Trade	CO1: To acquaint the students with India's foreign trade. CO2: To familiarise the students with international trade and services.
CO1661.1	Taxation Law and Accounts	CO1: To enable the students to understand the provisions of Income Tax for computing Total Income and Tax liability of various persons. CO2: To familiarise the students with the procedure of Income Tax Assessment CO3: To provide students the basic knowledge of Goods and Service Tax
M.Com		
Programme Outcome		PO 1: Demonstrate knowledge of key concepts and theories underlying qualitative decision making. PO2: Compare International markets and environment through the lens of commerce discipline. PO 3: Apply critical and analytical skills and methods to the identification, evaluation and resolution of complex problems. PO 4: Inculcate a global mindset of entrepreneurship and managerial skills.
Course Code	Title of Courses	Course Outcome
CO 211	Business Ethics and Corporate Governance	CO1: To convey basic understandings on the theories of Business Ethics CO2: To provide a understanding on Corporate Governance practices and the provisions of the Companies Act relating to corporate governance
CO 212	Legal Framework for Business	CO1: To enable student acquire updated knowledge and develop understanding of the regulatory framework for business CO2: To make students aware of opportunities available in various legal compliances so as to enable them employable. CO3: To expose students in emerging trends in good governance practices including governance.
CO 213	Research Methodology	CO1: To provide an insight into the fundamentals of social science research. CO2: To understand the need, significance and relevance of research and research design. CO3: To acquire practical knowledge and required skills in carrying out research.
CO 214	Planning and Development Administration	CO1: To generate an overall insight on planning process in Indian Economy CO2: To make the students aware about new planning initiatives in India
CO 215	Advanced Corporate Accounting and Reporting	CO1: To acquaint the students about important accounting standards CO2: To gain ability to prepare financial statements including consolidated financial statements of group companies and financial reports of various types of entities by applying relevant accounting standards. CO3: To expose the students to advanced accounting issues and practices such as insurance claims, investment accounting and liquidation of companies.
CO 221	E-Business & Cyber Laws	CO1: To equip the students with the emerging trends in business CO2: To equip the students to introduce and explore the use of information technology in all aspects of business. CO3: To familiarise with the students cyber world and cyber regulations
CO 222	Strategic Management	CO1: To create a conceptual awareness on various strategies. CO2: To familiarise students with the formulation, implementation and evaluation of strategies
CO 223	Quantitative Techniques and Financial Econometrics	CO1: To impart expert knowledge in the application of Quantitative Techniques and Business Econometrics in research. CO2: To impart knowledge in the use of SPSS in processing and analysis of data.
CO 224	International Business	CO1: To introduce the concept of international business and to create awareness on the changes in the international business arena
CO 225	Investment Management	CO1: To provide a general understanding about investment avenues and personal finance. CO2: To give a broader understanding about behavioural finance and how it equips to decide personal investment.
CO 231U	Income Tax Planning and	CO1: To impart deep knowledge about the latest provisions of Income Tax Act CO2: To develop application and analytical skill of the provisions of Income Tax Law

	Management	for Income Tax planning and Management.
CO 232F	Security Analysis and Portfolio Management	CO1: To provide a comprehensive understanding on the principles of security analysis and develop the skill in portfolio management. CO2: Equip the students to value the real worth of securities
CO 233 F	International Financial Management	CO1: To familiarise the students with the international financial markets and instruments. CO2: To convey an understanding about foreign exchange risk management
CO 234F	Strategic Cost and Management Accounting	CO1: To comprehend and familiarize the established techniques, methods and practices in Strategic Cost and Management Accounting to the students. CO2: To introduce the evolving Strategic approaches and techniques in Cost and Management field and to developed industrial behaviour among the students in the emerging business areas.
CO 241W	Goods and Service Tax & Customs Duty- Law and Practice	CO1: To gain expert knowledge of the principles and law relating to Goods and Service Tax and Customs Act. CO2: To impart skill in applying and analysing the provisions of Goods and Service Tax Act and Customs Act in handling practical situations.
CO 242F	Risk Management and Derivatives	CO1: To understand the risk management process and its application CO2: To give a broader awareness on derivatives and its applications
CO 243F	Accounting Standards	CO1: To acquaint the students to understand the structure, process and organizational set up involved in evolving accounting standards in India. CO2: To enable the students to apply some key standards while preparing and presenting the financial statements
CO 244S	Management Optimization Techniques	CO1: To convey basic principles and application of optimization tools of resource utilization. CO2: To provide an insight into optimal project implementation Techniques under deterministic and probabilistic conditions.

Department of Economics

Programme offered		B.A. Economics M.A. Economics M.A. Business Economics
B.A. Economics		
Programme Outcome		PO 1: Enable the students to realize the significance of Economics as a comprehensive social science discipline. PO 2: Equip the students to undertake higher studies in Economics PO 3: Equip the students to compete with the students in leading Universities in India. PO 4: To enhance their capability of critical assessment, analytical skill and expertise in evaluating national and global economic issues. PO 5: To seek and prepare for competitive examinations for the post of Class I job positions in Central Government and State Government PO 6: To seek employment in Managerial positions in private and public sector. PO 7: Enhance their capability in mathematical economics, statistics and software packages in analyzing various economic problems PO 8: To equip the students to use online resources this will help them to improve their teaching-learning experience. PO 9: To create an understanding on the estimation and diagnostic testing of simple regression models using computer software PO 10: To enable the students to undertake a research work on their own
Course Code	Title of Courses	Course Outcome
EC1141	Introductory Microeconomics	CO 1: Enable the students to understand the basic concepts in Economics CO 2: Understand the working of different market structures in the world. CO 3: To introduce the concepts of competitive markets. CO 4: To develop a conceptual foundation and analytical methods used in Microeconomics
EC1241	Intermediate Microeconomics	CO 1: The students will be able to understand the issues in the competitive factor markets CO 2: Get an idea of the behavioral economics. CO 3: Enable the students to understand the significance of market failure. CO 4: Equip the students to relate the emerging economic issues in the changing world with micro economics

EC1321	Informatics for Applied Econometrics	CO 1: The students will able to use online resources which will help them to improve their teaching-learning experience. CO 2: The students will also be able to get knowledge in web resources to enhance their career and academics. CO 3: It provides an exposition to econometric concepts and techniques. CO 4: The students will able to conduct and criticize empirical studies in economics and related fields.
EC1341	Introductory Macroeconomics	CO 1: The students will able to understand the emerging macro-economic problems at national and global level. CO 2: To introduce the students the concepts of the multiplier and the Keynesian theory of income determination CO 3: To provide an understanding to IS- LM analysis. CO 4: Enable them to analyse various macro-economic problems in their society
EC1441	Mathematical Methods for Economics	CO 1: Enable the students to get an insight into the importance of mathematical methods in Economics. CO 2: The students will able to understand the basic mathematical techniques used in economic analysis CO 3: To impart an idea regarding the use of mathematical tools in conducting research in economic issues. CO 4: To equip the students to construct a model in economic research
EC1442	Intermediate Macroeconomics	CO 1: The students will get an idea about the micro foundations of macro economics CO 2: To introduce the students about the emerging unemployment and Inflationary tendencies at both national and global level. CO 3: To make understand about the importance of fiscal and monetary policies in an open economy CO 4: To understand the theories of economic growth and its relevance in the contemporary world.
EC1541	Methodology and Perspectives of Social Science	CO 1: The students will to familiarize with the broad contours of Social Sciences CO 2: The students will get knowledge about Economics and its methodologies, tools and analysis procedures CO 3: It will create an enthusiasm among students, incorporating various concepts and issues in economics. CO 4: To make the students aware of the need for Interdisciplinary approach to study economic problems
EC1542	Statistical Methods for Economics	CO 1: The students will familiarize with statistical tools CO 2: It will equip the students with the statistical techniques and enable them to apply it in Economics. CO 3: To enable the students to undertake univariate analysis and regression analysis in economic research CO 4: The students will able to understand the importance of probability
EC1543	Readings in Political Economy	CO 1: The student will familiarize the different perspectives of political economy CO 2: The students will enable to get the perspectives of Adam Smith, John Maynard Keynes CO 3: To make the students aware about the economic scenario during great depression CO 4: To create consciousness among students about the recent crisis in global capitalism
EC1544	Economic Growth and Development	CO 1: The students will able to understand basic concepts of Economic Growth and Development CO 2: Equip the students to acquire multi-dimensional aspects of developmental issues. CO3: Get knowledge about theoretical framework of Growth and Development under different Schools of economic thought. CO 4: Enable the students to impart knowledge about Political institutions, the role of the state in Economic Development and problems that affect state Governance.
EC1545	International Economics	CO 1: The students will able to understand the basic concepts and theories of international trade CO 2: Enable students to have a basic understanding of the emerging trends in international trade CO3: Get knowledge about the issues and policies in the field of international economic system. CO 4: Enable the students to impart knowledge about the issues and policies in foreign exchange market.
EC1551.2	Human Resource Management	CO 1: The students will able to understand the basis for life enrichment and career orientation CO 2: Enable students to have a basic understanding on the significance of human resource in the growth of our economy and society CO3: Get knowledge about the ways for integrating HRM strategies in organisations. CO 4: Enable the students to impart knowledge about the process of Recruitment, Selection and Training of employees
EC1641	Indian Economy	CO 1: The students will able to get an understanding about growth process in Indian economy CO 2: Enable students to have a basic understanding on the significance of sectoral aspects of the economy by focusing agriculture, industry and service sectors CO3: Get knowledge about the relations of India with external sector.

		CO 4: Enable the students to impart knowledge about economic reforms in the country.
EC1642	Banking and Finance	CO 1: It will familiarize the students with the basic concepts in Banking and Finance CO 2: Enable students to develop a comprehensive knowledge on the role of banks in the operation of an economy CO3: Get knowledge about the operation of the Indian Financial System. CO 4: Enable the students to impart knowledge about the activities in the Financial markets.
EC1643	Public Economics	CO 1: It will familiarize the students with the basic concepts and scope of public economics and the role of government CO 2: Enable students to develop a comprehensive knowledge on the types of market failures and the concept of public good; CO3: This would impart the skills essential for understanding and analysing the fiscal policy instruments and budgetary process in India. CO 4: The basic orientation would mould public policy makers and analysts of the future.
EC 1644	Environmental Economics and Disaster Management	CO 1: It will familiarize the students the association of the economy and environment CO 2: Enable students to develop a comprehensive knowledge on the environmental policy tools for analysis CO3: This would impart the skills essential for understanding and analysing Global Environmental Issues and climate change. CO 4: Enable the students to impart knowledge about disaster management in India
EC1661.1	Kerala Economy	CO 1: It will familiarize the students to understand the structural changes, Sector-wise contribution and features of the Kerala Economy since the formation of the state CO 2: Enable students to develop a comprehensive knowledge on the emerging trends and issues of Kerala Economy CO3: This would impart the skills essential for understanding and analysing Demographic changes in Kerala CO 4: Enable the students to impart knowledge about the industrial development in Kerala.

M.A. Economics

Programme Outcome		PO 1: Enable the students to realize the significance of economics in application to individual decision makers, both consumers and firms PO 2: To enhance the student's capability of critical assessment, analytical skill and expertise in evaluating the recent national and global economic issues. PO 3: Enhance their preparation for competitive examinations for the post of Class I job positions in Central Government and State Government PO 4: To seek employment in Managerial positions in private and public sector. PO 5: To enable the students to undertake an empirical research work on various economic issues.
Course Code	Title of Courses	Course Outcome
EC 211	Micro Economics I	CO 1: Enable the students to understand the basic principles in Economics CO 2: The students will get a deep understanding of the working of different market structures in the world. CO 3: The students could develop extend their knowledge in the application of game theory. CO 4: To develop a conceptual foundation on Managerial and Behavioral Theories of the Firm
EC 212	Economics of Growth and Development	CO 1: It connects students to academic concerns, policies and practical solutions relevant for progression of all economies CO 2: It familiarize students with the conceptual routes, theoretical dynamics and practical strategies of growth and development CO 3: This course would orient them towards major themes of development, lead them towards more methodical probes. CO 4: Equip the students with adequate analytical knowledge.
EC 213	Indian Economic Policy - I	CO 1: The students will able to understand the various issues of the Indian Economy with a policy perspective. CO 2: The students will also be able to get deep knowledge on structural reforms in the Indian economy CO 3: It provides an exposition to the effect of demonetization in the economy. CO 4: The students will able to analyse and criticize the recent policy changes in the field of trade, foreign exchange markets, agriculture, industry and services related aspects.
EC 214	Quantitative Methods for Economics	CO 1: It will provide the students an insight into the importance of quantitative methods in Economics. CO 2: Enable students to introduce and apply quantitative techniques in finding solutions to economic problems. CO3: It will help students to inculcate analytical ability in finding solutions to mathematically

		<p>formulated economic problems.</p> <p>CO 4: Enable them to analyse various macro-economic problems in the society</p>
EC 221	Micro Economics - II	<p>CO 1: Enable the students to get an insight into the importance developments in the areas of theories of distribution in Economics.</p> <p>CO 2: The students will able to understand the significance of general equilibrium and welfare economics in economic analysis</p> <p>CO 3: To impart an idea regarding the uncertainty and informational asymmetry</p> <p>CO 4: To equip the students to understand emerging importance of behavioral economics.</p>
EC 222	Economics of Social Sector and Environment	<p>CO 1: Enable the students to understand and apply the key economic concepts in the context of social sectors like education, environment and healthcare</p> <p>CO 2: The students will able to understand how economic factors contribute to the development and implementation of educational policies</p> <p>CO 3: They could identify the major theories governing the development of human resources, school improvement and development</p> <p>CO 4: To understand the key environmental issues around the globe</p>
EC 223	Indian Economic Policy - II	<p>CO 1: The students will familiarize with the basic concepts of economics and enable them for further learning in Indian and Kerala Economy</p> <p>CO 2: The students will get knowledge about the financial sector developments in India</p> <p>CO 3: It will create an enthusiasm among students, incorporating various concepts and issues in Indian economy.</p> <p>CO 4: To make the students aware of the need for reforms in Indian Economy</p>
EC 224	Econometrics and Research Methodology	<p>CO 1: It will create an understanding among the students on basic econometric methodology</p> <p>CO 2: It will equip the students to train the students in applying economic theories to real economic data by means of empirical models</p> <p>CO 3: To enable the students to undertake univariate analysis and regression analysis in economic research</p> <p>CO 4: the students will get a comprehensive idea on the process of doing research in economics.</p>
EC 231	Macro Economics - I	<p>CO 1: The student will familiarize with the development of macroeconomics after Keynesian revolution including Neo-classical and Keynesian synthesis</p> <p>CO 2: The students will enable to get the idea of behaviour foundations of macroeconomics, theoretical foundations of demand and supply of money and macroeconomic model in an open economy context.</p> <p>CO3: To make the students aware about the structural underpinnings of theoretical development of macroeconomic thoughts and their application.</p> <p>CO 4: To create consciousness among students about the recent crisis in global capitalism</p>
EC 232	International Economics – I	<p>CO 1: The students will able to understand the main theoretical tools and policies that are central to the study of international trade</p> <p>CO 2: Equip the students to acquire knowledge on the application to the trade flows, trading blocks and international macroeconomic events that characterize the global economy today</p> <p>CO3: Enable students to use economic analysis to reach a deeper understanding of international trade</p> <p>CO 4: Enable the students to develop careers in international business and management.</p>
EC 233	Public Economics	<p>CO 1: The students will able to understand the regulatory and developmental responsibilities of government in a democratic country like India</p> <p>CO 2: Enable students to cover the theoretical and empirical dimensions of public goods and public choice</p> <p>CO3: Get knowledge about fiscal instruments and fiscal federalism with special reference to Indian context</p> <p>CO 4: Enable the students to impart knowledge about the present fiscal management issues of India.</p>
EC 205	Mathematical Economics	<p>CO 1: The students will able to understand the nature and extent of relationships among economic variables by using mathematical tools</p> <p>CO 2: Enable students to apply these tools in solving the economic and business problems.</p> <p>CO3: Enable the students to impart knowledge on the linear programming</p> <p>CO 4: Get knowledge about the ways for integrating mathematics in economics.</p>
EC 241	Macro Economics - II	<p>CO 1: The students will able to get an understanding about the theoretical development of the macroeconomic issues of inflation, unemployment and business fluctuations</p> <p>CO 2: Enable students to have a basic understanding on the development of macroeconomics after Keynesian revolution, divided into classical school and Keynesian school.</p> <p>CO3: Get knowledge about the students should able keep abreast with the latest development of macroeconomics development.</p> <p>CO 4: Enable the students to impart knowledge about the impacts of various macroeconomic policies in the society</p>
EC 242	International	<p>CO1: It will familiarize the students with the theories of international finance flows and</p>

	Economics – II	determination of interest exchange rates in interconnected economies. CO 2: Enable students to develop a comprehensive knowledge on macroeconomic policies available to the government, and the nature of financial crises CO3: It will provide a framework for consistent reasoning about international flows of goods, factors of production, and financial assets CO 4: Enable the students to impart knowledge about the trade policy and monetary policy in open economy.
EC 243	Financial Securities Market Analysis	CO 1: It will provide comprehensive study of the significance of Securities Market in modern financial system CO 2: Enable students to develop a comprehensive knowledge on efficient securities markets theory in finance, bond pricing, price-earnings models of share valuation CO3: This would impart the skills essential for understanding the top down approach to investment decisions. CO 4: Enable the student to understand modern finance theory balanced with a consideration of new developments in the discipline
EC 244	Dissertation	CO 1: It will familiarize the students to develop research aptitude and skills CO 2: Enable students to develop a comprehensive knowledge on academic writing. CO3: This would impart the skills essential for analysing research issues CO 4: Enable the students to conduct research in future.
EC 207	Advanced Econometrics	CO 1: It will familiarize the students to develop analytical skills needed to work successfully with real economic data CO 2: Enable students to develop a comprehensive knowledge on the time series analysis CO3: This would impart the skills essential for understanding and analysing panel data. CO4: Enable the students to impart knowledge on empirical research techniques thus equipping them in the formulation, specification and estimation of econometric models.

M.A. Business Economics

Programme Outcome	PO 1: Enable the students to realize the significance of economics in business decisions PO2: To enhance the student's capability of critical assessment, analytical skill and expertise in economic behaviour of individuals, firms and markets. PO 3: Enhance their preparation for competitive examinations for the post of Class I job positions in Central Government and State Government PO4: To seek employment in Managerial positions in private and public sector. PO5: The students will get firsthand experience with working environment of corporate institutions.
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<i>Course Code</i>	<i>Title of Courses</i>	<i>Course Outcome</i>
BE 211	Microeconomic Analysis	CO 1: Enable the students to understand the basic principles in Economics CO 2: The students will get a deep understanding of the theoretical part of the economic behaviour of individuals, firms and markets. CO 3: The students could develop extend their knowledge in the application various aspects of demand and consumer behaviour, theory of production and costs. CO 4: To develop a conceptual foundation on Managerial Theories of the Firm
BE 212	Macro-Economic Analysis	CO 1: The students will get a basic understanding of Macroeconomic concepts. CO 2: It familiarize students with the conceptual routes, theoretical dynamics and practical strategies of macroeconomic policies. CO 3: This course would orient them towards major thoughts of Classical, Keynesian systems and IS LM model CO 4: Equip the students with adequate analytical knowledge in Macroeconomics.
BE 213	Principles of Business Management	CO 1: The students will able to understand the principles of Management CO 2: To equip the students to apply these principles in managerial decision making. CO 3: It provides an exposition to the basic functions of management, organizational structure and significance of decision making. CO 4: The students will able to understand theories of motivation and importance of communication in organizations.
BE 214	Contemporary Indian Economy	CO 1: It will provide the students an insight into to the contemporary issues in understanding economic environment in which businesses and government function CO 2: Enable students to understand the developments in the Indian economy post liberalization. CO 3: It will help students to make a comparative study of how economies of the world adjusted and resolved the economic crisis CO 4: Enable them to analyse various macro-economic problems in the Indian economy
BE 221	Managerial Economics	CO 1: Enable the students to get an insight into the importance the applications of economic theories in business decision making. CO 2: The students will able to understand the significance of the application of economic theory and methodology to managerial decision making within various organizational settings.

		<p>CO 3: To impart the knowledge to analyse the problems, issues, and decisions that managers face in each department of the organization.</p> <p>CO 4: To equip the students to get a better understanding of the external business environment in which an organization operates.</p>
BE 222	Environmental Economics	<p>CO 1: Enable the students to understand and managing environment.</p> <p>CO 2: The students will able to understand several issues ranging from resource management to valuation methods, and policy debates.</p> <p>CO 3: They could identify crucial conceptual and methodological issues, and policy dimensions related to environment.</p> <p>CO 4: To understand the key environmental issues around the globe</p>
BE 223	Human Resource Management	<p>CO 1: The students will familiarize the role and functions of HRM and planning within an organization.</p> <p>CO 2: The students will get knowledge necessary for preparing the manpower plan of a business enterprise and to train them in Human resource planning techniques.</p> <p>CO 3: It will promote an understanding of the theory of collective bargaining with an aim to build awareness of certain important and critical issues in industrial relations</p> <p>CO 4: The student will able to address the national laws that relate to the country in general and labour laws in particular.</p>
BE 224	Analytical Methods for Business	<p>CO 1: It will provide an overview of various analytical methods for analysing business environment</p> <p>CO 2: It will equip the students with basic concept of quantitative techniques for business analysis.</p> <p>CO 3: To enable the students to undertake the optimization techniques, differential equations and its application in business economics.</p> <p>CO 4: the students will get an opportunity to analyse recent developments in finance with the help of suitable mathematical tools.</p>
BE231	Marketing Theory and Practice	<p>CO 1: The student will familiarize with the development in the theory and practice of marketing, in an age of the “new consumer” and the “new competition”.</p> <p>CO 2: The students will enable to develop their ability to be effective in marketing management.</p> <p>CO 3: to make the students aware about the business ecosystem comprising operational environment, consumers, competitors and collaborators/channels.</p> <p>CO 4: The students will get oriented towards discerning various marketing strategies, with stress on positioning, product life cycle and new product development</p>
BE 232	International Trade and Finance	<p>CO 1: The students will able to understand the basic theories which govern the free flow of trade in goods, services and capital at the global level.</p> <p>CO 2: Equip the students to acquire knowledge on how international events influence the money flows in and out of the country.</p> <p>CO3: Enable students to understand various policies that governments use to shape trade patterns among countries, and the reasons for implementing such policies</p> <p>CO 4: Enable the students to develop careers in international business and management.</p>
BE 233	Economics of Growth And Development	<p>CO 1: The students will able to connects to a world energized by academic enquiries, policies and practical solutions relevant for progression of all economies</p> <p>CO 2: Enable students to cover the empirical evidences and real-world experiences which confirm and challenge the mainstream convictions</p> <p>CO3: Get knowledge about the approaches and strategies coursing through contemporary and evolving concerns of development.</p> <p>CO 4: Enable the students to impart knowledge about the present adaptations, additions, refinements, revisions and reversals in the development theories.</p>
BE 201	Entrepreneurship Development	<p>CO 1: The students will able to develop conceptual understanding of entrepreneurship and its structure.</p> <p>CO 2: Enable students to provide an understanding of key areas of entrepreneurship development, opportunities, institutional finance available to entrepreneurs and challenges in the field.</p> <p>CO3: Enable the students to impart knowledge on entrepreneurship development programmes in India and Kerala.</p> <p>CO 4: Get knowledge about to know the various aspects of women entrepreneurship.</p>
BE 241	Indian Financial System	<p>CO 1: The students will able to get an understanding about the conceptual background and analytical framework necessary to understand financial system and its components.</p> <p>CO 2: Enable students to have a basic understanding on the capital markets and its instruments</p> <p>CO3: Get knowledge about the students should able keep abreast with the latest development in credit markets, capital markets and its instruments.</p> <p>CO 4: Enable the students to impart knowledge about the stock exchange and its operations and international financial markets</p>

BE 242	Financial Accounting and Management	CO1: It will familiarize the students with the various steps involved in the preparation of various financial statements CO 2: Enable students to develop a comprehensive knowledge on the basic principles of financial management. CO3: It will provide basic awareness about accounting procedures and financial statements. CO 4: Enable the students to impart knowledge about the sources of funds for business and working capital management
BE 243	Investment Criteria, Project Formulation & Evaluation	CO 1: It will provide comprehensive study of the significance in assessing different investment criteria as well as steps in project planning CO 2: Enable students to develop a comprehensive knowledge on management and monitoring and evaluation. CO3: This would impart the skills essential for assessing the appropriateness of different investment criteria has become essential in understanding the pattern of overall economic growth and development. CO 4: Enable the student to understand different steps involved in project planning as well as assessment of the investment from a social and economic perspective.
BE 244	Internship & Project Report	CO 1: The Internship will provide firsthand experience to the students with working environment of corporate institutions. CO 2: The program provides opportunity for each student to learn from the practical experience of a business firm. CO3: This would impart the skills essential for application of theories in the real corporate setting. CO 4: Enable the students to conduct research in future.
BE 207	Logistics and Supply Chain Management	CO 1: It will familiarize the students with the skills and knowhow to help organizations to access essential materials and services to accomplish their missions. CO 2: the students will be equipped to effectively discharge managerial and logistics duties. CO3: This would impart the skills essential for analyze an existing supply chain of a company, apply various supply chain management concepts, and improve the supply chain. CO 4: Enable the students to impart knowledge to design an efficient supply chain in alignment with the strategic goals of the company.

Department of Hindi

Programme offered		BA Hindi MA Hindi Common Course Hindi
BA Hindi		
Programme Outcome		PO1: The students demonstrate an ability to read and interpret a diverse range of literary text. PO2: The students demonstrate an ability to speak Hindi. PO 3: Sensitize the students to the Eastern and Western Literary Criticism. PO4: The students demonstrate knowledge of specific work done by famous Hindi writers of Modern and Ancient period. PO5: The students will be equipped in written and oral communication. PO6: The students get a chance to understand different Discourse in Hindi Literature, such as Women's Literature and Dalit Literature. PO7: The students get an awareness about scrip writing.
<i>Course code</i>	<i>Course Name</i>	<i>Course Outcome</i>
HN 1131	Women's Literature in Hindi	CO 1: It sensitizes the growth of women's writing. CO 2: Students gain an overall understanding of the major issues faced by women in the present era. CO 3: Get awareness about the feminist vision of Hindi women writers. Co 4: Students are trained to respond difficult situations they faced.
HN 1132	Cultural History of India	CO 1: To introduce the important events of Indian Culture. CO 2: To able to understand the cultural history in India and the Historical Developments. CO 3: Get awareness about the major features of Indian culture. CO 4: To able to understand the Difference between Indian Culture and Foreign Culture.
HN 1141	Hindi Prose	CO 1: To enrich the knowledge of Prose. CO 2: To understand the origin and development of Hindi Prose. CO 3: To familiarize different Prose forms such as Essays, Travelogue, Memoire etc. CO 4: To develop the ability to appreciate and Criticize prose
HN 1231	Special Author	CO 1: To enrich the knowledge of the famous ancient poet Kabeer Das.

	Kabeer Das	CO 2: To understand the distinct features of Kabeer Das CO 3: To analyze the contemporary relevance of Kabeer Das CO 4: To familiarize Kabeer's Devotion, philosophy and mysticism
HN 1232	Eco-Literature	CO 1: To understand Eco Literature and the elements of different types of Poems and Stories CO 2: To familiarize the Transformation and its formation. CO 3: To understand the relationship between environment and human beings. CO 4: To analyze the major environmental issues and give suggestions
HN 1241	History of Hindi Literature upto Ritikal	CO 1: To understand the origin and development of the ancient Hindi Literature. CO 2: To familiarize the different trends of each Period. CO 3: To be familiar with great poets like Kabeer, Jayasi, Thulsi, Soor, Bihari. CO 4: To Analyze their thought and philosophy
HN 1331	Comparative literature with Special Reference to Hindi and Malayalam	CO 1: To understand Comparative Literature and the use and nature of Comparative Literature. CO 2: To know about the similarities between Hindi and Malayalam Literature. CO 3: To get general awareness of Malayalam and Hindi Literature. CO 4: To introduce major writers of each literature and their thought and philosophy.
HN 1332	Development Of Hindi as Official Language and Communicative Hindi	CO 1: To understand various forms of Hindi Language and power. CO 2: To develop communication skill in Hindi Language. CO 3: To introduce communicative Hindi and its forms. CO 4: To familiarize Language structure and vocabulary
HN 1341	History of Hindi Literature Modern period	CO 1: To understand modern trends of Hindi literature. CO 2: To realize the development of Prose, Novel, Story, Drama, Sketch, Diary, Report, Autobiography etc. CO 3: To understand modern and postmodern trends CO 4: To familiarize with prominent Hindi writers and their major works. CO 5: To realize the difference between modernism and post modernism.
HN 1321	Information and Computer.	CO 1: To update and extend basic information skills. CO 2: To review the basic concepts and functional knowledge in the field of informatics. CO 3: To give theoretical and practical experience in computing. CO 4: To realize the possibilities of computer in Hindi.
HN 1431	Indian Literature	CO 1: To understand the origin and development of ancient Indian Literature. CO 2: To realize the different trends of each period. CO 3: To be familiar with great writers and their thoughts and Philosophy. CO 4: To introduce Kannada, Marathi, Sanskrit and Tamil Poems and short stories.
HN 1432	Script writing and Advertisement	CO 1: To know the formation of script and Advertisement. CO 2: To understand the techniques and process of script writing. CO 3: To understand the form and procedure of advertisement. CO 4: To enrich the imaginative power and skill of art.
HN 1441	Hindi Drama and One Act Plays	CO 1: Analyze the dramatic elements in literature. CO 2: To understand the distinct features of Hindi Drama. CO 3: To understand difference between Drama and One Act Plays. CO 4: To understand the trends in Drama since 1960.
HN 1442	Premchand's Fiction novel and Short stories	CO 1: To enrich the knowledge of world-famous Hindi writer Premchand. CO 2: To understand Premchand's Novels and short stories. CO 3: To realize the theme, problems and style of Premchand's fiction CO 4: To estimate evergreen existence of Premchand.
HN 1541	Ancient Poetry and Epic Poem	CO 1: To understand the Ancient Poetry. CO 2: Familiarize the theme, thought and Philosophy of Ancient Poets. CO 3: To realize the difference between the poetries of Aadikal, Bhaktikal and Ritikal. CO 4: To introduce the dialects of Ancient Poetry. CO 5: To understand the prominent writers like Kabeer, Jayasi, Thulsi, and Soordas.
HN 1542	Modern Poetry	CO 1: To enrich the knowledge of Modern Hindi Poetry. CO 2: To familiarize with prominent modern poets and their poems. CO 3: Analyze the Trends of Dwivedi Yug and Chayavad Yug. CO 4: Familiarize the poems of Pragativad, Prayogvad, Nayikavitha and Adyathan Hindi Kavithayem.
HN 1543	Hindi Fiction up to 1980	CO 1: Enrich the knowledge of Hindi Fiction up to 1980. CO 2: To understand the Novels up to 1980. CO 3: To Analyze the short stories up to 1980.
HN 1544	Hindi Grammar: Theory & Practice	CO 1: To understand the grammar of Hindi Language and the structure of Hindi Language. CO 2: To know the Grammatical rules of Hindi Language. CO 3: To develop the skill to use of language without errors.
HN 1545	History of Hindi	CO 1: To understand the classification of Language and the development of Hindi.

	Language and Linguistics	CO 2: To understand the Script. CO 3: To know the linguistics- Phonology, wordology, Morphology, Semantics and Syntax. CO 4: To know the development of Hindi Language. CO 5: To know the development of script such as Brahmi, Kharoshti and Devnagari.
HN 1551	Communicative Hindi	CO 1: To get general awareness of Hindi. CO 2: To understand opportunities in Hindi. CO 3: To familiarize Hindi as Official Language & National Language
HN 1641	Post Modern Hindi Fiction From 1980 to 2000	CO 1: To familiarize post modernism, post culture and the theme and form of postmodern Hindi Fiction CO 2: To know the Prominent writers and their works since 1980 CO 3: To up to date the knowledge of contemporary Hindi Fiction. CO 4: To develop a general outlook of post modernism-postmodern culture-globalization-liberalization-consumer culture.
HN 1642	Literary Criticism	CO 1: To understand the theories of Aesthetic pleasure and different schools of Indian Literary theories. CO 2: To familiarize modern Hindi literary thoughts and poetics and prosody. CO 3: To sensitize the student to the Western criticism. CO 4: To know the literary thoughts of Ancient and Modern western criticism.
HN 1643	Translation: Theory and Practice	CO 1: To familiarize the theory and practice of translation and the uses of translation. CO 2: To understand the process of translation and the qualities of a translator. CO 3: To get the ability to translation from English to Hindi and Hindi to English
HN 1644	Film: History and Production	CO 1: To understand the history of Indian Film, special reference to Malayalam, Hindi and Tamil. CO 2: To understand the genius, directors, actors etc CO 3: To realize the processing of film production like screen play, photography, editing, music etc. CO 4: Familiarize different types of film.
HN 1645	Dissertation	CO 1: It is to ensure that the student can apply his knowledge about language and literature. CO 2: To estimate the student domains of application, analysis, evaluation and critical thinking. CO 3: To enrich the students Research Quality and to widen the student's interest in the subject. CO4: The Dissertation work may be text-based language study/grammar/translation/technology/Media and Communication
HN 1661	Journalism in Hindi	CO1: To introduce the origin and development of journalism in India. CO 2: To understand the development of journalism in Hindi. CO 3: To introduce the theory and types of journalism. CO 4: To develop the skill of journalism. CO 5: To understand the development of Hindi journalism in Kerala.
HN 1111.1	Prose and one Act Plays	CO 1: Familiarize different prose forms. CO 2: To understand the features of One Act Plays. CO 3: To understand the difference between Drama & One Act Plays
HN 1211.1	Fiction, Short Story & Novel	CO 1: To guide the students to the world of Hindi Fiction. CO 2: To develop the capacity of creative process and communication skill. CO 3: To understand the distinct features of Hindi Novels. CO 4: To identify the difference between Novel and Short story.
HN 1311.1	Poetry and Grammar	CO 1: To introduce ancient and modern Hindi poetry. CO2: To sensitize the aesthetic aspects of literary appreciation and analysis CO 3: To understand the structure and practice of Hindi. CO 4: To clarify the aspects of ancient and modern poetry.
HN 1411.1	Drama, Translation & Correspondence	CO 1: Analyze the dramatic elements in literature. CO 2: To understand the distinct features of Hindi Drama. CO 3: To understand the process of translation and the qualities of translation. CO 4: To familiarize official correspondence in Hindi.
HN 1111.2	Prose, Commercial Hindi and Letter writing.	CO 1: To understand and appreciate Hindi Prose. CO 2: To enrich the knowledge of commercial letter writing and the forms and styles of other letters.
HN 1212.1	Poetry, Translation, Technical Terminology & Communication.	CO 1: To sensitize the aesthetics of literary appreciation and to introduce Hindi Poetry. CO 2: To gain communication skills in Hindi and English through Translation. CO 3: To familiarize the Technical terms used in offices. CO 4: To enrich the development of Communication
HN	Poetry and Mass	CO 1: To introduce the world of ancient and modern Hindi poetries.

1111.3	media	CO 2: To clarify the aspects of ancient and modern poetry. CO 3: To introduce Mass media. CO 4: Understand different types of mass media. CO 5: Identify the advantages and disadvantages of mass media.
HN 1211.3	Novel and short story	CO 1: To understand the distinct features of Hindi Novels. CO 2: Identify the difference between Novel and Short story. CO 3: Familiarize famous Novelists and short story writers
MA Hindi		
Programme Outcome		PO 1: The students demonstrate an ability to read and interpret a diverse range of literary text. PO 2: The students demonstrate an ability to speak Hindi. PO 3: Sensitize the students to the Eastern and Western Literary Criticism. PO 4: The students demonstrate knowledge of specific work done by famous Hindi writers of Modern and Ancient PO 5: The students will be equipped in written and oral communication. PO 6: The students get a chance to understand different Discourse in Hindi Literature, such as Women's Literature and Dalit Literature. PO 7: The students get awareness.
Course code	Course Name	Course Outcome
HL 211	Ancient Poetry: Early and Riti Periods	CO 1: To introduce PrithvirajRaso (Chandabardai) CO 2: Identify the difference between Virkaavya and Ritikavya. CO 3: To familiarize other poets like Vidyapati, Bhushan, and Ghananand. CO 4: To analyse the salient features of Virkaavya and Ritikavya.
HL 212	Prose: Novel and Short stories	CO 3: To introduce the Novel Sevasadan. CO 2: To introduce other three novel of the later periods representing different schools of novelists. CO 3: To familiarize different trends in Short stories. CO 4: To Analyse the thoughts of writers in different periods.
HL 213	History of Hindi Literature Early and Medieval Periods.	CO 1: To introduce Origin of Hindi Literature. CO 2: To understand the royal patronage of Hindi Literature. CO 3: To analyse the socio-cultural impact of medieval Hindi Poetry. CO 4: To understand Bhakti Movement.
HL 214	Indian and Western Literary Thoughts.	CO 1: To introduce the definition and theories of poetry. CO 2: To analyse the classification of poetry. CO 3: To introduce the theories of Aesthetic pleasure and different schools of literary theory. CO 4: To understand the schools of Alankara, Dhvani, Vakrokthi, Riti and Auchithya.
HL 221	Medieval Poetry: Bhakti Period	CO1: To introduce Bhakti Kavya like Kabir, Soor, and Tulsi. CO 2: To introduce Premakhyana. CO 3: To analyse the difference in various poets of Bhakthi Period. CO 4: To understand sagunbhakthi and nirgunbhakthi
HL 222	Linguistics and History of Hindi Language	CO 1: To understand the development of Hindi Language. CO 2: To introduce Geographical development of Dialects. CO 3: To introduce Phonetics articulatory, acoustic and auditory CO 4: To understand Phonology, Morphology and Semantics
HL 223	History of Hindi Literature: Modern Period	CO 1: To introduce Bhartendu Yug. CO 2: To understand the development of Romantic Movement. CO 3: To understand the origin and development of Hindi Criticism. CO 4: To analyze the history of Hindi Literature in non-Hindi areas and abroad Countries
HL 224	Functional Hindi	CO 1: To introduce different forms of Hindi. CO 2: To understand Hindi as an Official Language. CO 3: To introduce Technical Terminology in Hindi. CO 4: To know the difference between common language and functional language.
HL 231	Modern Poetry up to Pragativad	CO 1: To understand the poems like Saketh and Kamayani. CO 2: To understand Chayavadi Poems. CO 3: To analyze the salient features of Pragativadi poem. CO 4: To analyze the difference between Mahakavya and Khandakavya
HL 232	Prose: Essay and other prose forms	CO 1: To introduce the Essays of Prominent Writers. CO 2: To familiarize different prose forms. CO 3: To analyse the difference between travelogue, memoir, sketches, interviews, diary etc CO 4: To understand essays and prose forms.
HL 233	Indian Literature	CO 1: To understand the nature and scope of Indian Literature. CO 2: To introduce comparative study. CO 3: To analyze the Social stratification reflected on Indian Literature. CO 4: To familiarize Comparative studies of Hindi and Indian Literature- trends and theme.
HL 234	Special Author: Premchand	CO 1: To introduce the social, political and cultural situation in which the author lived and worked.

		CO 2: To familiarize the life of author, main incidents of his life having bearing on his literary creativity. CO 3: To understand the chronology of his work. CO 4: Analyze his main works.
HL 241	Modern Poetry Since Prayogvad	CO 1: To understand the poems of Prayogvad. CO 2: To understand the poems written by Keralites. CO 3: To analyze the trends of Prayogvad. CO 4: To enrich the knowledge of Prayogvad
HL 242	Drama & One Act Plays	CO 1: To understand the Origin and development of Drama. CO 2: To analyze One drama of Jayasankar Prasad and two Dramas of later periods. CO 3: To introduce one act plays. CO 4: To analyze the difference between Drama & One Act Plays.
HL 243	Translation and structural Grammar	CO 1: To understand the qualities of good translator and good translation. CO 2: To analyze the need of translation. CO 3: To familiarize the process of translation. CO 4: Understand the problems of style and diction.
HL 244	South Indian Literature with special reference to Kerala	CO 1: Understand the origin and development of Hindi Literature of South India. CO 2: To familiarize Hindi literature in Kerala - writers and their works. CO 3: To analyze the contributions of various Hindi Pracharkendras. CO 4: To introduce the translated works from Malayalam to Hindi. CO 5: To familiarize Hindi Journalism in Kerala
HL 245	Dissertation & viva voce	CO 1: It is to ensure that the student can apply his knowledge about language and literature. CO 2: To estimate the student domains of application, analysis, evaluation and critical thinking. CO 3: To enrich the students Research Quality and to widen the student's interest in the subject. CO4: The Dissertation work may be text-based languagestudy/grammar/translation/technology/Media and Communication

Department of Home Science

Programme offered		BSc Home science MSc Extension Education MSc Food & Nutrition
BSc Home science		
Programme Outcome		PO 1: To summarise the behavioural patterns during childhood PO 2: To examine the role of human relationship in family and counselling PO 3: To exemplify the fundamentals of house planning and interior design PO 4: To generalise the principles and procedures in programme development PO 5: To prepare samples for various dying and printing methods PO 6: To apply the basic principle of food science in preparation of recipes from the five foodgroups PO 7: To transact the research design in the field level PO 8: To analyse the structure and function of various organs in disease condition
Course code	Course Name	Course Outcome
HS 1141	Research methodology and information	CO 1:To remember the basic concepts of science and functional knowledge in information CO 2: To infer about social issues and concern in the field of digital technology CO 3: To impart skills in designing a research problem
HS1221	Family Relations and counselling	CO 1:To examine the role of human relationship in family and counselling CO 2:To summarise the child rearing practices of parents CO 3:To exemplify the role of counselling in stress management
HS1341	Child development and welfare	CO 1:To compare the various stages in human development CO 2: To understand the factors influencing child development CO 3: To summarise the behavioural patterns during childhood CO 4:To interpret the needs of differently abled children
HS1342	Child development and welfare (Practical)	CO 1: To determine the needs of children and adolescents CO 2: To organise a learning environment to stimulate the creativity in children and adolescents
HS1441	Resource management	CO 1: To identify the various human and non-human resources in home management CO 2: To compute the management of time, energy and money in daily life CO 3: To extrapolate the rights and responsibilities of a consumer
HS1442	Resource management	CO 1: To compute the utilisation of time and energy in day to day life CO 2: To compare and contrast the proposed and actual family budget

	(Practical)	CO 3: To determine the ergonomics of house hold activities
HS1541	Housing and interior decoration	CO 1: To understand the fundamentals of house planning and space articulation CO2:To translate the elements and principles of design in housing CO 3:To exemplify the fundamentals of house planning and interior design
HS 1542	Housing and interior decoration (Practical)	CO 1:To execute basic spatial planning CO 2:To plan and design interiors with the application of elements and principle of design CO 3:To construct different types and styles of flower arrangement and bouquet in interiors
HS1543	Extension Education	CO 1: To examine the developmental programmes in operation CO 2:To generalise the principles and procedures in programme development CO 3: To understand the principles of extension
HS 1544	Textile science	CO 1: To identify the textile fibres and uses CO 2: To classify the textile fibres and methods of fabric construction CO 3: To compare the textile dyeing and printing process CO 4: To examine the rights and responsibility of a consumer while purchasing textiles
HS 1645	Textile science (Practical)	CO 1: To identify different fibres and fabric structures CO 2: To collect samples of different weaves CO 3: To prepare samples for various dyeing and printing methods
HS 1546	Basic Food Science	CO 1: To summarise the composition of various food stuffs CO 2: To infer the potential use of various by products of food industry CO 3: To exemplify the principles and methods of food preservation and adulteration
HS 1547	Basic Food science (Practical)	CO 2: To understand the weights and measures of commonly used foods CO 2: To apply the basic principle of food science in preparation of recipes from the five food groups CO 3: To analyse selected foods for its macro and micro nutrient content
HS 1641	Human nutrition and dietetics	CO 1: To understand the components of health and sickness and the role of nutrition in these CO 2:To summarise the classification, function, digestion and metabolism of macro nutrient, micro nutrients and water CO 3: To exemplify the requirements of energy and other nutrients through the life cycle CO4: To apply the principles of diet therapy in various disease condition
HS 1642	Apparel designing	CO 1: To understand the fundamentals of fashion CO 2: To impart knowledge in style reading, pattern making and garment construction CO 3: To compare and contrast fabrics for choice of different clothing
HS 1643	Communication in extension education	CO 1: To describe the process of communication in Home science education CO 2: To impart skills in preparing and using AV aids in extension education CO 3: To identify the latest technologies in communication
HS 1644	Human nutrition and dietetics (Practical)	CO 1: To implement normal diet for the different age groups CO 2: To execute therapeutic diets for disease condition CO3: To compute the nutritional status of the community
HS 1645	Apparel designing (Practical)	CO 1: To identify the methods of developing fabrics using different yarns and fabric making techniques CO 2: To differentiate the skills in pattern making and construction CO 3: To create skills in apparel designing and construction
HS 1646	Communication in extension education	CO 1: To design various extension teaching methods for the community CO 2: To construct lesson plan and use for extension programmes CO 3: To evaluate different extension teaching methods for working with community
HS 1648	Project	CO 1:To identify the basic principles of research design CO 2:To translate the thrust areas in home science research and to develop project plan CO 3: To transact the research design in the field level
HS 1661.1	Human physiology and food microbiology	CO 1: To recognize the structure and functions of various organs of the body CO 2:To abstract the principles of nutrition through the study of physiology CO 3: To analyse the structure and function of various organs in disease condition

MSc Extension Education

Programme outcome	PO1: To understand the socio-economic structure of different communities in India PO2: To analyse the role of developmental programmes at state and national level PO3:To generalise various strategies, programmes and measures adopted for human developmental welfare PO4: To construct a research design and to formulate research reports PO5: To generate teaching materials and curriculum for the adult learners PO6: To create business plans for setting up of enterprise. PO7: To identify the role of research and development in ICT in development communication PO8: To identify the role science and technology in rural development PO9: To demonstrate the ability to develop, implement and constructively evaluate programme and evaluation plans PO10: To invent tools for monitoring and evaluation of extension programmes.
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		<p>PO11: To critique on the methods of populations projections</p> <p>PO12: To apply excel and SPSS in data analysis.</p> <p>PO13: To extrapolate indicators of development with emphasis to women</p> <p>PO14: To identify the prevalence and extent of malnutrition in India and its remedial measures</p> <p>PO15: To apply professional identity, ethical practice and critical thinking in individual core areas relevant to extension work.</p>
Course code	Titles of Courses	Course Outcome
HS 211c	Extension and social development in India	<p>CO1: To understand the socio-economic structure of different communities in India</p> <p>CO2: To compare and contrast inequalities in society</p> <p>CO 3: To ascertain the indicators of economic development</p>
HS212c	Development approaches and Panchayat Raj	<p>CO1: To analyse the role of developmental programmes at state and national level</p> <p>CO2: To determine the working of institutions and agency involved in developmental processes</p> <p>CO3: To extrapolate the evaluation of Panchayat Raj system in India</p>
HS 213 c	Human development and welfare	<p>CO1: To generalise various strategies, programmes and measures adopted for human developmental welfare</p> <p>CO 2: To discuss the concept of social gerontology and the contribution of environment and society dealing with elderly</p> <p>CO 3: To analyse the role anganwadi in the development of children</p>
HS214c	Research methodology	<p>CO 1: To identify appropriate research problems and methodologies</p> <p>CO 2: To construct a research design and to formulate research reports</p> <p>CO3: To recognize the ethics in Home science research</p>
HS 221 C	Lifelong learning for development	<p>CO 1: To organize skills in involving the community in participatory planning related to adult education and lifelong learning</p> <p>CO2: To retrieve the genesis and growth of adult education in India</p> <p>CO 3: To generate teaching materials and curriculum for the adult learners</p>
HS222C	Social entrepreneurship	<p>CO 1: To exemplify the concepts of entrepreneurship management and develop skills towards it</p> <p>CO2:To attribute resource mobilization, enterprise selection, assessment, marketing and quality control in organising an enterprise</p> <p>CO3:To identify gender issues in entrepreneurship development</p> <p>CO4: To create business plans for setting up of enterprise</p>
HS223C	Development communication	<p>CO1: To interpolate the concepts and approaches in development communication</p> <p>CO2: To instantiate the process of adoption, diffusion and innovation in the process of development</p> <p>CO3: To discriminate the various types of extension teaching methods and AV aids</p> <p>CO4: To identify the role of research and development in ICT in development communication</p>
HS224C	Development communication (Practical)	<p>CO1:To construct suitable aids for imparting behavioural communication on any developmental issues</p> <p>CO2: To discriminate the role of traditional media, folk art form for community developmental activities</p> <p>CO3: To design multimedia educational kit and documentaries for community developmental programmes</p>
HS231C	Science and technology for rural development	<p>CO 1: To identify the role science and technology in rural development</p> <p>CO2: To compare the alternate sources of renewable energy</p> <p>CO3: To illustrate the principles and methods of food quality control and food standards</p> <p>CO4: To execute five R's in waste managements</p>
HS232C	Programme design and evaluationiii	<p>CO1: To demonstrate the ability to develop, implement and constructively evaluate programme and evaluation plans</p> <p>CO2: To invent tools for monitoring and evaluation of extension programmes</p> <p>CO3: To examine the strategies and approaches in monitoring and evaluating extension programmes</p>
HS233C	Population studies	<p>CO1: To recognise the role demographic variables in determining population of the country</p> <p>CO2: To generalise the rate of population growth</p> <p>CO3: To critique on the methods of populations projections</p> <p>CO4: To ascertain the role sustainable developments in population explosion</p>
HS234C	Statistics and computer application	<p>CO1: To identify popular concepts in data management and statistical analysis</p> <p>CO2: To calculate measures of central tendency and dispersion</p> <p>CO3: To compute large and small sample test and interpretations</p> <p>CO4: To estimate parametric and nonparametric tests in data analysis</p> <p>CO5: To apply excel and SPSS in data analysis</p>
HS241C	Women and gender studies	<p>CO1: To translate the concepts of gender, sex and feminism</p> <p>CO2: To extrapolate indicators of development with emphasis to women</p>

		CO3: To distinguish gender equality and gender mainstreaming in the society
HS242C	Community health, nutrition and extension	CO1: To identify the prevalence and extent of malnutrition in India and its remedial measures CO2: To infer the food and nutritional problems of the community CO3: To exemplify the components of health information system and its uses
HS 243C	Community health, nutrition and extension (Practical)	CO1: To implement the nutrition educational programmes for the community CO2: To compute low cost balanced diets with teaching aids CO3: To execute community and family diet surveys
HS 244 C	Trends and issues in home science extension internship	CO1: To interpret class room theories and concepts with micro, mezzo and macro extension and community work practice in various community settings CO2: To apply professional identity, ethical practice and critical thinking in individual core areas relevant to extension work CO3: To design, develop, execute and document project proposal relevant to extension
MSc Home science- Food and Nutrition		
Programme outcome		PO1: To understand the concepts of physiology PO2: To understand the basic principles in planning diets for disease condition PO3: To analyse the need for maintaining quality in food industry PO4: To construct a research design and to formulate research reports PO5: To create a new standardised food product PO6: To ascertain the role of technology in food processing PO7: To identify and explore the various contaminants and toxins on food industry PO8: To explore the various strategies to combat nutritional problems PO9: To provide nutritional counselling for sports persons PO10: To identify popular concepts in data management and statistical analysis PO11: To discuss the metabolite pathways of major nutrients in the body PO12: To determine the energy requirements of individuals based BMR, SDA and physical activity PO13: To develop skills to work as dietician in hospitals
Course code	Titles of Courses	Course Outcome
HS211D	Human physiology	CO1: To understand the concepts of physiology CO2: To illustrate the physiological functions related various body systems
HS 212D	Medical Nutrition Therapy	CO1: To understand the basic principles in planning diets for disease condition CO2: To impart diet counselling to individuals based on their needs CO 3: To analyse and create individualized diet plan for diseased conditions
HS213D	Food microbiology and sanitation	CO1: To comprehend the common microorganisms associated with food borne illnesses CO2: To differentiate the different organisms causing food spoilage CO3: To analyse the need for maintaining quality in food industry
HS214D	Research methodology	CO 1: To identify appropriate research problems and methodologies CO 2: To construct a research design and to formulate research reports CO3: To recognize the ethics in Home science research
HS221D	Applied food science	CO1: To experiment different cookery methods in the various food groups CO2: To create a new standardised food product CO3: To explore the various additives and adulterants commonly added to food
HS222D	Nutrition through life cycle	CO1: To construct a research design and to formulate research reports CO2: To ascertain the nutritional needs if the individuals of different age groups CO3: To create individualized diet plan for the particular age group
HS223D	Advanced food technology and engineering	CO1: To ascertain the role of technology in food processing CO2: To update the student on the advancements in food technology CO3: To compare and distinguish the various packaging materials in food industry
HS224D	Applied food science (Practical)	CO1: To demonstrate the various principles and methods of cookery CO2: To inculcate the principles of sugar cookery
HS213D	Food safety and quality assurance	CO1: To introduce the various food laws and safety regulations of the food industry CO2: To identify and explore the various contaminants and toxins on food industry
HS 232D	Public health nutrition	CO1: To gain insight into the public health problems in India with special emphasis on vulnerable groups CO2: To distinguish and differentiate various communicable diseases and life style diseases CO3: To explore the various strategies to combat nutritional problems CO4: To develop the concept of assessment of nutritional status in a community
HS233D	Nutrition for sports, space, travel and during disasters	CO1: To get an insight into the role of nutrition in different sports activities, space, travel and various natural disasters CO2: To explore the role of macro and micro nutrients in sports nutrition CO3: To provide nutritional counselling for sports persons
HS234D	Statistics and computer	CO1: To identify popular concepts in data management and statistical analysis CO2: To calculate measures of central tendency and dispersion

	applications	CO3:To compute large and small sample test and interpretations
HS241D	Biochemistry	CO1: To discuss the metabolite pathways of major nutrients in the body CO2:To familiarise the techniques used in biochemistry
HS242D	Advanced human nutrition	CO1: To obtain the in-depth knowledge of macro and micro nutrients CO2:To determine the energy requirements of individuals based BMR, SDA and physical activity
HS243D	Biochemistry (Practicals)	CO1:To analyse the human blood for relevant biochemical parameters CO2:To analyse urine for relevant parameters CO3: To develop the skill for qualitative analysis of sugars, protein and starch
HS244D	Advanced human nutrition	CO1: To analyse food for micronutrients CO2: To explore the parameters that determine the quality of fat CO3:To formulate tube feed according to patient needs CO4: To develop skills to work as dietician in hospitals

Department of Malayalam

Programme offered		B.A Malayalam M.A Malayalam
B.A Malayalam		
Programme Outcome		PO 1: The students demonstrate an ability to read and interpret a diverse range of literary texts. PO 2: The students will be equipped both in written and oral communication. PO 3: The students demonstrate an ability to describe a number of contemporary and historical schools, genres of literature & criticism. PO 4: The students demonstrate knowledge of specific works by major authors in Malayalam Literature. PO 5: The students demonstrate knowledge of Kerala Culture. PO 6: The students demonstrate knowledge of Media history & Language.
Course Code	Title of Courses	Course Outcome
ML 1111.1	Malayalakavitha	CO 1: Students are sensitized to the language, forms and types Malayalam Poetry. CO 2: Awareness of the diverse poetic devices and strategies. CO 3: Ability to read and appreciate poetry. CO 4: Enhances the level of literary and aesthetic experience. CO 5: Respond critically and creatively to the world around.
ML 1141	Novel – Charithravumpadavum	CO 1: Students are sensitized to the aesthetic cultural and social aspects of Prose literature. CO 2: Students are equipped to analyse and appreciate Novels. CO 3: Ability for writing literary review critically. CO 4: Awareness of the Malayalam Novel history. CO 5: Awareness of the characteristics of contemporary Malayalam novels.
ML 1131.1	Kerala samskaram- I	CO 1: Provides awareness on cultural background of Kerala. CO 2: Enhances the level of National integrity and National values. CO 3: Helps to develop different views to study the cultural, political and historical aspects of language, literature and art forms of Kerala up to AD 1400.
ML 1121.1	Gadhyasahityam	CO 1: Provides awareness on the history and its development of Malayalam prose literature. CO 2: Students are equipped to analyze and appreciate Malayalam prose literature.
ML 1241	Nadakam-Charitram, Padam, Prayogam	CO 1: Provides awareness on the history and its development of Malayalam drama. CO 2: Provides awareness of various stage concepts in the form of drama in Kerala.
ML 1231.1	Kerala samskaram- II	CO 1: Provides awareness on cultural background of Kerala. CO 2: Provides awareness on the struggles and movements of the modernization of Kerala. CO 3: Helps to develop multicultural perspectives on the renaissance & contemporary Kerala.
ML 1311.1	Drisyakalasaahithyam	CO 1: Identifies prosperity and varieties of visual art culture of Kerala. CO 2: Introduces many visual arts (Kathakali, Thullal, Drama & Cinema) and literary lessons regarding them.
ML 1321	Adhunikasankethi kavidyayummalayalabhashapadanavum	CO 1: Provides awareness on information technology. CO 2: Acknowledges about Malayalam computing. CO 3: Provides awareness on cyber literature of Malayalam.
ML 1341	Sahithyasinddhanthangal: Pourasthyavum paschathyavum	CO 1: Helps for the enhanced study of oriental and occidental doctrine. CO 2: Provides a critical perspective and capacity to compare various Indian and western critical schools. CO 3: Provides the history of aesthetics of India and the West.
	Paristhithi; Siddanthavumavis	CO 1: Provides awareness on sources of nature and problems related to them. CO 2: Provides awareness on Eco literature in Malayalam.

ML 1331	hkaravum	
ML 1411.1	Ashayavinimayam, sargatmakarachana, bhashavabodham	CO 1: Improves the communication skill of students. CO 2: Provides practical training in translation. CO 3: Provides efficiency in handling Malayalam language with ease.
ML 1441	Malayalakavithapoorvakhattam (udayabharathi)	CO 1: Identifies the poetic schools of ancient and mid-centuries. CO 2: Introduces vivid historic stages of Malayalam poetry upto nineteenth century. CO 3: Identifies the timely evolutions happened in poetic language.
ML 1442	Malayalashishya niroopanam	CO 1: Provides awareness on different branches of literary criticism in Malayalam. CO 2: Provides history of the origin, development and contemporary trends of Malayalam criticism. CO 3: Provides a critical perspective on the influences and aesthetic sensibility of Kerala.
ML 1431	Dalitezhuth, Pennezhuth: siddhanthavumavis hkaravum	CO 1: Identifies dalit (subaltern) literature in Malayalam. CO 2: Introduces the mostly emphasised feminist ideas in the recent studies of doctrines.
ML 1541	Bhashashastram, bhashacharitam	CO 1: Analyses the history and function of language and the laws of language. CO 2: Analyze language units based on their phonological, morphological and syntactical levels.
ML 1542	Cherukathaapadanam	CO 1: Provides information about origin & growth of Malayalam short story. CO 2: Analyses various stages and trends of history of Malayalam short stories. CO 3: Introduces the masters and their works in historical and appreciational level.
ML 1543	Nadodivijnaneeyam	CO 1: Provides critical evaluation of folk type cultural forms. CO 2: Introduces various genres and types of folklore. CO 3: Provides information about the cultural plurality of Kerala. CO 4: Provides awareness about cultural and scientific facts of folklores.
ML 1544	Jeevacharithram, Atmakatha, Yathranubhavam	CO 1: Develops skill for writing biographies, autobiographies, life experiences and travelogues. CO 2: Provides awareness on socio-political and cultural scenario of Kerala reflected in these genres.
ML 1545	Chalachithrapadanam	CO 1: Provides awareness on Malayalam, Iranian, Hollywood, Japanese, Hindi and Tamil films. CO 2: Defines Cinema as an art and industry.
ML 1551.1	Keraleeyakalakaal (open course I)	CO 1: Provides mental expansion through appreciation of art. CO 2: Analyses common art forms of Kerala. CO 3: Helps in understanding history and culture of art of Kerala.
ML 1641	Madhyamalokam	CO 1: Introduces the wide scope and power of media. CO 2: Provides awareness on the sources of new technology. CO 3: Provides information about the cultural growth of society through media. CO 4: Provides efficiency for appreciation and judgement of radio and television programmes.
ML 1642	Malayalavyakaranam	CO 1: Students gain a good understanding of the grammatical structure Malayalam. CO 2: Understand the history and development of Malayalam language. CO 3: Provides awareness on dravida bhasha shastram.
ML 1643	Malayalakavithatharakhattam	CO 1: Provides information about the evolutions in Malayalam poetry from the beginning to twentieth century. CO 2: Provides information about post-renaissance trends in Malayalam poetry. CO 3: Analyses the entry of modernism historically and poetically.
ML 1644	Vivarthanam; siddhanthavumprayogavum	CO 1: Provides information about the characteristics and usefulness of translation in modern era. CO 2: Provides awareness on different types of approaches, doctrines and problems in translation. CO 3: Provides the history of translation.
ML 1661.3	Keraleeyakalakaal (open course II- Elective)	CO 1: Provides mental expansion through appreciation of art forms. CO 2: Analyses history and culture of art of Kerala.
ML 1111.2	Novel, Drama, Travelogue, Script (for B.Com Students)	CO 1: Provides awareness on the history and its development of Malayalam drama. CO 2: Provides awareness of various stage concepts in the form of drama in Kerala. CO 3: Analyses and reads the script of Drama as a literature. CO 4: Students are equipped to analyze and appreciate Novels. CO 5: Develops skill for writing travelogues.
ML 1211.2	Poetry, prose, essay, translation	CO 1: Provides awareness on different types of approaches, doctrines and problems in translation. CO 2: Provides awareness on the history and its development of Malayalam poetry & Malayalam prose. CO 3: Upgrade the skill for using the language in various discourses.

ML 1111.3	Gadyasahityam- Novel, short story, Essay, Biography, Auto- biography, travelogue, language skill, translation& essay writing (career- related students)	CO1: Provides awareness on the history and its development of Malayalam novel & Malayalam short story. CO 2: Students are equipped to analyze and appreciate Novels. CO 3: Develops skill for writing biography, autobiography, life experiences and travelogues. CO 4: Provides awareness on different types of approaches, doctrines and problems in translation. CO 5: Upgrade the skill for using the language in various discourses.
ML 1211.3	Drishyakalasa hityam	CO 1: Provides awareness on various visual arts in Kerala like Thullal, Attakkatha, Drama & Film. CO 2: Provides awareness on major literary works of visual arts in Kerala.
M.A.Malayalam		
Programme Outcome		PO 1: The students demonstrate an ability to read and interpret a diverse range of literary texts. PO 2: The students will be equipped both in written and oral communication. PO 3: The students demonstrate an ability to describe a number of contemporary and historical schools, genres and trends of literature & criticism. PO 4: The students demonstrate knowledge of specific works by major authors in Malayalam Literature. PO 5: The students demonstrate knowledge of Kerala Culture. PO 6: The students demonstrate knowledge of Media culture and its Language.
Course Code	Title of Courses	Course Outcome
ML 211	Pracheenasahityam	CO 1: Ability to analyze and appreciate ancient Malayalam poetry and prose. CO 2: Understand the characteristics, genres and history of the ancient poetry of Malayalam. CO 3: Understand the characteristics of oral tradition of Malayalam literature. CO 4: Ability to understand the cultural blend in language and literature in Malayalam.
ML 212	Madhykalasa hityam	CO 1: Ability to analyze and appreciate medieval poetry. CO 2: Understand the characteristics and history of the medieval Malayalam poetry. CO 3: Understand the characteristics of Bhakti movement and the influence on medieval Malayalam literature. CO 4: Understand the evolution of poetical language from ancient to medieval period.
ML 213	Kerala Culture	CO 1: Provides awareness on cultural background and the cultural changes of Kerala. CO 2: Enhances the level of National integrity and National values. CO 3: Helps to develop a cultural view to study the cultural and political aspects of language and art forms of Kerala. CO 4: Ability to analyse the literary texts as cultural texts. CO 5: Ability to understand the cultural blend and the development of a modern society in Kerala.
ML 214	Malayalavyakar anam	CO 1: Students gain a good understanding of the history and modern Malayalam Grammar. CO 2: Understand the history and development of Malayalam language. CO3: Provides awareness on dravida bhasha shastram. CO 4: Understand the contribution of foreigners to the study of Malayalam.
ML 221	Adhunikasahitya m- Gadyam	CO 1: Understand the characteristics of Malayalam Prose literature, esp. in modern period. CO 2: Provides awareness on major writers and their works of Malayalam prose literature. CO3: Ability to analyze and appreciate prose literature.
ML 222	Adhunikasahitya m- Padyam	CO 1: Understand the characteristics of Malayalam poetry, esp. in modern period. CO 2: Provides awareness on major works of Malayalam poetry CO3: Ability to analyze and appreciate modern poetry.
ML 223	Bharatheeyakavya meemamsa	CO 1: Provides awareness on major works of Indian Aesthetics. CO2: Awareness of the historical and critical practices from classical period to present. CO3: Awareness of significant concepts on the development of critical thought. CO4: Awareness on the scope and relevance of Indian aesthetic concepts into contemporary literature. CO 5: Analyze and appreciate texts critically through Indian way.
ML 224	Sahitya Meemamsa- Western	CO 1: Provides awareness on major works of Western Literary theory. CO2: Awareness of the historical and critical practices from classical period to present. CO3: Awareness of significant concepts on the development of critical thought CO 4: Developed a critical perspective and capacity to compare various Western critical schools. CO 5: Analyze and appreciate texts critically.
ML 231	Samakalika sahityam- Gadyam	CO 1: Understand the characteristics of contemporary Malayalam prose literature. CO 2: Provides awareness on major writers and their works of contemporary Malayalam prose literature.

		CO3: Ability to analyze and appreciate prose literature.
ML 232	Sahitya charitrvijneeyam	CO1: Understand the significance of historical and philosophical aspects of writing the literature. CO2: understand how to historisize the text and how to textualize the history. CO3: Critical practices on concept of “complete history”. CO 4: Understand the theoretical concepts and history of Literary historiography.
ML 234	Malayalavimarsanam	CO 1: Provides awareness on the history and major works of Malayalavimarsanam. CO2: Awareness of the critical practices from classical period to present in the tradition of Malayalavimarsanam. CO3: Awareness of significant concepts on the development of critical thought. CO 4: Develops a critical perspective and capacity to compare various critical schools in the tradition of malayalavimarsanam. CO 5: Provides awareness on different branches and theoretical influences of Malayalam criticism.
ML 241	Samakalikasahityam- Padyam	CO 1: Understand the characteristics of contemporary Malayalam Poetry. CO 2: Provides awareness on major works of contemporary Poetry. CO3: Ability to analyze and appreciate modern poetry.
ML 243	Modern Linguistics	CO1: Develop an awareness of the basic nature, branches and history of linguistics. CO2: Analyze language units based on their phonological, morphological and syntactical levels. CO3: Familiarize the students with history and developments of modern grammar.
ML 244	Thirakkatha	CO 1: Provides awareness on major script works of Malayalam films. CO 2: Provides awareness on Popular culture. CO 3: Provides information about aesthetics, construction and characteristics of cinema. CO 4: Teaches the science of writing of script. CO 5: Teaches conversion of a script into a cinema CO 6: Analyses and reads the script as a literary form.

Department of Mathematics

Programme offered		B.ScMathematics M.ScMathematics
B.ScMathematics		
Programme Outcome		
Course code	Course Name	Course Outcome
MM 1141	Methods of Mathematics	CO1: Understanding the concepts of fundamental methods of solving problems like limit, continuity and differentiation CO2: Finding absolute maximum and minimum of functions CO3: Understanding application of extrema problems to Economics CO4: Understanding various Integration Techniques CO5: Finding Area under a curve through integration, work done, Pappu’s Theorem and understanding the concept of hyperbolic functions and their applications
MM 1221	Foundations of Mathematics	CO1: Understanding the concepts of sets, functions and the way in which a mathematician formally makes statements and proves or disproves it CO2: Visualize some of the properties of graphs of elementary functions CO3: Understanding foundations of co-ordinate geometry CO4: Understand the application of polar coordinates in Astronomy CO5: Understanding three-dimensional rectangular co-ordinate system and basic operations on vectors
MM 1341	Elementary Number Theory and calculus-I	CO1: Understanding the fundamental facts in elementary Number Theory CO2: Understand the physical and geometrical interpretations of vectors. CO3: Explain more properties of curves in three-dimension space using the concepts of differentiability CO4: Visualising functions of more than one variable, sketching, contours and level surface plotting CO5: Understanding limits and continuity of multivariable functions, partial derivatives and its geometrical interpretation CO6: Solving extremum problems with constraints using Lagrange multipliers
MM 1441	Elementary Number Theory and calculus-II	CO1: Defining the congruence relation and the congruence classes in integers CO2: Understanding Chinese remainder theorem and its applications CO3: Finding double and triple integrals and their applications CO4: Evaluating the integrals of vector valued functions CO5: Understanding the concept of Divergence Theorem, Gauss Law, Stoke’s Theorem and

		its applications
MM 1541	Real Analysis-I	CO1: Understands the existence of irrational numbers CO2: state the completeness axiom of the reals and do simple calculations with suprema and infima of bounded sets CO3: Proving the uncountability of \mathbb{R} CO4: calculate limits of sequences using the algebra of limits for sequences and the standard list of basic sequences, limits of sequences and to prove Bolzano Weierstrass theorem CO5: state various convergence tests for series (e.g. comparison test or the ratio test) and use them to detect convergence or divergence of series CO6: Understands abstract metric spaces CO7: Understands the construction of Cantor set CO8: Understands the open and closed sets in \mathbb{R} and their complements CO9: Understands the compactness, open covers, perfect and connected sets in \mathbb{R} CO10: Proves the Baire's Theorem
MM 1542	Complex Analysis I	CO1: Understands the algebra of Complex numbers, point representation and its vector and polar form CO2: Understands the concept of limit and continuity of functions of complex variable CO3: Prove the Cauchy-Riemann equations CO4: Understands polynomials and rational functions, the exponential, trigonometric, hyperbolic, the logarithmic functions and inverse trigonometric functions CO5: Gets the knowledge of contour integrals and proves Cauchy's Integral formula. Also discusses about its applications in evaluating integrals CO6: Understands the Bounds of Analytic functions
MM 1543	Abstract Algebra – Group Theory	CO1: Acquire fundamental concept of Group theory CO2: Enhance capacity for mathematical reasoning CO3: Develop problem solving skill CO4: Students can connect the theory of groups to problems in other discipline CO5: Defining and analysing various permutation groups CO6: Understanding Cosets, Lagrange's theorem and fundamental theorem of Isomorphism CO7: Solve boundary value problem
MM 1544	Differential Equations	CO1: Understands first order differential equations and various methods to solve them CO2: Understanding the existence and uniqueness of solutions theorem CO3: Understands second order differential equations and various methods to solve them
MM 1545	Mathematics software- LATEX & Sage Math	CO1: Enables to prepare a project report in Mathematics using LATEX CO2: Typesets a simple article, prepares a table, inserts figures in the document and adds bibliography CO3: Understands to start Sage Math, use Sage Math cloud CO4: Do simple calculations using Sage Math calculator and by basic functions CO5: Plots the graphs of simple functions CO6: Understands matrix algebra, defining functions, operations on polynomials, complex number arithmetic, differentiation of functions CO7: Understands the concepts of combinatorics and number theory, vector calculus
MM 1551.1	Operations Research	CO1: Formulate a linear programming problem and solve it using graphical method or simplex method. CO2: Solve transportation problem and assignment problem. CO3: Analyse project networks using PERT and CPM.
	Project	CO1: Computational understanding of mathematics to a broad understanding encompassing logical reasoning, generalization, abstraction, and formal proof. CO2: Create and verify their own conjectures, rather than simply using provided formulas, rules and theorems in multiple courses throughout the mathematics curriculum. CO3: Construct clear and well-supported mathematical arguments to explain mathematical problems, topics, and ideas in writing.
MM 1641	Real Analysis-II	CO1: State the definition of continuous functions and verify or disprove this in easy examples, formulate characterizations of continuity in terms of convergent sequences and in terms of limits of functions, CO2: State the intermediate value theorem and the boundedness theorem and apply them to solve equations, CO3: State the definition of differentiable functions and to verify or disprove this in easy examples, CO4: Calculate derivatives using the chain rule, the algebra of differentiable functions and the rule on derivatives of compositional inverses CO5: State Rolle's theorem, the Mean Value Theorem and L'Hospital's Rule and to apply them to recognise the shape of functions (e.g. existence of local extrema, subjectivity of the derivative) and to calculate limits, CO6: State the definition of Riemann Integrability and derive the Cauchy criteria. CO7: Establish the integrability using various results, like squeeze theorem, integrability of

		monotone functions etc. CO8: Derive the relation between integration and differentiation via fundamental theorem of calculus
MM 1642	Complex Analysis II	CO1: Compute the Taylor and Laurent expansions of simple functions, determining the nature of the singularities CO2: Understands about the point at infinity CO3: Prove the Cauchy Residue Theorem and use it to evaluate improper integrals CO4: Understands the geometric considerations of conformal mapping CO5: Gets the knowledge of Mobius Transformations
MM 1643	Abstract Algebra – Ring Theory	CO1: Explain fundamental concepts of homomorphism of Groups CO2: Develop the notion of Ring theory CO3: handle Factor ring CO4: use the theory of rings to problems in other discipline
MM 1644	Linear Algebra	CO1: Understands the basics of Linear Algebra and matrix theory through geometry CO2: Demonstrate understanding of linear independence, span, and basis. CO3: Determine eigenvalues and eigenvectors and solve eigenvalue problems CO4: Apply principles of matrix algebra to linear transformations.
MM1645	Integral Transforms	CO1: Understands Laplace Transforms and its properties CO2: Understands its applications to Non- homogeneous Linear ODE CO3: Understands the Fourier series representation of periodic functions, odd and even functions, Half range expansions CO4: Understands Fourier integrals and its properties CO5: Understands Fourier Transform and its properties
MM 1661.1	Graph Theory(Elective)	CO1: Understands the Fundamental Concepts of graph CO2: Understands the trees and Connectedness of graphs CO3: Understands Euler tours and Hamiltonian cycles CO4: Understands the concept of Chinese postman problem, Travelling salesman problem CO5: Understands the idea of planar graphs CO6: Gets the knowledge of Platonic bodies and Kuratowski's Theorem

M. Sc. Mathematics

Programme Outcome		
Course code	Course Name	Course Outcome
MM 211	Linear Algebra	CO1: Analyze finite dimensional vector spaces and subspaces over a field and their properties including the basis structure of vector spaces CO2: Use the definition and properties of linear maps and matrices of linear map including nullspace, range, invertibility and to apply Rank Nullity theorem to find dimension of null space and range space CO3: Compute eigenvalues, eigen vectors, eigen spaces and invariant subspaces of linear operators and analysing equivalent condition for a set of vectors to give an upper triangular operator. CO4: Find characteristic polynomial and minimal polynomial of certain operators. Prove Cayley Hamilton theorem. CO5: Define trace and determinant of a matrix and linear operator
MM 212	Real Analysis – I	CO1: Characterization of functions in terms of monotone functions CO2: Extension of Riemann Integration CO3: Point wise and Uniform convergence of functions CO4: Partial Derivatives and Directional derivatives of multivariable scalar functions
MM 213	Differential Equations	CO1: Solve second order differential equations CO2: Solve second order and first order differential equations using power series CO3: Understand some special functions? Bessel and Legendre functions CO4: Solve First and second order partial differential equations CO5: Derive wave equation CO6: Solve boundary value problem
MM 214	Topology – I	CO1: Understand the concept of topological and metric spaces CO2: Distinguishes the topological properties CO3: Apply the properties of connectedness CO4: Application of properties related to compactness CO5: Identify the condition under which a topological space should be considered as a subspace of a compact topological space
MM 221	Abstract Algebra	CO1: Understand the elementary concepts of group theory, ring theory and field theory CO2: Prove fundamental theorem and apply the theorem to classify abelian groups CO3: Demonstrate knowledge and understanding of different type of integral domains CO4: Understand factorization of polynomials and apply reducibility tests CO5: Understand the fundamental theorem of field theory and Galois theory CO6: Characterize extensions and find Galois fields of certain polynomials

MM 222	Real Analysis-II	CO1: Characterization of functions in terms of monotone functions CO2: Extension of Riemann Integration CO3: Point wise and Uniform convergence of functions CO4: Partial Derivatives and Directional derivatives of multivariable scalar functions
MM 223	Topology-II	CO1: Compare topologies. CO2: Understand the idea of quotient space. CO3: Know the separation properties and metrization CO4: Understand the idea of fundamental group. CO5: Describe the structure of topological spaces by algebraic means.
MM 224	Scientific Programming with Python	CO1: Use Anaconda's IDE Spyder to open, write, debug, and run Python programs, CO2: Decompose algorithmic processes into control structures (like loops and logical branches) and implement them in the Python programming language CO3: Identify and use the appropriate data types for variables, being critically aware of memory and complexity issues, CO4: Identify reusable building blocks of their code and restructure them into well-documented functions, CO5: Read from and write to external data sources and files, perform data manipulations on these, present and interpret theResult
MM 231	Complex Analysis-I	CO1: Demonstrate understanding and appreciation of deeper aspects of complex analysis CO2: Work with multi-valued functions (logarithmic, complex power) and determine branches of these functions CO3: Use the complex derivatives function CO4: Use and operate analytic functions CO5: Demonstrate knowledge of integration in the complex plane CO6: Use the Cauchy integral theorem and Cauchy integral formula CO7: Manipulate and use power series CO8: Understand residues and their use in integration CO9: Understand Mobius Transformations and Symmetric, Orientation Principle CO 10: Understand Maximum modulus theorems and Schwarz Lemma
MM 232	Functional Analysis-I	CO1: Handle infinite dimensional vector spaces CO2: Combine the idea from linear algebra and analysis CO3: Connect theoretical mathematics to applied mathematics CO4: Develop problem solving skill
MM233	Algebraic Topology	CO1: characterize geometrical properties like holes and connectivity of spaces using algebraic objects namely groups. CO2: Module 1-2: Calculate the Homology groups and characterize regular simple polyhedrons in \mathbb{R}^3 . CO3: Module 3: Using simplicial approximation theorem, analyse the homeomorphism between n-spheres and between Euclidean spaces. CO4: Module 4: Calculate Fundamental groups and observe the simple connectivity of n-sphere. CO5: Module 5: Prove the Borsuk-Ulam theorem and show that at any point of time there is at least one pair of antipodal points on the surface of the earth having identical atmospheric pressures and identical temperatures.
MM 234	Elective-II Differential Geometry	CO1: Understand the concepts and language of differential geometry and its role in modern mathematics CO2: Analyse and solve problems using appropriate techniques from differential geometry CO3: Define n-surfaces and their properties CO4: Find parametrization of surfaces CO5: Express tangent spaces of surfaces CO6: Explain differential maps between surfaces and find derivatives of such maps.
MM 241	Complex Analysis-II	CO1: Understand Spaces of Analytic functions, to prove Arselà Ascoli Theorem, Montel's theorem and Hurwitz Theorem CO2: Understand Riemann Mapping Theorem CO3: Understand Gamma and Zeta functions, their properties and relationships CO4: Understand the Harmonic functions on a disc and concerned results CO5: Understand the factorization of entire functions having infinite zeros CO6: Demonstrate the concept of Analytic Continuation and prove related Theorems
MM 242	Functional Analysis-II	CO1: Handle inner product space CO2: Idea of approximation and optimization CO3. Expert in Banach algebra CO4. Problem solving skill
MM 243	Elective-III Field Theory	CO1: Define and able to give examples of splitting field, algebraic extension, Galois groups, solvable groups and solvability of polynomials by radicals. CO2: Understand the Fundamental Theorem of Galois Theory and Galois correspondence. CO3: Compute the Galois group of some field extensions

		CO4: Explain how, one can use Galois theory to prove that polynomials of degree less than five are solvable by radicals, while the general quintic equation is not.
MM 244	Elective-IV Analytic Number Theory	CO1: Working with complex mathematical texts and abstract concepts CO2: Constructing logical arguments, communicating mathematical ideas clearly and succinctly, and explaining mathematical ideas to others CO3: Formulating the theory of arithmetical function and use it in deriving various identities and inequalities, CO4: Solving the system of congruences and various congruence relations, CO5: Finding the square root modulo a positive integer CO6: Finding the primitive roots modulo integers.
MM 245	Dissertation/ Project	CO1: computational understanding of mathematics to a broad understanding encompassing logical reasoning, generalization, abstraction, and formal proof. CO2: create and verify their own conjectures, rather than simply using provided formulas, rules and theorems in multiple courses throughout the mathematics curriculum. CO3: construct clear and well-supported mathematical arguments to explain mathematical problems, topics, and ideas in writing.
Complementary courses		
Programme Outcome:		
Course code	Course Name	Course Outcome
MM1131.1	Calculus with applications in Physics-I	CO1: Understands the special points of a function, curvature and applies Rolle's Theorem and Mean value theorem on functions CO2: Understands integration by parts and reduction formula CO3: Understands the concept of infinite and improper integrals CO4: Applies the integration techniques to evaluate the area, volume etc CO5: Understands various types of Series such as arithmetic series, geometric series, the difference method, series involving natural numbers and transformation of series CO6: Understands Convergence of infinite series (Absolute and conditional convergence) and series containing only real positive terms; alternating series test CO 7: Understands Operations with series (Sum and product) Convergence of power series and Taylor series CO9: Understands Scalars and vectors, Addition and subtraction of vectors, Multiplication by a scalar, Basis vectors and components, Magnitude of a vector, Multiplication of vectors CO10: Understands Equations of lines, planes and spheres, using vectors to find distances from Point to line; point to plane; line to line and line to plane
MM 1231.1	Calculus with applications in Physics-II	CO1: Apply Integral calculus and vectors to problems in chemistry CO2: Use integration to find the area and volume of a surface of revolution CO3: Evaluate multiple integrals CO4: Solving first order and second order linear differential equations CO5: Identify the Equations of different types of conics in Cartesian and polar coordinates and sketch them
MM 1331.1	Calculus and Linear algebra	CO1: Solve special types of first order equations CO2: Solve second order linear differential equation, homogeneous and non-homogeneous equation. CO3: Solve second order equations by operator method. CO4: Solve Euler, Cauchy and Legendre equations CO5: Solve system of linear equations CO6: Compute the rank of a matrix CO7: Determine whether a square matrix is diagonalizable and compute its diagonalization if it is CO8: Understand the relation between roots and coefficients of a polynomial and apply these relations to solve polynomial Equations CO9: Characterise roots of a polynomial. CO10: Calculate approximate roots of a polynomial equation using bisection and Newton Raphson method
MM 1431.1	Complex Analysis, Special Functions and Probability Theory	CO1: Demonstrate accurate and efficient use of complex analysis techniques CO2: Apply problem-solving using complex analysis techniques applied to diverse situations in physics, engineering and other mathematical contexts, CO3: Evaluate integrals using Cauchy's Residue integration method, CO4: Understands the Factorial Function, the Gamma Function; Recursion Relation, The Gamma Function of Negative Numbers, Some Important Formulas Involving Gamma Functions, Beta Functions, Beta Functions in Terms of Gamma Functions CO5: Understands the Basics of statistics such as Sample Space, Probability Theorems, Methods of Counting Random Variables CO6: Understands the Continuous Distributions, Binomial Distribution, The Normal or Gaussian Distribution and the Poisson Distribution

MM1131.2	Calculus with applications in Chemistry I	<p>CO1: Understands the special points of a function, curvature and applies Rolle's Theorem and Mean value theorem on functions</p> <p>CO2: Understands the Basic operations of complex numbers, modulus and argument; multiplication; complex conjugate, Polar representation of complex numbers and de Moivers theorem</p> <p>CO3: Understands the trigonometric identities and finding the nthroots of unity; solving polynomial equations, Complex logarithms and complex powers,</p> <p>CO4: Applies the complex numbers to differentiation and integration, Definition of hyperbolic and trigonometric analogies; identities of hyperbolic functions; solving hyperbolic equations; inverses of hyperbolic functions; calculus of hyperbolic functions</p> <p>CO5: Understands Scalars and vectors, Addition and subtraction of vectors, Multiplication by a scalar, Basisvectors and components, Magnitude of a vector, Multiplication of vectors</p> <p>CO6: Understands Equations of lines, planes and spheres, using vectors to find distances from Point to line; point to plane; line to line and line to plane</p> <p>CO7: Understands integration by parts and reduction formula</p> <p>CO8: Understands the concept of infinite and improper integrals</p> <p>CO9: Applies the integration techniques to evaluate the area, volume etc</p>
MM 1231.2	Calculus with applications in Chemistry-II	<p>CO1: Understands the total differential and total derivative, Exact and inexact differentials, theorems of partial differentiation,</p> <p>CO2: Understands the chain rule, Change of variables, Taylors theorem for many-variable functions</p> <p>CO3: Understands the Stationary values of many-variable functions, Stationary values under constraints</p> <p>CO4: Understands various types of Series such as arithmetic series, geometric series, the difference method, series involving natural numbers and transformation of series</p> <p>CO5: Understands Convergence of infinite series (Absolute and conditional convergence) and series containing only real positive terms; alternating series test</p> <p>CO6: Understands Operations with series (Sum and product) Convergence of power series and Taylor series</p> <p>CO7: Understands the Differentiation of vectors, Integration of vectors, Space curves, Vector functions of several arguments, Surfaces, Scalar and vector fields</p> <p>CO8: Gets the knowledge of Vector operators like Gradient, divergence and curl, Cylindrical and spherical polar coordinates</p> <p>CO9: Understands Double integrals, Triple integrals, Applications of multiple integrals (Areas and volumes), Change of variables in multiple integrals and properties of Jacobians</p>
MM1331.2	Linear Algebra, Probability Theory and Numerical Methods	<p>CO1: Understands row reduction of Matrices, Determinants, Cramer's rule for solving system of equations</p> <p>CO2: Understands vectors, lines and planes, linear combinations, linear functions, linear operators, linear dependence and independence, special matrices like Hermitian matrices and formulas,</p> <p>CO3: Understands linear vector spaces, eigen values and eigen vectors, diagonalizing matrices and applications of diagonalization</p> <p>CO4: Understands the Basics of statistics such as Sample Space, Probability Theorems, Methods of Counting Random Variables</p> <p>CO5: Understands the Continuous Distributions, Binomial Distribution, The Normal or Gaussian Distribution and the Poisson Distribution</p> <p>CO6: Understanding the Algebraic and transcendental equations Convergence of iteration schemes,</p> <p>CO7: Solves the Simultaneous linear equations using Gaussian elimination, Gauss-Seidel iteration;</p> <p>CO8: Evaluates integrals using Numerical integration techniques such as Trapezoidal rule; Simpsons rule; Gaussian integration; Monte Carlo methods</p> <p>CO9: Understands Finite differences, Differential equations; Taylor series solutions; prediction and correction; Runge-Kutta methods</p>
MM 1431.2	Differential Equations, Vector Calculus and abstract Algebra	<p>CO1: Understands the General form First-degree firstorder equations and solving using Separable-variable equations; exact equations; inexact equations, integrating factors; linear equations; homogeneous equations; isobaric equations; Bernoullis equation; solves Higher-degree first-order Clairaut's equation</p> <p>CO2: Solving Linear equations with constant coefficients; linear recurrence relations; Laplace transform method, Linear equations with variable coefficients such as The Legendre and Euler linearequations;</p> <p>CO3: Solves exact equations using partially known complementary function; variation of parameters; Green's functions; canonical form for second-order equations</p> <p>CO4: Solves general ordinary differential equations; non-linear exact equations; isobaric or homogeneous equations and solves equations homogeneous in x or y alone and equations having $y = Aex$ as a solution</p>

		<p>CO5: Evaluate line, surface and volume integrals</p> <p>CO6: Acquire fundamental concept of Group theory</p> <p>CO7: Enhance capacity for mathematical reasoning</p> <p>CO8: Develop problem solving skill</p> <p>CO9: Students can connect the theory of groups to problems in other discipline</p>
MM 1131:4	Basic Calculus for Statistics	<p>CO1: Understands the special points of a function, curvature and applies Rolle's Theorem and Mean value theorem on functions</p> <p>CO2: Understands various types of Series such as arithmetic series, geometric series, the difference method, series involving natural numbers and transformation of series</p> <p>CO3: Understands Convergence of infinite series (Absolute and conditional convergence) and series containing only real positive terms; alternating series test</p> <p>CO4: Understands Operations with series (Sum and product) Convergence of power series and Taylor series</p> <p>CO5: Understands integration by parts and reduction formula</p> <p>CO6: Understands the concept of infinite and improper integrals</p> <p>CO7: Applies the integration techniques to evaluate the area, volume etc</p>
MM 1231:4	Advanced Differential and Integral Calculus	<p>CO1: Understands the total differential and total derivative, Exact and inexact differentials, theorems of partial differentiation,</p> <p>CO2: Understands the chain rule, Change of variables, Taylors theorem for many-variable functions</p> <p>CO3: Understands the Stationary values of many-variable functions, Stationary values under constraints</p> <p>CO4: Understands Double integrals, Triple integrals, Applications of multiple integrals (Areas and volumes), Change of variables in multiple integrals and properties of Jacobians</p> <p>CO5: Understands the Factorial Function, the Gamma Function; Recursion Relation, The Gamma Function of Negative Numbers, Some Important Formulas Involving Gamma Functions, Beta Functions, Beta Functions in Terms of Gamma Functions</p>
MM 1331:4	Fourier Series, Numerical Methods and ODE	<p>CO1: Understands Basic definition of Simple Harmonic Motion and Wave Motion;</p> <p>CO2: Understands the applications of Fourier Series, Average Value of a Function, Fourier Coefficients and Dirichlet Conditions</p> <p>CO3: Understands Complex Form of Fourier Series, Fourier series on other Intervals, Even and Odd Functions, Parsevals Theorem, Fourier Transforms</p> <p>CO4: Understanding the Algebraic and transcendental equations Convergence of iteration schemes,</p> <p>CO5: Solves the Simultaneous linear equations using Gaussian elimination, Gauss-Seidel iteration;</p> <p>CO6: Evaluates integrals using Numerical integration techniques such as Trapezoidal rule; Simpsons rule; Gaussian integration; Monte Carlo methods</p> <p>CO7: Understands Finite differences, Differential equations; Taylor series solutions; prediction and correction; Runge-Kutta methods</p> <p>CO8: Understands the General form First-degree first order equations and solving using Separable-variable equations; exact equations; inexact equations, integrating factors; linear equations; homogeneous equations; isobaric equations; Bernoulli's equation; solves Higher-degree first-order Clairaut's equation</p> <p>CO9: Solving Linear equations with constant coefficients; linear recurrence relations; Laplace transform method, Linear equations with variable coefficients such as The Legendre and Euler linear equations;</p> <p>CO10: Solves exact equations using partially known complementary function; variation of parameters; Green's functions; canonical form for second-order equations</p> <p>CO11: solves general ordinary differential equations; non-linear exact equations; isobaric or homogeneous equations and solves equations homogeneous in x or y alone and equations having $y = Aex$ as a solution</p>
MM 1431:4	Linear Algebra	<p>CO1: Understands Vector in 3-space as an ordered triple of real numbers, Addition of two vectors and multiplication of a vector by a scalar, Algebra of vectors involving addition and scalar multiplication, the dot product of vectors and orthogonal vectors. Geometric interpretation of these concepts and their connection to the traditional method of representing a vector in terms of standard unit vectors</p> <p>CO2: Understands the n-tuple as a generalisation of ordered triple and the space R^n all n-tuples.</p> <p>CO3: Understanding the Addition of two n-tuples and multiplication of an n-tuple by a scalar. Listing of the algebraic properties of R^n that makes it a vector space. Dot product of n-tuples and orthogonality, The Cauchy-Schwarz inequality in R^n.</p> <p>CO4: Understands the Geometric meaning of subspaces in R^2 and R^3, Linear dependence and independence of vectors in R^n, Basis and dimension and the standard basis of R^n.</p> <p>CO5: Gets an idea of Orthogonal and orthonormal bases, Representation of an arbitrary vector in an orthonormal basis and The Gram-Schmidt orthogonalization process</p>

		<p>CO6: Gets a review on operations involving matrices, different types of matrices, Representation of a system of linear equation in matrix form, Finding the inverse of a matrix by Cramer's rule.</p> <p>CO7: Understands Rank of a matrix, Elementary row operations, The Echelon form and its uniqueness</p> <p>CO8: Understanding Homogeneous and non-homogeneous system of linear equations</p> <p>CO9: Understands the method of finding the eigen values and eigenvectors of a matrix, its Basic properties</p> <p>CO10: Understands Linear transformations from R^n into R^m. Matrix representation of simple transformations such as rotation, reflection, projection etc. on the plane. Relation between matrices of a given transformation relative to two different bases.</p>
MM 1131:5	Mathematics for Economics-I	<p>CO1: Understands the definition and examples of functions, domain and range, its graph, notion of implicit and explicit functions, demand functions, total revenue functions and curves, cost functions and curves, indifference function, indifference curves</p> <p>CO2: Evaluates the limits of functions</p> <p>CO3: Understands the definition and examples of continuous functions, discontinuity, examples, geometrical meaning of continuity</p> <p>CO4: Understands differentiation of functions of one variable, derivative as a rate measure, rules of differentiation, derivative of a function at a point, product rule, quotient rule, function of a function rule, derivatives of standard functions, derivatives and approximate values,</p> <p>CO5: Understands geometrical interpretation of the derivative, applications in economics (such as marginal revenue, marginal cost)</p>
MM 1231:5	Mathematics for Economics-II	<p>CO1: Understands differentials, increasing and decreasing functions and maxima and minima, along with several applications.</p> <p>CO2: Evaluates the maxima and minima of functions of two variables and their applications to problems in Economics</p>
MM 1331:5	Mathematics for Economics-III	<p>CO1: Understands the Integration techniques, definite integrals and approximate integration and applications to Economics.</p> <p>CO2: Understands geometric, binomial, exponential and logarithmic series, Taylor's formula, Taylor series, extension to many variables.</p>
MM 1431:5	Mathematics for Economics-IV	<p>CO1: Formulates of differential equations and understands geometrical interpretation of a differential equation representing a family of curves,</p> <p>CO2: Solves First order equations, Linear equations, Variables separable, Homogeneous equations</p> <p>CO3: Solves Second order differential equations with constant coefficients with RHS as one of x; e^{ax}; $\sin ax$; $\cos ax$,</p> <p>CO4: Solves Euler equations, understands applications in economics, Domar's capital expansion model, equilibrium of a market and stability of equilibrium of a dynamic market.</p>

Department of Music

Programme offered	BA Music MA Music
	BA Music
Programme Outcome	<p>PO 1: Enable the students to understand the impact and significance of Music as an intensive form of artistic discipline.</p> <p>PO 2: The influence music as an art form has on other aspects of life, including emotional and physical health.</p> <p>PO 3: To understand the fundamental principles of Carnatic Music, both theory and practical.</p> <p>PO 4: To enumerate and detail the history of Indian music and the influencing factors that helped in its evolution.</p> <p>PO 5: It enables the students to learn not just about the music but also the socio-economic-political scenarios that existed during the different periods in history.</p> <p>PO 6: Art thrives and develops through multiple influences and is witness to the changing sociological times it has passed through. Learning about music enables the students to appreciate and understand the philosophies that existed and shaped the societies we live in.</p> <p>PO 7: To expound the possibilities that music nurtures with regard to music therapy and its influences on the physiological and psychological framework of a person.</p> <p>PO 8: To imbibe and inculcate the finer threads and nuances of performance music and to improve their ability to assess and harness their own creative faculties.</p> <p>PO 9: To understand how to culture the voice and improvise in music in depth.</p>

		PO 10: To inculcate research and propagate music through definitive strategies and mindful guidance. PO 11: To explore the inter-disciplinary possibilities of music and encourage research on the same.
Course code	Course Name	Course Outcome
MU 1141	Introduction to Indian Music (Core Course)	CO 1: Introduction to basic musical terms and distinctive features of Indian music. CO 2: Introducing the diverse cultural, intellectual, spiritual and emotional values of music. CO 3: Enabling the student to understand the basic principles of reading music through musicography. CO 4: Identify the different classifications of musical instruments. CO 5: Inculcating the students to the history, construction and playing techniques of musical instruments beginning with tambura and veena.
MU1131	Complementary Course (Veena)	CO 1: Introducing the instrument Veena and the basic fingering and playing techniques. CO 2: Understanding the preliminary swara exercises and learning them from the perspective of both a musician and an instrumentalist. CO 3: To understand the significance of learning an instrument as a subsidiary topic of study.
MU 1241	AbhyasaGanam And Sabha Ganam (Core Course)-Practical)	CO 1: Preliminary module of practical implementation of music through diverse swara exercises. CO 2: To identify and understand the different rhythmic patterns and to imbibe the basic concepts of pitching in music. CO 3: Introduction to the pivotal concept of music – the RAGA and the primary scales that need to be understood in depth by applying them to the rhythmic patterns learnt. CO 4: Understanding the way rhythm and melody intersperse and help in performing music. CO 5: Introducing various musical forms that give further insight to the basic principles imbibed.
MU 1231	Complementary Course – Veena	CO 1: Identify the advanced rhythmic patterns and implementing them on the Veena. CO 2: Learning to apply the musical forms learnt on the instrument so as to further understand the intricacies of the music.
MU 1321	Foundation Course – Informatics (Theory)	CO 1: Introduction to the basic principles of the Computer and its basic components. CO 2: To create awareness and provide the necessary skill set towards internet awareness and blog creation. CO 3: Understanding how effectively technology can be used to create and produce music, the basics of digital recording systems. CO 4: how music journalism and its impact is far reaching and the presence of musicology in the web. CO 5: To inculcate basic knowledge in music software and understanding how to sequence and compose music using notation software. CO 6: Imbibing the different technical methodologies that can be adapted to a musician's way of life to improve their skills. CO 7: Introduction and basic knowledge of cyber security and to understand the different security systems being used currently.
MU 1341	Theory Ii – Ragam	CO 1: Classification of the Raga System of music and to understand the various diversifications that it has to enhance a musical composition. CO 2: To understand the defining concepts of music and the various formulae associated with raga knowledge. CO 3: Encapsulating the essence of Mnemonics in music and its influence in how music is learnt. CO 4: The technical permutations relevant in music that is the stronghold of both theoretical and practical aspects of music,
MU 1342	Practical II – Varnams And Krithis	CO 1: To understand the different musical forms in detail and thereby exploring the foundation to improvisations in vocal music. CO 2: Learn the intricacies of musical scales within a composition and how the lyrics and music are interlinked to bring out intensive information on the technicalities in performance music.
MU 1331	Complimentary Course – Veena	CO 1: To inculcate the finer aspects of Raga and Tala through musical compositions adept in advanced musicality.
MU 1441	Theory Iii – Ragam, Talam And Vaggeyakaras (Core Course)	CO 1: To learn in depth the different Tala systems in Carnatic Music and how it is used in performance music. CO 2: To understand the life and contributions of the vaggeyakaras who composed music and also delved into the intricacies of musical learning in the process.

		CO 3: To understand the history and process through which music evolved to its present form. CO 4: To develop a finer sense of tuning and understanding to some of the musical scales with respect to compositions created in those very scales.
MU 1442	Varnams And Krithis –II (Practical Paper Iii)	CO 1: To understand the second stage of musical exposition with respect to the musical scales learnt earlier. CO 2: To further provide knowledge that would be the pre-cursor to manodharmasangeetha and this is the advanced branch of study in improvisational music.
MU 1431	Complementary Course – Veena	CO 1: To improve the skill set in tuning the veena and also in understanding the finer nuances of the instrument. CO 2: Inculcating the significance of practical compositions by implementing what is learnt in vocal music on the veena. CO 3: To explore the Tanam one of the most important aspects in improvised music in Veena to gain stability and to expand one’s creative faculties regarding the same.
MU 1541	Composers and LakshanaGrandhas (Core Course – Theory Iv)	CO 1: To understand the historical turning points in the history of music. CO 2: To have an outline knowledge of the musical treatises that defined and paved the way for understanding the basic concepts of music. CO 3: To inculcate an in-depth knowledge of musical scales in its diversity and scope of performance.
MU 1542	Musical Forms and Instruments	CO 1: To understand the technical and melodic musical forms and their significance, CO 2: To imbibe the importance of North Indian musical forms. CO 3: To have a preliminary understanding of the construction and playing technique of instruments like Mridangam, Flute and Violin. CO 4: To inculcate the skill set to delve into musicography in detail by applying the vocal music learnt into the framework of music notation. CO 5: To understand and analyze the life history and contributions of regional Kerala Composers and to understand the heritage and ancestry of music our geographical boundaries emulated.
MU 1543	Musical Forms – Practical Paper Iv (Core Course)	CO 1: Understanding the intricacies of LakshanaGeetham and other complex musical forms like Swarajathi and Krithis. CO 2: Facilitating the understanding of musical nuances pertaining to selected musical scales which differs from composition to composition. CO 3: Introducing the significance of improvised music in the Carnatic realm of music.
MU 1544	Group Krithis And ManodharmaSangeetham Practical Paper V (Vocal-Core Course)	CO 1: Emulating the basics of Manodharma Sangeetha (improvised music). CO 2: To improve the ability of performance in the various aspects of music improvisation. CO 3: To understand the significance of group krithis composed within a set concept and musical frame. CO 4: To understand the history and culture that was the foreground to the creation of such musical forms.
MU 1545	Krithis And ManodharmaSangeetham	CO 1: To imbibe the musicality of improvisations pertaining to the Krithi form of music. CO 2: To enable the students to understand the format of a concert and how performance music is curated. CO 3: To explore and embrace the different permutations and combinations in musical scales with regard to practical vocal music.
MU 1551	Open Course Simple Musical Forms	CO 1: To understand the basic musical concepts for those who are musically inclined but not technically educated in the same. CO 2: To understand the way Western music is adapted in Carnatic music compositions. CO 3: To explore the devotional, technical and patriotic elements in music and how music can transcend language and geography.
MU 1641	Technicalities of Music	CO 1: To inculcate the finer intricacies in melodic music. CO 2: To understand the modal shift of tonic and how the musical pitch is dealt with innovatively. CO 3: Understanding how music and physics are correlated and delving to the acoustics of music.
MU 1642	Different Streams of Music	CO 1: To learn the basic principles of performance music with respect to dance forms like Kathakali which have a high quotient of musical relevance. CO 2: Covering the concepts of musical forms in Kathakali and the cultural significance of such an art form. CO 3: To understand the principles of Western music and the similarities and differences of the same with regard to Carnatic music. CO 4: To understand how Indian music can be written using western staff notation. CO 5: To imbibe the tradition of folk music and how it impacted the social lives of the

		<p>communities that practiced it.</p> <p>CO 6: To outline a definitive knowledge of the prosodic beauties used in krithis.</p> <p>CO 7: To understand advanced musicography.</p>
MU 1643	Musical Forms and ManodharmaSangeetham	<p>CO 1: To inculcate the sense of melody in an advanced form.</p> <p>CO 2: To understand the aesthetic beauty of the musical compositions learnt in its advanced form.</p>
MU 1645	Concert	<p>CO 1: To understand the primary principles of performance music.</p> <p>CO 2: To inculcate the professional skills needed to present concert music.</p> <p>CO 3: To understand the basic etiquette of presenting concert as a vocalist.</p> <p>CO 4: To learn how to curate and prepare for a concert and to imbibe the knowledge of aligning oneself with accompanying musicians.</p>
MA Music		
Programme Outcome:		<p>PO 1: Masters in music is curated with a view to collate concepts learnt during the course of graduation to implement them in a more practical and performance-oriented way.</p> <p>PO 2: To introduce specialized areas of study within each of the topics dealt with in the graduation programme.</p> <p>PO 3: To imbibe regional music that upholds the diversity of our culture and to learn about them in depth.</p> <p>PO 4: To create an awareness of the inter-disciplinary nature of the subject of music by enhancing the significance of music and other allied disciplines like – philosophy, physiology, psychology, mathematics, history and so on.</p> <p>PO5: To inculcate an in-depth knowledge of the various musical forms and musical instruments used.</p> <p>PO 6: To understand more about performance-based music and how to present a full-fledged concert.</p> <p>PO 7: To enhance the ability to improve the skill set of the students in improvised music (Manodharma Sangeetha).</p> <p>PO 8: To facilitate the ability to understand both Western and Hindusthani music and the various nuances that are similar and different to the basic Carnatic style of music that we are so familiar with.</p> <p>PO 9: To familiarize and understand the heritage and contributions of various composers.</p> <p>PO 10: To learn the basics of research methodology and understand the process of research from hypothetical findings to conclusive research analysis.</p>
Course code	Course Name	Course Outcome
MMS 211	Evolution of Indian Music (Theory Paper I)	<p>CO 1: To educate about the evolution of music through the different periods in musical history.</p> <p>CO 2: Understanding the content of music in the ancient manuscripts and lakshanagrandhas and finding a path onwards.</p> <p>CO 3: To understand the significance and impact of musical iconography.</p> <p>CO 4: To imbibe the intricacies of rhythm and mathematical progressions and to understand the concept of modal shift of tonic.</p> <p>CO 5: It inculcates the significance of understanding age old concepts like Vedic music – Samagana.</p> <p>CO 6: To understand and learn the technical embellishments of Carnatic Music.</p>
MS 212	Regional Music – Kerala And Tamilnadu (Theory Paper II)	<p>CO 1: To imbibe and comprehend the origin, evolution and development of SopanaSangeetham.</p> <p>CO 2: To decipher the nuances of Kathakali music with regard to its close alliance with CO 1: Carnatic Music and to learn about the musical instruments used in it.</p> <p>CO 3: To comprehend the age-old traditions of ritualistic music and the diverse musical forms used, the impact on social traditions and the historical relevance of such musical forms.</p> <p>CO 4: To study the rare musical aspects of the ancient tamil music which was a precursor to the music we see now.</p> <p>CO 5: To learn about the lineage of Tala ensembles and how it resonates with the temple culture amongst us and the relevance of societal impact and about communities that practice these art forms.</p>
MS 213	Different Musical Forms (Practical I – Vocal)	<p>CO 1: A brief insight into the different musical forms which abide to both the Carnatic and Tamil music traditions.</p> <p>CO 2: To understand the finer nuances of both major and minor ragas that are used in most of the musical compositions.</p> <p>CO 3: To learn further about the technical musical forms in Carnatic music.</p>
MS 214	Group	<p>CO 1: Group krithis form the clusters that have existed since hundreds of years, which have carved a niche for themselves in the realm of Carnatic music. It is</p>

	&ChoukakalaKrithis (Practical II – Vocal)	imperative to understand and imbibe the musical tradition ensconced in them. CO 2: To understand the musicality of Kerala composers. CO 3: To give a prelude to improvised music, by elaborate expositions on diverse ragas and to enhance the skills of the students in understanding the subtleties of the various ragas.
MS 221	Music & Allied Disciplines (Theory Paper III)	CO 1: To understand the correlation of music is interlinked with other disciplines like psychology, philosophy, physiology, mathematics and so on. CO 2: To comprehend the basics of music therapy and imbibe the different ways in which it impacts the society. CO 3: To learn the significance of music in a scientific realm and to embrace the various ways it can impact life of the different social strata involved. CO 4: To understand the historical significance of musical scales and how it is relevant to practical vocal music.
MS 222	Swatithirunal (Theory Paper IV)	CO 1: To recognize and imbibe the contributions of Swatithirunal Maharaja in terms of the various musical compositions he has composed. CO 2: To learn in depth about the prosodical beauties figuring in the compositions of Swatithirunal. CO 3: To expound the significance of the literary works of Maharaja Swatithirunal and to further comprehend the cultural ethos of the era. CO 4: To learn more about the musical culture prevalent in the Maharaja's court and about the diverse realm of musicians and artists present then.
MS 223	Compositions of Swatithirunal (Practical Paper III-Vocal)	CO 1: To be able to emulate with a deeper knowledge, the compositions of Swatithirunal Maharaja. CO 2: Understanding the subtleties of the various musical forms composed by him and to be able to effectively present them. CO 3: To imbibe the eclectic music that was composed as dance music and to further imbibe the musical brilliances in them.
MS 224	Compositions in Melas & Janyas (A) (Practical Paper IV)	CO 1: To induce an advanced knowledge of the ragas with respect to vocal music. CO 2: To be able to handle exhaustive compositions like the Pancharathna and Swarajathi which highlight the technical prowess of its composers. CO 3: To handle the exposition of the musical scales and to enable the accurate usage of them in vocal concerts. CO 4: To strengthen the ability to create improvised music in these ragas.
MS 231	Theory V – Musical Trinity	CO 1: To cultivate the ability to analyze a musical composition and understand the finer aspects of the composition. CO 2: To understand the devotional and philosophical contents in the compositions of the Trinity highlighting Tyagaraja. CO 3: To comprehend the characteristic features of ragas and how those are applied in the compositions with special reference to the history and the prominent compositions and sancharas. CO 4: To learn about the treatment of Tala in the compositions of Syamasastri. CO 5: To understand the methodology of the Asampurna Mela Padhathi that paved the way for systematic representation of ragas.
MS 232	Theory Paper VI - Composers	CO 1: To comprehend the life and contributions of composers of the Pre-Trinity period. CO 2: To learn about the Contemporary and Post-Trinity period in Carnatic music through the life and contribution of the composers of that period.
MS 233	Practical Paper V Compositions in Melas & Janyas (B)	CO 1: To be able to emulate the technical permutations in musical forms like Swarajathi, Padam and so on. CO 2: To be able to correlate how a Kshetrajnnapadam differs from others and the lyrical and technical beauties ensconced within. CO 3: To further understand how to creatively enhance manodharmasangeetham with respect to alapana and kalpanaswaras. CO 4: To learn in depth the significance of major and minor janya ragas and to be able to effectively present them.
MS 234	Practical Paper VI– Compositions in Melas & Janyas (C)	CO 1: To understand how to emulate the subtle nuances of Niraval and Kalpana swaras with respect to both major and minor janya ragas. CO 2: To be able to present krithis in both choukakalam and be able to emulate the diverse aspects of each raga dealt with. CO 3: To have an in depth understanding of group krithis like the Pancharathna with respect to specific ragas in which they were composed.
MS 241	Theory Paper VII – Musical Forms and Instruments	CO 1: The significance of understanding how traditional instruments like Yazh gave way to the much modern version later on thereby throwing light on the evolutionary changes in stringed instruments. CO 2: To learn the evolution of Veena as an eclectic musical instrument with its individual design and playing technique. CO 3: To understand the evolution, origin and structure of musical forms like

		Prabandha. CO 4: To understand the tradition of musical theatre forms like Geyanatakas. CO 5: To have a brief knowledge of how musical theatre forms like Kathakalakshepam reflected the social and cultural norms that existed in society. CO 6: To enhance the knowledge of tala exposition and how to apply the same in improvised music like Pallavi.
MS 242	Theory Paper VIII – Western & Hindusthani Music	CO 1: To enable outline knowledge of Western music drawing parallels and to understand the significance of being able to notate simple Carnatic melodies in Western notation. CO 2: To comprehend the system of raga classification in Hindusthani music. CO 3: To have a brief knowledge of the concert instruments like Sitar, Sarod, Sarangi, Tabla and so on. CO 4: To understand the time theory of ragas and thereby be able to emulate the nuances of the same in concert music. CO 5: To understand the acoustics of concert halls and this is of utmost importance to a musician. This would help them to perform with much more perfection. CO 6: To be able to imbibe and envelop the recent trends and development in music with reference to aspects like, concerts, books, journals, music education, electronic media, research. CO 7: To understand the basics of research methodology with a view to enable them with the skill set to engage in research studies in future.
MS 243	Practical Paper VII – Pallavi	CO 1: To enable the students to have the ability to expound pallavi in different rhythmical permutations. CO 2: To comprehend the aesthetics and technical nuances in singing the Pallavi as ragamalika
MS 244	Practical Paper VIII – Vocal Concert	CO 1: To acquire the skills needed to present a mini concert with accompaniments.
MS 245	Dissertation	CO 1: The ability to curate and collate data on a minor project. CO 2: To comprehend the research process and how factual details need to be recorded and analyzed for forming a hypothesis and for the ensuing research outcome.
MS 246	Comprehensive Viva	CO 1: To enable the students to have a collated awareness about the topics dealt with in the above mentioned 16 papers, both theory and practical. CO 2: To be able to analyze the knowledge gained and to ensure that the students have imbibed the knowledge in an effective manner.

Department of Philosophy

Programme offered		BA Philosophy MA Philosophy
BA Philosophy		
Programme Outcome		PO 1: To familiarize the students about the art of philosophizing. PO 2: Develops critical thinking, analytical ability, reasoning power, judgemental capacities PO 3: Awareness on social, political ethical and environmental issues. PO 4: High aptitude towards values in life, meaning and goals of life, humanistic feelings, nationalistic fervor and increased capacities on prospective questions on life and policy makings.
<i>Course code</i>	<i>Course Name</i>	<i>Course Outcome</i>
PL1141	Methodology and perspectives of Humanities core course I	CO 1: To introduce the distinction between the methodologies of natural, social and human sciences CO 2: To introduce questions concerning the relation between language and subjectivity as well as those pertaining to structure and agency in language CO 3: To introduce the nature of philosophical attitude
PL1131	Philosophy of Values / complementary I	CO 1: To introduce the concept of value. CO 2: To introduce the contributions made by religions, individuals, and literature to value. CO 3: To highlight the significance of constitutional value.
PL1132	Gandhian Philosophy / complementary II	CO 1: To familiarise the students with the philosophical message of Gandhi, the significance of his social ideals and its practical applications. CO 2: To inculcate Gandhian values in the personal and social life of the students. CO 3: To throw light on the relevance of Gandhian ideals in modern society
PL1241	Philosophic Themes & methods	CO 1: To introduce the students to the subject matter of philosophy, to lay foundation to the learning of philosophy. CO 2: To give exposure to the fundamental questions of philosophy.

	Core II	CO 3: To familiarize the students with the major themes of philosophy
PL1241	Indian Aesthetics/ Complementary – III	CO 1: To introduce the rich tradition of art and beauty in India CO 2: Elucidate important aesthetic concepts like Rasa, Dhvani and alamkara CO 3: To present a general outlook of the India architecture, sculpture, painting, music and dance
PL1232	Comparative religion/ complementary – IV	CO 1: To create awareness about the comparative nature of the different religions. CO 2: To introduce the basic concepts in major religions CO 3: To make the students understand the essential oneness of different religions
PL1321	Informatics and Philosophy Foundation course II	CO 1: To create awareness on the nature of emerging digital knowledge society. CO 2: To create awareness about social issues and concerns in the use of digital technology. CO 3: To create awareness about major informatics initiatives in India and Kerala CO 4: To create awareness about philosophical issues in the field of informatics CO 5: To create awareness about ethical issues related to information technology
PL1341	Deductive Logic Core III	CO 1: To inculcate logical attitude in students. CO 2: To familiarize students with traditional logic CO 3: To familiarize students with fundamental of deductive logic.
PL1331	Western Aesthetics/ complementary – V	CO 1: To introduce the fundamentals of Western aesthetics. CO 2: To present aesthetics as a theory of art and beauty CO 3: To present aesthetics as a discipline of philosophy CO 4: To elucidate the subjective and objective approach to art and beauty
PL1332	Eco- Philosophy/ Complementary – VI	CO 1: To provide a general introduction to the central issues in Environmental Ethics. CO 2: To familiarize the students on the transition from Environmental Ethics to Eco Philosophy. CO 3: To create awareness in the students about the urgent need of sustainable development.
PL1441	Induction and Scientific Method core IV	CO 1: To inculcate the method of scientific induction among the students. CO 2: To familiarize the students with the nature of inductive reasoning CO 3: To introduce the foundations of scientific method
PL1442	Early Indian Philosophy Core V	CO 1: To introduce the students to early Indian philosophical thought. To introduce students to the salient features of early Indian philosophy CO 2: To expose students to the distinction between the orthodox and heterodox systems. CO 3: To introduce the heterodox schools
PL1431	Philosophy of Education/ complementary- VII	CO 1: To introduce the basic notions of education and to create an awareness of the need of philosophy of education. CO 2: A philosophical reflection on the notion of education –its aims, goals, and educational policies- global perception of education.
PL1432	Modern Indian Thought/ complementary - VIII	CO 1: To introduce the significant philosophical concepts of modern Indian thinkers. CO 2: To bring out the practical and social of modern India thought CO 3: To acquaint the students with the philosophies of Aurobindo, Vivekananda, Tagore, Narayana Guru, J. Krishnamurti and Chattampi Swamikal
PL1541	Ancient & Medieval Western Philosophy core VII	CO 1: To give a historical sketch of classical western philosophy from pre-Socratic to Medieval philosophy CO 2: To introduce the basic concept of early Greek thought. CO 3: To introduce the evolution of thought from early Greek to medieval philosophy
PL1542	Orthodox Systems of Indian Philosophy core VII	CO 1: To impart basic knowledge of the orthodox systems in Indian thought CO 2: To familiarize the students to the orthodox systems CO 3: To introduce students to the basic metaphysical and epistemological theories in the different orthodox schools
PL1543	Introduction to Ethics core VIII	CO 1: To highlight the scope of ethics, to make a judgement on what is good or right. CO 2: To introduce theories of ethics like deontology, consequentialism, rights, duties, virtue etc.
PL1544	Modern Western Philosophy core IX	CO 1: To introduce the basic characteristics and concepts of modern Western Philosophy. CO 2: To introduce the characteristics of modern thought. CO 3: To introduce the philosophy of different schools of western thought and different philosophers.
PL 1545	Ancient and Medieval Political Philosophy	CO 1: To bring an awareness about political thinking in ancient Western society. CO 2: To familiarize the different views on State and government given by Plato, Aristotle and also to understand how theology was a higher voice in political decisions in medieval period.
PL1551.1	Fundamentals of Logical Reasoning/ open course -1	CO 1: To familiarize the students about the fundamental principles that govern scientific investigation and Deductive Logic CO 2: To enable students to carry out reasoning exercises helpful in developing analytical skill and problem-solving techniques
PL1641	Symbolic Logic core XII	CO 1: To introduce symbolic logic to students. CO 2: To familiarize the students with the decision procedure of arguments.

PL1642	Applied Ethics core XII	CO 1: To highlight the significance of ethical values in day-today life. CO 2: To create an awareness among students on different ethical issues pertaining to medicine,law,gender,media and environment
PL1643	Recent Trends in Western philosophy core XIII	CO 1: To give fundamental ideas about the recent development in western philosophy. CO 2: To familiarize the students with important trends like, phenomenology, existentialism, logical positivism, analytical philosophy. CO 3: To create an awareness on the relation between language and philosophy
PL1644	Modern Political Philosophy core XIII	CO 1: To be in the idea of the functioning and formations of state and governments in modern society. CO 2: To understand the significance of contractarianism, rule of law, sovereign power etc. to familiarise thinkers like Rousseau,Hegel, Marx, etc.
PL1661	Philosophy and self- Management open II Elective	CO 1: To bring out the significance of philosophy in daily life. CO 2: To extract the methods of self- management in Gita, Buddhism, Chinese Philosophy and Existentialism. CO 3: To create awareness among students the need of inculcating philosophical ideals in one's life
PL1645	Project	CO 1: To come out with research abilities. CO 2: To flare up the research potentials and innovative capacities in students and to promote higher prospects in future studies.
MA Philosophy		
Programme Outcome:		PO 1: Students will get acquainted with the know-how of philosophizing. PO 2: Will be exposed to the rich traditions of the East and the West on the questions of metaphysics, epistemology, ethics, logic etc, PO 3: An awareness about human thinking, existence, humane concerns, the question of other is to be cultivated. PO 4: Familiarity with the emerging thought currents of the day and how significant philosophy is in any emerging discipline, movement or perspectives
Course code	Course Name	Course Outcome
PY 211	Classical Indian Philosophy	CO 1: To introduce the students to early Indian philosophical thought to introduce students to the rich and diverse theories in Indian philosophy. CO 2: The argumentative and dissent style of the Indian thought. CO 3: To expose students to the distinction between the orthodox and heterodox systems.
PY 212	Western Philosophy: Ancient Medieval& Modern	CO 1: To introduce the evolution of thought from early Greek to medieval and modern philosophy. CO 2: To initiate a critical thinking on the evolution of the nature of metaphysical and epistemological traditions of the West.
PY 213	Logic	CO 1: To inculcate logical aptitude in students. CO 2: To familiarize students with traditional logic. CO 3: To familiarize students with fundamental problem-solving techniques and train them to the art of puzzle solving along the lines of competitive exams
PY 214	Moral Philosophy	CO 1: To highlight the scope of ethics in contemporary scenario. CO 2: To get trained in making a judgement on what is good or right. CO 3: To introduce theories of ethics like deontology, consequentialism, rights, duties, virtue etc. to dwell on the question of social justice, issues relating to metaethics and the like.
PY 221	Philosophical Counselling: Indian &Western	CO 1: Counselling is a new venture for philosophy students. CO 2: Helps to understand that it is a holistic program, a process and not a therapy. CO 3: The rich traditions of counselling embedded in Yoga, Buddhism, mindfulness, existentialism is all properly introduced with case studies. CO 4: A good training course for a career counselling
PY 222	Kant and Hegel	CO 1: The legacy of Kant and Hegel in the philosophical thinking is exposed. CO 2: It is essentially a forerunner to enter into many of the emerging trends in cultural and philosophical thinking. CO 3: The method of doing philosophy is introduced with proper references to classical works which develops a new insight on what is thinking
PY 223	Symbolic Logic	CO 1: A course in symbolic logic gives a student good intellectual enterprise. CO 2: It trains the intellect sharply. CO 3: Foster the critical and analytical capacities along with problem solving skills. CO 4: Opens up into the world of digital logic and logical gates.
PY 224	Applied Ethics	CO 1: To highlight the significance of ethical values in a technological driven world. CO 2: To create an awareness among students on different ethical issues pertaining to medicine, law, gender, media and environment. CO 3: Prepares one to face moral dilemmas and ethically sensitized.
PY 231	Mordern Indian Thought	CO 1: To introduce the significant philosophical concepts of modern Indian thinkers. CO 2: To bring out the practical and social of modern Indian thought.

		CO 3: To acquaint the students with the philosophies of Aurobindo, Vivekananda, Tagore along with KC Bhattacharya, MN Roy so as to see the evolutionary changes in the contemporary philosophies of India.
PY 232	Philosophy of Science	CO 1: A good idea of the interrelations between philosophy and science is introduced. CO 2: It helps to see how modern science is verily philosophy. CO 3: It also makes an awareness on how philosophers discuss about the methods, hanges and progress that is happening in the field of science.
PY 233	Phenomenology and Existentialism	CO 1: The continental philosophical tradition is systematically exposed to the students. CO 2: Gives an outlook on the significance of existential concerns raised by very many philosophers and see how phenomenology functions as a first-person experiential method in understanding the world we live in.
PY 234	Analytical Philosophy	CO 1: Anytical philosophy gives a training on understanding the function and limitations of language in its logical and natural expressions. CO 2: It helps us to identify the possible troubles that may arise due to the mistaken use of language and logical argumentations. CO 3: Also, to see how proper use of language helps to come out of a number of puzzles.
PY 241	Gandhian Thought & Peace Studies	CO 1: To understand the contemporary relevance of gandhian ideals in life and society. CO 2: To give a proper orientation to see how the above ideas can be used as measures to maintain peace and harmony in the global scenario. CO 3: Also highlights on questions pertaining to environment, education etc. which helps in a remodelling of our society
PY 242	Contemporary Continental Philosophy	CO 1: The course outcome is a familiarity to a number of emerging philosophers and their significant contributions. CO 2: It helps to see how in a postmodern setting the cultural boundaries are transcended so as to open up oneself to respect the voice of the other, how to bring up the marginalized to the limelight etc.
PY 243	Philosophy of Mind	CO 1: Students are introduced to a new area of cognitive science. CO 2: The question of consciousness is dealt in alternate ways in both reductionistic and anti-reductionistic terms including computational theory of mind, AI etc. CO 3: Opens up new challenges pertaining to mind and the riddle of consciousness.
PY 244	Philosophy of Religion	CO 1: Philosophical perspectives on religion helps to understand the importance of reason along with faith in matters of religion. CO 2: Opens a number of interesting arguments on the nature of religious language, epistemology and hermeneutics. CO 3: Develops a renewed interest in understanding the different ways of religion.
PY 201	Dissertation	CO 1: To come out with research abilities. CO 2: To flare up the research potentials and innovative capacities in students and to promote higher prospects in future studies. CO 3: A good raining in research methodology is gained.
PY 202	Comprehensive Viva-Voice	CO 1: The ability of the students to express one's own positions in philosophical puzzles and concepts is boosted.

Department of Physics

Programme offered		B.ScPhysics M.ScPhysics
B.ScPhysics		
Programme Outcome		PO 1: Understand various facts and concepts of Physics. PO 2: Develop scientific attitudes and values appropriate for rational reasoning and critical thinking. PO 3: Develop problem solving skill and skills to conduct wide range of scientific experiments. Identify their own area of interest.
Course code	Course Name	Course Outcome
PY1141	Basic Mechanics & Properties of matter	CO 1: Expose to the basic principles behind mechanics and properties of matter CO 2: Understand the concepts of moment of inertial and design its applications CO 3: Brings into limelight the meaning and applications of properties of matter like elasticity, viscosity, surface tension etc. CO 4: Introduce to higher courses related to mechanics and properties of matter CO 5: Obtain numerical solutions to problems related to mechanics & properties of matter
PY1241	Heat and Thermodynamics	CO 1: Understand the basic laws of heat transfer CO 2: Analyse the problems involving steady state heat conduction CO 3: Understand the concepts of internal energy, entropy, enthalpy and specific Volume thermodynamic properties

		CO 4:Obtain the concepts of various thermodynamic laws CO 5:Analyse numerical problems to consolidate the concepts of heat & thermodynamics
PY1341	Electrodynamics	CO 1: Understand the general aspects of electrodynamics through electrostatics and magneto statics CO 2: Introduce the vital laws of electrostatics and magnetostatics CO 3: Understand the concepts of electrodynamics through Maxwell's equations and to achieve the concept of inseparability of electric and magnetic effects CO 4: Understand the theoretical framework of transient and alternating currents CO 5: Obtain solutions to numerical and conceptual problems related to electrodynamics
PY1441	Classical and Relativistic Mechanics	CO 1: To solve the equations of motion of a particle in different force fields under Newtonian framework and extend it to a system of particles CO 2: Understand the concepts of collision and central force problems through the examples of different kinds of systems CO 3: Achieve the basic formations of Lagrangian and Hamiltonian mechanics CO 4: Obtain the concepts of transformation equations and to arrive at the concepts of Einstein's relativity theory CO 5: Obtain solutions to conceptual as well as numerical problems
PY 1442	Basic Physics Lab 1	CO 1: Develop experimental skill through a wide range experiments, those theoretical concepts are studied in first four courses CO 2: Improve the data analysis, mathematical and graphical skills with the experiments
PY1541	Quantum Mechanics	CO 1: Acquire basic properties of quantum world and how it differs from classical world CO 2: Identify mathematics as the language of quantum mechanics CO 3: Obtain the conceptual knowledge of quantum mechanical problems CO 4: Acquire foundations of further studies for solid state physics, spectroscopy CO 5: Obtain solutions to quantum mechanical problems
PY1542	Statistical Mechanics Research Methodology and Disaster Management	CO 1: Makes the students familiarise with the dynamical behaviour of systems CO 2: Identify the conceptual formulations when matter moving with high speed, comparable to the speed of light CO 3: Understand the special theory of relativity and their dynamical consequences CO 4: Forms strong basics for the study of general relativity and chaos CO 5: Obtain solutions to numerical and conceptual problems related to the topic.
PY1543	Electronics	CO 1: Understand the fundamentals of electronics and hence the proper working of electronic devices that are part of modern technologies used in day to day life CO 2: Helps to understand the role of diodes in rectification process and transistors in amplification CO 3: Analyse different electrical electronic circuits through circuit theory CO 4: Develop knowledge in Modulation, Feedback & Oscillator circuits, Special devices and Operational amplifiers CO 5: Develop skill to solve numerical problems in Modulation, Feedback & Oscillator circuits, Special devices and Operational amplifiers
PY1544	Atomic and Molecular Physics	CO 1: Acquire the ability to describe the spectra of one and two valence electrons CO 2: Explain the change in behaviour of atoms in applied external magnetic and electric fields CO 3: Explain rotational, vibrational and electronic spectra of molecules. CO 4: Solve numerical problems related to concept consolidation
(PY1551.1 /PY1551./ PY1551.3/ PY1551.4/ PY1551.5)	Open Course	CO 1: Provides a general background of the universe we live CO 2: Start to think through the historical purview of the development of astronomy and astrophysics CO 3: Understand the physical principles behind the planetary and stellar motions CO 4: Understand the conceptual framework of seasons CO 5: Obtain the scientific and historical purview of calendars
PY1641	Solid State Physics	CO 1: Gives a theoretical basis for Material science, a very wide branch where extensive research is going on. CO 2: Gets ideas of crystal structures CO 3: Gets a strong foundation of solid-state theories. CO 4: Try to explain thermal, electrical, optical and magnetic properties of materials CO 5: Obtain solutions to numerical problems in solid state physics
PY1642	Nuclear and Particle Physics	CO 1: Understand the structure of nucleus, nuclear forces and models, nuclear reactions and radioactivity CO 2: Understand the theory and working for the particle accelerators CO 3: Understands the origin of cosmic rays and their distribution with altitude, latitude and longitude CO 4: Enables students to understand the different nuclear energy sources and construction and working of nuclear reactors CO 5: Understand the classification of elementary particles
PY1643	Classical and	CO 1: Develop knowledge in Interference of light

	Modern Optics	CO 2:Develop knowledge in Diffraction of light CO 3:Develop knowledge in Dispersion of light CO 4:Develop skill to solve numerical problems in Interference of light, Diffraction and Dispersion of light
PY1644	Digital Electronics & Computer Science	CO 1:Learns the basics of different digital circuits and gates CO 2:Obtain solutions to conceptual problems CO 3:Obtain the concepts of Boolean Algebra CO 4:Obtain ideas of computer programming CO 5:Write computer programmes independently
PY1645	Advance Physics Lab 2	CO 1:Develop experimental skill through a wide range experiments those theoretical concepts are studied in first four courses CO 2:Improve the data analysis, mathematical and graphical skills with the experiments
PY1646	Advance Physics Lab 2	CO 1:Develop experimental skill through a wide range experiments those theoretical concepts are studied in first four courses CO 2:Improve the data analysis, mathematical and graphical skills with the experiments
PY 1661.1/ PY 1661.2/ PY 1661.3/ PY 1661.4/ PY 1661.5	Elective course	CO 1:Covers the topics of cosmology, stellar science, astronomy and astrophysics CO 2:Gets an idea about the satellite navigation systems CO 3:Gets an idea about atmospheric layers CO 4:Obtain concepts of solar energy outbursts
PY 1647	Project and Research Institute/ Science Museum Visit	CO 1:Provide evidence of an improvement in the methodological knowledge CO 2:Results in affective gains such as more positive feelings toward a topic

M. Sc. Physics

Programme Outcome:	PO 1: Students understand the role of physics in society and acquire knowledge, general competence, and analytical skills on an advanced level, needed in industry, consultancy, education and research.
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<i>Course code</i>	<i>Course Name</i>	<i>Course Outcome</i>
PH 211	Classical Mechanics	CO 1: Make student aware of the advantages of applying Lagrangian and Hamiltonian principles to Newtonian mechanics. CO 2: Study and practice solving problems of complicated mechanical system CO 3: Study how real systems are approximated for analyzing dynamical systems
PH 212	Mathematical Physics	CO 1: Introduce to the methods of mathematical physics and after completion of the course they develop mathematical skills to solve problems in Quantum mechanics, Electro Dynamics and other fields of theoretical physics. CO 2: Help students to conceive ideas related to theoretical knowledge of subject, prove theorems and suggest new theories
PH 213	Basic Electronics	CO 1: Acquire knowledge in frequency response of BJT and FET active filters special type of diodes. CO 2: Acquire the skill for designing active filters CO 3: Understanding of the fundamental concepts and techniques used in digital electronics and the ability to understand, analyze and design various combinational and sequential circuits. CO 4: Identify basic requirements for a design application and propose a cost-effective solution. CO 5: Students are conversant with the optical properties and optical processes in semiconductor optical sources such as LEDs, photodetectors and lasers
PH 251	General Physics Practicals	CO 1: Develop experimental skills through different general physics experiments, those theoretical concepts are already studied. CO 2: Improve the data analysis, mathematical and graphical skills with the experiments
PH 252	Electronics & Computer Science Practicals	CO 1: Prepare the students to design and construct various electronic experiments CO 2: Practice C++ and Python program and apply the knowledge in physics related problems using C++ and Python program
PH 221	Modern Optics & Electromagnetic theory	CO 1: Study of Electromagnetic waves helps students to understand the behaviour of em waves in different media and the dependence of its propagation on parameters of media. CO 2: Relativistic electrodynamics study enables them to understand the fact that parallelism between electricity and magnetism is not a coincidence but one is the relativistic consequence of other and vice versa
PH 222	Thermodynamics, Statistical Physics & Basic Quantum Mechanics	CO 1: Make them aware of applying physical principles in many body systems. CO 2: Apply probability concepts to study dynamics of many body systems. CO 3: They also apply these principles to explain phenomena like BE condensation and thermionic emission. CO 4: Understand various thermodynamic processes the role of internal energy, entropy,

		enthalpy, temperature, pressure and specific volume on thermodynamic properties
PH 223	Computer Science & Numerical Techniques	CO 1: Obtain the knowledge in C++ and Python program. CO 2: Apply the Knowledge in physics related problems using C++ and Python program
PH 251	General Physics Practicals	CO 1: Continuation first semester
PH 252	Electronics & Computer Science Practicals	CO 1: Continuation first semester
PH 231	Advanced Quantum Mechanics	CO 1: Aim in transitioning students from classical to quantum thinking. CO 2: The classroom activity targets to debate the physical interpretation of quantum theory. CO 3: The students shall familiarize with applications of quantum theory
PH 232	Advanced Spectroscopy	CO 1: Introduce the basic concepts in advanced spectroscopic techniques. CO 2: Acquaint with the ideas of rotational, vibrational, electronic, Raman and Mossbauer transition happening in molecules together with their instrumentation techniques. CO 3: Understand the molecular structure of materials (electronic, rotational and vibrational energy levels) when interact with radiation. CO 4: Help students to identify different spectroscopic techniques used in structural identification of materials
PH 233 X	Special Paper I-advanced electronics -1	CO 1: Provides a thorough introduction to the basic principles and techniques used in analog and digital communications. CO 2: Introduce analog and digital modulation techniques, communication receiver and transmitter design, baseband and bandpass communication techniques, line coding techniques, noise analysis, and multiplexing techniques. CO 3: Introduce analytical techniques to evaluate the performance of communication systems
PH 261	Advanced Physics Practicals	CO 1: Practice various advanced physics experiments CO 2: Develop knowledge in error analysis, improve mathematical and graphical skills with the experiments
PH 262	Advanced Electronics Practicals	CO 1: Practice experiments using integrated circuits and develop skill in microprocessor programming
PH 241	Condensed Matter Physics	CO 1: Understand the properties of materials in solid state. CO 2: Familiarize with materials with different properties and the techniques used to characterize the properties. CO3: This is one of the frontier areas of research and provides strong foundation to students for further exploration of material properties.
PH 242	Nuclear & Particle Physics	CO 1: Give a basis and advanced concepts of nuclear fusion, nuclear fission and peaceful use of nuclear energy and nuclear reactors. CO 2: Advance in elementary particle physics, their interaction, quark structure and grand unified theory were also provided in this course. CO 3: Get basic ideas of these nuclear reactions and nuclear interaction happening in the universe CO 4: Understands the structure of nucleus, nuclear forces and models, nuclear reactions and the interaction of nuclear radiation with matter and about particle accelerators
PH 243 X	Special Paper II-Advanced electronics -II	CO 1: Introduce the basics of picture transmission and reception. And to become well conversant with new development in television engineering. CO 2: Help to understand the basic principle behind radar communication and its application. CO3: Provide an in-depth understanding of different concepts used in a satellite communication system.
PH 261	Advanced Physics Practicals	Continuation of 3 semester
PH 262	Advanced Electronics Practicals	Continuation of 3 semester
PH 201	Project	CO1: Develop a skill in working and experimenting a research topic of current interest in Experimental, Computational or Theoretical Physics.
PH 202	Viva Voce	CO1: Improve the presentation skill s CO2: Help the students to appear confidently for an interview

Complementary courses

Programme Outcome:	PO 1: Understand various facts and concepts of Physics. PO 2: Develop scientific attitudes and values appropriate for rational reasoning and critical thinking. PO 3: Develop problem solving skill and skills to conduct wide range of scientific experiments. Identify their own area of interest.
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<i>Course code</i>	<i>Course Name</i>	<i>Course Outcome</i>
PY1131.1	Mechanics & Properties of Matter	CO 1:Gets an idea about the properties of solids such as elastic properties, surface tension and viscosity CO 2:Exploit mathematical principles to obtain the properties of solids and fluids CO 3:Provides strong base to the application side of mathematics. CO 4:Obtain the basics of mechanics CO 5:Uses numerical problems to strengthen the concepts learned
PY1231.1	Thermal Physics & Statistical Mechanics	CO 1:Obtain theoretical basis of heat conduction processes CO 2:Derive the basic laws of thermal physics CO 3:Obtain the concepts of microstates, microstates, thermodynamic probability CO 4:Obtain the fundamental laws in statistical mechanics CO 5:Analyse numerical and conceptual problems
PY1331.1	Optics, Magnetism & Electricity	CO 1:Mathematically analyse interference, total internal reflection etc. CO 2:Obtain the expression for maximum and minimum intensities of different kinds of diffraction phenomena CO 3:Familiarize the basis laws and theorems regarding magnetism CO 4:Obtain a thorough idea regarding electric circuits CO 5:Analyse numerical problems to familiarize the principles studied.
PY1431.1	Modern Physics and Electronics	CO 1:Gets an idea of atomic structure CO 2:Familiarize the concepts of superconductivity CO 3:Obtain knowledge regarding spectroscopy CO 4:Study the circuits and mathematical analysis of circuits consisting of diodes, transistors and logic gates CO 5:Solve numerical problems
PY1432	Complementary Physics Practical	CO 1:Develop experimental skill through a wide range experiments, those theoretical concepts are studied in first four courses CO 2:Improve the data analysis, mathematical and graphical skills with the experiments
PY1131.2	Rotational Dynamics & Properties of Matter	CO 1:Understand rotational motion, which plays an important role in the Universe CO 2:Apply theorems to find out moment of inertia of various systems for designing flywheel, shaft etc. CO 3:Understand elasticity, bending moment and twisting couple for designing shape of girder CO 4:Develop knowledge in Dynamics of rigid bodies, Mechanics of solids, Viscosity CO 5:Develop skill to solve numerical problems in Dynamics of rigid bodies, Mechanics of solids, Viscosity
PY1231.2	Thermal Physics	CO 1:Develop knowledge in Diffusion and Transmission of Heat. CO 2:Understand Diffusion and Transmission of Heat with specific examples CO 3:Develop skill to solve numerical problems in Diffusion and Transmission of Heat
PY1331.2	Optics, Magnetism & Electricity	CO 1:Obtain theoretical and mathematical ideas of interference, Diffraction and Polarisation. CO 2:Get idea of laser and fibre optics CO 3:Obtain basic concepts of magnetism CO 4:Deduce AC circuits with various combinations of L, C & R. CO 5:Solve numerical problems regarding the topics studied.
PY1431.2	Atomic Physics, Quantum Mechanics and Electronics	CO 1:Gets idea of atom model theoretically CO 2:Obtain knowledge about superconductivity & spectroscopic techniques CO 3:Gets basis ideas of quantum mechanics CO 4:Analyse electronics circuits CO 5:Solve numerical problems regarding atomic structure and electronic
PY1432	Complementary Physics Practical	CO 1:Develop experimental skill through a wide range experiments, those theoretical concepts are studied in first four courses CO 2:Improve the data analysis, mathematical and graphical skills with the experiments
PY1131.5	Mechanics & Properties of Matter	CO 1:Understand motion, which plays an important role in the Universe CO 2:Apply theorems to find out moment of inertia of various systems for designing flywheel, shaft etc. CO 3:Understand elasticity, bending moment and twisting couple for designing shape of girder CO 4:Develop knowledge in Dynamics of rigid bodies, Mechanics of solids, Viscosity CO 5:Develop skill to solve numerical problems in Dynamics of rigid bodies, Mechanics of solids, Viscosity
PY1231.5	Thermal Physics	CO 1:Develop knowledge in Diffusion and Transmission of Heat. CO 2:Understand Diffusion and Transmission of Heat with specific examples CO 3:Develop skill to solve numerical problems in Diffusion and Transmission of Heat
PY1331.5	Optics & Electricity	CO 1:Obtain theoretical and mathematical ideas of interference, Diffraction and Polarisation. CO 2:Get idea of laser and fibre optics CO 3:Obtain basic concepts of alternating currents

		CO 4:Deduce AC circuits with various combinations of L, C & R. CO 5:Solve numerical problems regarding the topics studied.
PY1431.5	Atomic Physics and Electronics	CO 1:Gets idea of atom model theoretically CO 2:Obtain knowledge about superconductivity CO 3:Gets basis ideas of spectroscopic techniques CO 4:Analyse electronics circuits CO 5:Solve numerical problems regarding atomic structure and electronic
PY1432	Complementary Physics Practical	CO 1:Develop experimental skill through a wide range experiments, those theoretical concepts are studied in first four courses CO 2:Improve the data analysis, mathematical and graphical skills with the experiments

Department of Psychology

Programme offered		B.ScPsychology M.ScPsychology
B.Sc Psychology		
Programme Outcome		PO 1: Understand the foundations and methods of Psychology PO 2: Analyse the Psychological processes underlying human behaviour PO 3: Explore individual differences and the factors causing it PO 4: Acquire skills in assessment of human behaviour PO 5: Understand about maladaptive behaviour and intervention
Course code	Course Name	Course Outcome
PG1141	Foundations and Methods of Psychology	CO 1: Understand the basics of various schools in psychology CO 2: Develop scientific attitude and critical thinking capacity in students CO 3: Acquire basic knowledge about systems and processes like sensation perception and attention CO 4: Understand the process of knowledge building in psychology and to familiarize the students with the methods in psychology CO 5: Gain knowledge regarding classic researches and their methods
PG1241	Psychological Processes	CO 1: Analyse the basic concepts of various psychological processes CO 2: Develop interest in psychology CO 3: Understand the basics of various data collection methods in psychology CO 4: Get basic knowledge about systems and processes like memory and cognition
PG1321	Informatics	CO 1: Update and expand basic informatics skills and attitudes relevant to the emerging knowledge in society CO 2: Learn to effectively utilize the digital knowledge resources for their chosen courses of study. CO 3: Analyse the basic concepts & functional knowledge in the field of informatics CO 4: Gain functional knowledge in a standard office package and popular utilities CO 5: Know about nature of the emerging digital knowledge society CO 6: Get awareness about social issues and concerns in the use of digital technology CO 7: Know about major informatics initiatives in India and Kerala CO 8: Use digital knowledge resources in learning
PG1341	Psychology and Assessment of Individual Differences	CO 1: Get basic knowledge about systems and processes like intelligence and personality CO 2: Know about the concepts of basic psychological processes CO 3: Know about various types of tests in psychology CO 4: Understand the basics of various approaches in these areas
PG1441	Social Behaviour	CO 1: Understand and explain behaviour in the social setting CO 2: Explain the psychological aspects of various social phenomena.
PG1442	Experimental Psychology- I- Practicals	CO 1: Develop interest in the subject matter of psychology CO 2: Develop scientific and experimental attitudes in the student CO 3: Comprehension of the theoretical concepts through experiments CO 4: Develop the skills of observation and scientific reporting in psychology CO 5: Basic training in planning and conducting a psychological experiment CO 6: Gain knowledge regarding psychological instruments and tools.
PG 1541	Social Psychological processes	CO 1: Understand and explain behaviour in the social setting CO 2: Explain the psychological aspects of various social and group phenomena CO 3: Understand the psychological aspect of various social issues in the society and nation
PG1542	Individual in Organisation	CO 1: Understand about Individual aspects of employees. CO 2: Assessment and analysis of individual aspects of employees CO 3:Implementation of techniques to enhance the individual potentials
PG1543	Introduction to Maladaptive	CO 1: Know about characteristics and consecutive factors of different disorders and the classification system

	Behaviour	CO 2: Understand about different views and perspectives on normality and Abnormality
PG1544	Experimental Psychology- II- Practicals	CO 1: Develop scientific and experimental attitudes in the student CO 2: Understand the theoretical concepts through experiments CO 3: Develop the skills of observation and scientific reporting in psychology CO 4: Attain basic training in planning and conducting a psychological experiment CO 5: Know about psychological instruments and tools
PG1545	Psychological Assessment I	CO 1: Acquire the ability in students to understand himself/herself and other persons CO 2: Develop the skills of testing and scientific reporting in psychology CO 3: Conduct various psychological tests and assessment tools CO 4: Develop an interest in working of the community with a psychological outlook
PG 1551 (Open course I)	PG 1555.1 Understanding human behavior	CO 1: Generate interest in psychology CO 2: Understand the basic systems and processes in psychology CO 3: Develop the basic abilities in students to explain the phenomenon of mind.
	PG 1551.2 Child Development	CO 1: Understand human development and developmental process along with the theories CO 2: Create awareness about the various stages in physical, cognitive, emotional and social development
	PG 1551.3 Yoga and Stress Management	CO 1: Understand the theoretical foundations of Yoga CO 2: Understand the therapeutic aspects of Yoga
	PG 1551.4 Life skills Education	CO 1: Form the foundation of life skills education for the promotion of mental well-being, and healthy interaction and behaviour. CO 2: Acquire the ability to translate knowledge, attitudes and values into actual abilities ie., what to do and how to do it. CO 3: Understand self-efficacy, self-confidence and self-esteem. CO 4: Develop abilities for adaptive and positive behaviour, that enables individuals to deal effectively with the demands and challenges of everyday life.
	PG1551.5 Sports Psychology	CO 1: Provide an overview about the field of sports psychology CO 2: Know about different application principles and techniques in the field of sports
	PG 1551.6 Health Psychology	CO 1: Understand the scope of health psychology and its role in achievement and maintenance of health CO 2: Understand the stress and coping behaviour of individuals in various life situations CO 3: Understand the role of psychology in general health and chronic health problem
PG 1641	Psychological Assessment- II- Practicals	CO 1: Gain the ability in to understand himself/herself and other persons CO 2: Develop the skills of testing and scientific reporting in psychology CO 3: Know about various psychological tests and assessment tools CO 4: Develop an interest in working of the community with a psychological outlook
PG 1642	Human Development	CO 1: Understand the theories and process of development CO 2: Know about the age – related changes in different domains of development.
PG 1643	Organizational Behaviour	CO 1: Understand about formation of organization. CO 2: Assessment and analysis of organizational aspects. CO 3: Implementation of techniques to deal the organization effectively.
PG 1644	Maladaptive Behaviour and Intervention	CO 1: Understand different views and perspectives on normality and Abnormality
PG 1651	PG 1661.1 Psychological analysis of film and culture	CO 1: Understand the psychology of film and other cultural products CO 2: Acquire basic methodological skill in understanding and analysing films and similar cultural products CO 3: Know about classic works in the analysis of film CO 4: Explain various social phenomena and the Indian/Kerala social psyche through the analysis of cultural products like film
	PG 1661.2 Psychology of Adolescence	CO 1: Understand the different changes occurring adolescence and analyse different factors affecting the changes CO 2: Gain knowledge about the different factors the influence adolescent development and transition, together with the problem behaviours likely to be exhibited during this stage.
	PG 1661.3 Indian Psychology	CO 1: Understand the fundamental psychological concepts in Indian thought.
	PG 1661.4 Life skills Education	CO 1: Form the foundation of life skills education for the promotion of mental well-being, and healthy interaction and behaviour. CO 2: Acquire the skill to translate knowledge, attitudes and values into actual abilities ie., what to do and how to do it. CO 3: Understand about self-efficacy, self-confidence and self-esteem. CO 4: Develop abilities for adaptive and positive behaviour, that enables individuals to deal effectively with the demands and challenges of everyday life.
	PG 1661.5 Yoga	CO 1: Understand the theoretical foundations of Yoga

	and Stress Management	CO 2: Understand the therapeutic aspects of Yoga
	PG1661.6 Sports Psychology	CO 1: Provide an overview about the field of sports psychology CO 2: Understand the different application principles and techniques in the field of sports
	PG 1661.7 Psychology of Advertising and Marketing Research	CO 1: Acquire the necessary basic knowledge and skills to generate market inputs and also to provide strategic psychological inputs in designing promotional campaigns, advertising and marketing.
	PG 1661.8 Psychology of Communication and Media	CO 1: Understand the different models of communication CO 2: Understand the basics of media psychology CO 3: Analyse the social impact of media
	PG 1661.9 Health Psychology	CO 1: Understand the scope of health psychology and its role in achievement and maintenance of health CO 2: Understand the stress and coping behaviour of individuals in various life situations CO 3: Analyse the role of psychology in general health and chronic health problems
	PG 1661.10 Psychology in the class room	CO 1: Understand about the application of psychological principles in the process of education. CO 2: Develop skills of analysis and will be able to critically evaluate various application of psychology in educational settings.
	PG 1661.11 Child Development	CO 1: Gain knowledge about human development and developmental process along with the theories CO 2 Understand the various stages in physical, cognitive, emotional and social development
PG 1646	Project	CO 1: Understand the research methods in Psychology. CO 2: Understand fundamentals of Research Plan CO 3: Gain basic knowledge of steps in scientific investigation CO 4: Attain basic knowledge of project writing.

M. Sc. Psychology

Programme Outcome:		PO 1: The programme aims at enabling the students to acquire the necessary theoretical inputs and practical skills for effective functioning in the field of applied psychology.
Course code	Course Name	Course Outcome
PC 211	Psychology in Context	CO1: This is an introductory paper that discusses the what, how and why of learning psychology. This is a theory cum practicum paper that aims to generate an overall awareness of the goals of the MSc program. CO 2: The paper tries to set the stage of the whole MSc program and helps the student to conceptualize the program in a metacognitive manner.
PC 212	Personality and Personal Growth	CO 1: Understand the concept of personality CO 2: Understand approaches to conceptualizing personality CO 3: Compare various personality theories CO4: Apply the concepts of personality theories in understanding and personalities and facilitating one's own personal growth
PC 213	Introduction to Psychological Assessment and Research	CO 1: Understand and apply the concepts of test development CO 2: Acquire knowledge about various assessment tools used in various settings CO 3: Know about the styles of writing used in the current academic scenario CO 4: Equip oneself to critically evaluate and review academic writing and articles
PC 214	Cognitive Psychology	CO 1: Acquire a deep understanding of core concepts of human cognition, and to appreciate the scientific process CO 2: Develop a clear understanding of the mind, thereby gaining a much better understanding of ourselves and those around us CO 3: Apply knowledge of cognitive processes and concepts to some real-life situations and research scenarios
PC 221	Advanced Psychological Processes	CO 1: Gain better understanding of higher mental processes CO 2: Learn about the relevance of these psychological processes in daily living
PC 222	Research Methodology	CO 1: Understand and apply the concepts of quantitative and qualitative research designs CO 2: Acquire the skills for preparing a research proposal CO 3: Develop the skills for conducting various statistical analyses
PC 223	Counselling	CO 1: Learn the theoretical and practical aspects of counselling CO 2: Understand the role and functions of counsellors in a variety of settings CO 3: Acquire the techniques and skills of counselling CO 4: Enable oneself to practice counselling in an applied extension service
PC 224	Experimental Psychology (Practicals)	CO 1: Acquire skills to assess intellectual and social functioning CO 2: Conduct an ex-post facto research CO 3: Conduct different statistical analyses by using softwares

PC 231	Psychopathology	CO 1: Understand the systems in classification of mental disorders CO 2: Learn to identify mental disorders based on the diagnostic criteria specified in the DSM-5 CO 3: Understand the etiological factors underlying common mental disorders
PC 232	A - Clinical Psychology-Theory and Practice	CO 1: Know about the origins of the field of Clinical Psychology CO 2: Understand the role of a clinical psychologist in varied settings CO 3: Understand the theories that guide the practice of Clinical Psychology in these varied settings
	B - Organisational Behaviour	CO 1: Understand development of OB in the industrial setting CO 2: Understand the dynamics of human behaviour in organisational settings CO 3: Understand and appreciate the uniqueness of individual employee CO 4: Understand how to achieve goals in a group, and resolve conflicts CO 5: Acquire skills in tapping the talents in each employee CO 6: Learn effective interpersonal skills to become an effective manager of social capital
	C - Foundations of School Psychology	CO 1: Orient oneself to the field of School Psychology, its origins and evolution CO 2: Understand about the domains of School Psychology practice CO 3: Enable oneself to evaluate the relevance of developmental theories in the educational context CO 4: Learn the foundational basis of assessment in schools CO 5: Understand evidence-based practice of School Consultation CO 6: Orient the learner to the Response to Intervention Model CO 7: Understand the legislative provisions relevant to the field of School Psychology CO 8: Orient oneself to the ethics involved in School Psychology practice
PC 233	A - Psychodiagnostics and Testing in Varied Settings	CO 1: Understand the Process of Assessment and the role of the Clinician CO 2: Learn the use of psychological assessment tools in various settings CO 3: Learn the basics of report writing in assessment practice CO 4: Learn the ethics involved in assessment practice
	B - Assessment and Intervention in Work-Places	CO 1: Learn the design of effective predictors of human behaviour CO 2: Learn ways to help the employee function effective in the organization CO 3: Learn techniques to increase employee productivity and engagement CO 4: Learn to help employees adjust and integrate better to organizational life CO 5: Understand the dynamics of stress and its management in organisations
	C - Children with Special Needs-Assessment and Management	CO 1: Appreciate individual differences in learning. CO 2: Understand the concept of exceptionality and related terms. CO 3: Explore the role of a School Psychologist in the assessment and management of neurodevelopmental disorders, giftedness and other emotional/behavioural disorders. CO 4: Equip oneself in the field of assessment and management of these disorders
PC 234	A - Neuropsychology	CO 1: Understand the basics of functional aspect of brain CO 2: Understand the brain – behaviour relationship CO 3: Apply the knowledge about the advancements in the field of neuropsychology. CO 4: Interpret the basic neurological correlates of psychological processes and functions
	B - Human Resource Management	CO 1: Understand the evolution of human resource in organizations CO 2: Learn ways to effectively manage human and social capital CO 3: Learn ways to assess and enhance employee productivity CO 4: Learn ways to improve quality of work life CO 5: Understand HR scenario in India
	C - Child Development-Implications for School Psychology	CO 1: Understand developmental stages and theories to make a link between the critical periods in development and the curriculum development CO 2: Understand theories in the practice of School Psychology and evaluate their significance
PC 241	Psychotherapy and Behaviour Modification	CO 1: Understand the basic foundations of psychotherapy and behaviour modification CO 2: Understand the rationale, goals and techniques of various forms of psychotherapy aimed at bringing about behaviour change
PC 242	A - Clinical Interventions	CO 1: Understand the process of clinical formulation in major psychiatric disorders CO 2: Learn the approaches to management of major psychiatric disorders
	B - Current Trends and Application of Organizational Psychology	CO 1: Understand emerging trends in the organizational scenario CO 2: Learn ways to motivate individuals to maximize their potential CO 3: Learn essential techniques that helps employees deal with life and work stress CO 4: Learn the basic concepts of business communication in the organisational context. Learn new techniques for assessing employee productivity CO 5: Understand ways in which organization deals with change CO 6: Learn aspects of sustainable business and social behaviour of organization
	C - Interventions in School Settings	CO 1: Understand a broad framework for the delivery of school related services CO 2: Orient oneself to the major approaches to counselling that can be applied to the school setting CO 3: Equip oneself in the processes underlying the planning, designing and

		implementation of evidence-based practices in prevention and interventions in school settings
PC 243	Training and Practice	CO 1: Ensure hands on experience of each student in training and in his/her area of specialisation CO 2: Enhance employability potential of each student undertaking the course CO 3: Opportunities for applying theoretical knowledge acquired during course work CO 4: Gain new skills and strategies followed by professionals CO 5: Gain practical exposure in chosen field. CO 6: Improve interaction between educational institution and the relevant professional sector
PC 244	Psychological Assessment	CO 1: Acquire skills in conducting psychological assessment CO 2: Assess intelligence, memory, personality, interest and creativity

Department of Statistics

Programme offered		B.Sc Statistics
B.Sc Statistics		
Programme Outcome		PO 1: Graduates will develop a calibre sought by industries and public service as well as academic teachers and researchers of the future. PO 2: Gain an in depth knowledge about the methodology of Statistics PO 3: Students will be equipped with a skill to collect, analyse and interpret statistical data arisen from any field of knowledge. PO 4: Students will become capable of using modern computer programming languages and software packages so as to handle even big data. PO 5: Successful graduates will have a strong foundation of Statistics, mathematics and Computer Science which are the three main disciplines laying foundation of the all new branches of disciplines like Machine learning, Data Science and Artificial Intelligence.
<i>Course code</i>	<i>Course Name</i>	<i>Course Outcome</i>
ST 1141	Statistical Methods I	CO 1: To learn and attain a common level in elementary and basic principles of statistics and a strong foundation in mathematics for their future courses.
ST1241	Statistical Methods II	CO 1: To develop their experimental and data analysis skills through a wide range of expertise in handling applications of statistics by their training acquired in the statistical lab.
ST1341	Probability and Distribution I	CO 1: To get acquainted with powerful tools for tackling a wide range of topics in statistical methods and distribution theories
ST1441	Probability and Distribution II	CO 1: To advance themselves more towards the various probability distributions in atistics
ST1442	Practical I	CO 1: To further develop their experimental skills through a series of practical training imparted in the statistical lab, which is an integral apart of the proposed new curriculum.
ST1541	Limit Theorems and Sampling Distributions	CO 1: To get their knowledge expanded to advanced topics in probability theory
ST1542	Estimation	CO 1: Learn how to estimate a population parameter and what are the characteristics of their estimator.
ST1543	Testing of Hypotheses	CO 1: Learn how to test a hypothesis regarding a population parameter.
ST1544	Sample Survey Methods	CO 1: Learn different methods of taking a random sample from a population.
ST1641	Design of Experiments and Vital Statistics	CO 1: Learn the basic ideas of how to design a statistical experiment and learn the fundamental concepts of vital statistics
ST1642	Applied Statistics	CO 1: Learn different types of indices used as economic barometers and learn some fundamental concepts of time series analysis.

ST1643	Operations Research and Statistical Quality Control	CO 1: Learn the basic framework of operations research and how to determine whether an industrial production process is functioning properly.
ST1644	Practical II	CO 1: Get hands on training on estimation of parameters, testing of hypothesis and sampling using R software
ST1645	Practical III	CO 1: Get hands on training on analysis of different statistical designs, analysis of time series, finding index numbers and determining whether an industrial production process is functioning properly, using R software.
ST 1661	Stochastic Processes	CO 1: Get the basic ideas of random processes.
Complementary courses		
Programme Outcome:		
Course code	Course Name	Course Outcome
ST 1131.1	Descriptive Statistics	CO 1: To understand the basic concepts of describing a numerical data
ST 1231.1	Probability and Random Variables	CO 1: To learn the basic concepts of probability
ST 1331.1	Statistical Distributions	CO 1: Understand the ideas of probability distributions and limit theorems
ST 1431.1	Statistical Inference	CO 1: Learn to draw inferences whenever statistical decisions are meaningful
ST 1432.1	Practical using Excel	CO 1: To make use of software packages to analyse a given statistical data
ST 1131	Statistical Methods for Psychology I	CO 1: To learn how to collect a data and effectively present it.
ST 1231	Statistical Methods for Psychology II	CO 1: To become aware of various measures of describing a data
ST 1331	Statistical Methods for Psychology III	CO 1: To get the basic ideas of the concept of probability
ST 1431	Statistical Methods for Psychology IV	CO 1: To enable the students understand statistics by using it effectively in real life situation.
ST 1131.4	Statistics I	CO 1: Learn the practical methods of collecting a data
ST 1231.4	Statistics II	CO 1: Understand the statistical methods to describe a data
ST 1331.4	Statistics III	CO 1: Learn some of the important statistical tools to analyze a data
ST 1431.4	Statistics IV	CO 1: Learn and understand statistics by using it effectively in real life situation.
ST 1131.2	Descriptive Statistics	CO 1: Get equipped with the concepts, principles and methods of statistics
ST 1231.2	Probability Theory	CO 1: Learn the basic concepts of probability
ST 1331.2	Probability Theory and Stochastic Processes	CO 1: Understand the ideas of probability distributions CO 2: Learn the concepts of stochastic processes
ST 1431.2	Statistical Inference	CO1: Learn to draw inferences whenever statistical decisions are meaningful
ST 1432.2	Practical	CO 1: To make use of software packages to analyse a given statistical data

Department of Zoology

Programme offered	B.ScZoology M.ScZoology
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B.Sc Zoology

Programme Outcome		<p>PO 1: The students inculcate a love and understanding of the fascinating world of animal life.</p> <p>PO 2: Students get an in-depth knowledge of the diversity in form, structure and habits of Non-chordata and Chordata.</p> <p>PO 3: Students learn anatomy of permitted species</p> <p>PO 4: The students are introduced with the methodology and perspectives of Science in general so that they are enabled to systematically pursue higher studies and research in Zoology in relation to other disciplines of science.</p> <p>PO 5: Imparts basic knowledge on ecosystem and the necessity and measures for ecosystem conservation and disaster management</p> <p>PO 6: Students get basic ideas regarding the structure and functioning of cells and also about the aspects of genetic engineering</p> <p>PO 7: Students understand the principles of inheritance and the practical applications of biotechnology in medicine, agriculture, industry, pollution control, forensics and judiciary</p> <p>PO 8: Students get familiarized with various organ systems and their functions and their role in homeostasis of body</p> <p>PO 9: Students get an in-depth knowledge on the biochemical aspects of metabolism enabling them to develop ideas on research in the field of advanced biochemistry</p> <p>PO 10: Enhance the students' concept on organic evolution and appreciate the different modes of energy efficient communication systems existing in the animal world.</p> <p>PO 11: Students get expertise to carry out routine hematological and microbiological techniques</p> <p>PO 12: Students get familiarized with the physiology of their own body and urge them to take precautionary measures to safeguard their health</p> <p>PO 13: Students are introduced with the methodology and perspectives of applied branches of Zoology with a view of educating youngsters on the possibilities of self-employment</p> <p>PO 14: In short, this programme is aimed at instigating an attitude and aptitude in students for the pursuing higher education in the field of Zoology and allied biological sciences and enable them to develop career prospects and research in advanced fields of biology and thereby add to the knowledge repository and human resource for the future development of nation</p>
Course code	Course Name	Course Outcome
ZO 1141	Animal Diversity – I	<p>CO 1: The students learn the basics of systematics and understand the hierarchy of different categories.</p> <p>CO 2: Learn the diagnostic characters of different phyla through brief studies of examples. Obtain an overview of economically important invertebrate fauna</p>
ZO 1241	Animal Diversity – II	<p>CO 1: Learn the general characteristics and classification of different classes of vertebrates.</p> <p>CO 2: Understand the vertebrate evolutionary tree</p> <p>CO 3: Understand general aspects of applied interest in relation to vertebrates</p>
ZO 1341	Experimental Zoology, Instrumentation, Biostatistics and Bioinformatics	<p>CO 1: Learn the fundamental characteristics of science as a human enterprise</p> <p>CO 2: Understand how science works</p> <p>CO 3: Study to apply scientific methods independently</p>
ZO 1441	Ecology, Habitat Destruction and Disaster Management	<p>CO 1: Students get basic knowledge on ecosystems, food chain, food web and energy flow</p> <p>CO 2: Students acquire general awareness on pollution and their impacts</p> <p>CO 3: Students learn about various types of anthropogenic pressures on ecosystem, related degradation and management measures</p> <p>CO 4: Students get awareness of toxicants, their impacts on human health and environment and remedial measures</p> <p>CO 5: Create awareness about disasters, prevention and mitigation measures</p>
ZO 1442	Practical I – Instrumentation, Animal Diversity – I and Animal Diversity – II	<p>CO 1: Students learn anatomy through simple dissections and mountings of permitted species</p> <p>CO 2: Students get familiarized with various organ systems by examining approved animals</p> <p>CO 3: Emphasize the adage that seeing is believing by observing typical examples and economically important specimens</p> <p>CO 4: Students learn the working principle of different scientific instruments</p> <p>CO 5: Students become familiar with economically important species</p> <p>CO 6: Strengthen what students studied in theory by giving them an opportunity to have firsthand experience in lab as well outside</p>
ZO 1541	Cell and Molecular Biology	<p>CO 1: Students acquire sufficient knowledge on the fundamental structure, function and biochemistry of the cell</p> <p>CO 2: Understand the principles of Molecular Biology and gene manipulation</p> <p>CO 3: Students learn ultra-structure of prokaryotic and eukaryotic cells</p> <p>CO 4: Students understand the fundamental differences between prokaryotic and eukaryotic</p>

		<p>cells</p> <p>CO 5: Students learn the structure, replication and modification of the genetic material of eukaryotes</p> <p>CO 6: Students understand the mechanism of gene expression and gene regulation</p> <p>CO 7: Gets an awareness of bacterial recombination</p> <p>CO 8: Students acquire scientific knowledge on cancer and ageing</p>
ZO 1542	Genetics and Biotechnology	<p>CO 1: Learn the structure of gene</p> <p>CO 2: Get educated on the underlying genetic mechanism operating in human and state of the art of biotechniques</p> <p>CO 3: Students develop proper understanding on the relation between heredity and variation</p> <p>CO 4: Learn the mechanism of crossing over and inheritance patterns in human</p> <p>CO 5: Students become aware of different genetic syndromes and the possible ways to reduce its occurrence</p> <p>CO 6: Students understand the principles and techniques involved in DNA technology and get an overview of modern techniques like PCR, hybridoma technology, gene therapy and human cloning</p>
ZO 1543	Immunology and Microbiology	<p>CO 1: Students understand the scope and importance of clinical immunology</p> <p>CO 2: Students understand the principles and mechanisms of immunology</p> <p>CO 3: Learn the malfunctioning and disorders of the immune system</p> <p>CO 4: Students acquire knowledge on immunodeficiency diseases</p> <p>CO 5: Learn the transplantation and mechanism of graft retention and rejection</p> <p>CO 6: Students get a brief history of microbiology</p> <p>CO 7: Students get a broad understanding of the positive as well as negative aspects of microbes</p> <p>CO 8: Economic importance (applied aspects) of microbes in industry can be studied</p>
ZO 1641	Physiology and Biochemistry	<p>CO 1: Students develop a clear understanding of the correlation and coordination between the structure and function of different organs and organ systems of the body</p> <p>CO 2: Proper study on the physiology help students understand the physiology of different organ systems of the body</p> <p>CO 3: Students learn the correlation between diseases and the abnormal structure or improper functions of organs</p> <p>CO 4: Students understand the possible causes of abnormal physiology and the resultant diseases</p> <p>CO 5: Students understand the structure and function of biomolecules and their role in metabolism</p>
ZO 1642	Developmental Biology and Experimental Embryology	<p>CO 1: Students get a brief idea about the history of Developmental Biology</p> <p>CO 2: Provide the students a bird's eye view of sophisticated embryological techniques</p> <p>CO 3: Study the various stages involved in the development of organisms</p> <p>CO 4: Study the initial developmental procedures involved in Amphioxus, Frog and Chick</p> <p>CO 5: Procure information on state-of-the-art experimental procedures in embryology</p> <p>CO 6: Different control mechanisms of development including gene action are studied</p>
ZO 1643	Ethology, Evolution and Zoogeography	<p>CO 1: Study the physiological basis of behaviour</p> <p>CO 2: Study the different types of communication system among animals</p> <p>CO 3: Students get a concept on organic evolution</p> <p>CO 4: Students get knowledge on the distribution of animals in the biosphere</p>
ZO 1651.2	Ornamental fresh water fish production	<p>CO 1: Students learn the scientific method of setting up an aquarium</p> <p>CO 2: Students learn the culture breeding and marketing techniques of common indigenous ornamental fishes</p>
ZO 1644	Practical II – Cell Biology, Genetics, Bioinformatics, Biotechnology, Immunology and Microbiology	<p>CO 1: Students develop the skill to prepare and observe chromosomal arrangements during cell division</p> <p>CO 2: Students study chromosomal aberrations in man</p> <p>CO 3: Students gain broad knowledge on conventional biotechnological procedures</p> <p>CO 4: Students gain skill to perform routine blood analysis</p>
ZO 1645	Practical III – Physiology and Biological Chemistry, Molecular Biology and Biostatistics	<p>CO 1: Students learn clinical procedures for blood and urine analysis</p> <p>CO 2: Students become skillful in simple biochemical laboratory procedures</p>
ZO 1646	Practical IV – Developmental Biology, Ecology, Ethology, Evolution and	<p>CO 1: Students gain knowledge about the different developmental stages of animals</p> <p>CO 2: Students learn to estimate the amount of carbon dioxide and oxygen in water samples</p> <p>CO 3: Students learn to estimate productivity of aquatic ecosystems</p> <p>CO 4: Students learn to assess the water quality by studying various parameters</p> <p>CO 5: Study the ecological relationships and adaptations of animals</p>

	Zoogeography	
ZO 1647	Project and Field Study	CO 1: Students develop an aptitude for research in Zoology CO 2: Student inculcate proficiency to identify appropriate research topic and presentation
ZO 1551.1	Public Health and Hygiene (Open Course)	CO 1: Students become aware of the essentials of public health and sanitation thereby warding off diseases and uplifting the living standards of the community CO 2: Students learn the principles of nutrition and dietetics CO 3: Students understand the ill effects of modern lifestyle CO 4: Students study the advantages of personal hygiene and sanitation
ZO 1131	Animal Diversity I	CO 1: Students develop a concrete idea of the evolution, hierarchy and classification of invertebrate phyla CO 2: Understand the basics of systematic by learning of the diagnostic and general characters of various groups CO 3: Get an overview of typical examples in each phylum CO 4: Study the economic importance of invertebrates with special reference to insect pests
ZO 1231	Animal Diversity II	CO 1: Students learn the evolution, hierarchy and classification of different classes of chordates CO 2: Get an overview of the morphology and physiology of typical examples CO 3: Study the adaptations and economic importance of specific vertebrates
ZO 1331	Functional Zoology	CO 1: Students study the structure and function of each organ system in human body CO 2: Study the etiology of common physiological disorders, syndromes and diseases
ZO 1431`	Applied Zoology	CO 1: Students learn the basic principles involved in the culture and breeding of common, edible and ornamental fishes of Kerala and the art of aquarium keeping CO 2: Get a basic understanding of human genomics and reproductive biology including stem cell research and prenatal diagnostic techniques
ZO 1432	Practical I – Animal Diversity I & II, Functional Zoology and Applied Zoology	CO 1: Students get hands on training experience in anatomy through simple dissections and mountings CO 2: Students are familiarized with conventional organ system in common, easily available animals CO 3: Emphasize the adage that ‘seeing is believing’ by studying the typical examples and economically important preserved specimens CO 4: Study and carry out clinical analysis of blood and urine
ZO 1131	Brain and Behaviour	CO 1: Students learn about the fundamental aspects of Neurophysiology CO 2: Learn about the techniques employed in the analysis of brain function CO 3: Learn about the role of nervous system in behavioural functions CO 4: Learn about the language and cognitive functions of brain
ZO 1231	Sensory Physiology	CO 1: Students learn about the neurophysiology of vision, audition, chemical senses, cutaneous senses, proprioceptive senses and pain CO 2: Students learn about the defects associated with sensory perception and their treatment
ZO 1331	Physiology of Motivation	CO 1: Students learn about the neurophysiological basis of basic human instincts such as wakefulness, sleep, eating, drinking and sexual behaviour CO 2: Learn about the abnormalities associated with these instincts
ZO 1431	Physiology of Emotion and Cognition	CO 1: Students develop concepts about the neural basis of emotion and its clinical aspects CO 2: They learn about the physiology of learning and memory

M. Sc. Zoology

Programme Outcome:	<p>PO 1: Provide an in-depth knowledge in Zoology, which enables the students to develop a research aptitude in Zoology</p> <p>PO 2: Students can work in the pure, interdisciplinary and multidisciplinary areas of biological sciences and its applications</p> <p>PO 3: Students develop the potential to identify the taxonomic positions of various species in the Animal Kingdom</p> <p>PO 4: Interdisciplinary areas such as Clinical Biochemistry, Medical Microbiology and Biotechnology will enhance the understanding of students on human health</p> <p>PO 5: Multidisciplinary areas such as Biophysics and Instrumentation enable the students to develop concepts regarding the principles behind the working of various sophisticated instruments being used in the analytical research.</p> <p>PO 6: Studies on Biostatistics and Computer Application familiarize the students with the computer aided statistical techniques used in the fields of research</p> <p>PO 7: Studies on Ecology and Biodiversity Conservation help the students to inculcate an urge for the conservation of nature and to adopt conservation strategies for future generations</p> <p>PO 8: Studies on Computer Application and Research Methodology enable the students to present scientific and technical information resulting from laboratory experimentation in both written and oral formats</p> <p>PO 9: This program prepares the students for advanced scientific research and careers in the arena of biological sciences thereby adding to the knowledge repository and</p>
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		developing human resource for the sustainable development of country and nations worldwide.
<i>Course code</i>	<i>Course Name</i>	<i>Course Outcome</i>
ZO 211	Systematics and Evolutionary Biology	CO 1: Students learn about the basic concepts of systematic and taxonomy CO 2: Students are introduced with the tools and techniques employed in taxonomy and trends followed in the taxonomy research CO 3: Students learn about the concepts regarding molecular evolution, genomic evolution and evolution of higher taxa
ZO 212	Biochemistry	CO 1: Students learn about the structure, classification and metabolism of macromolecules CO 2: Students learn about the toxicity of free radicals and the role of anti-oxidants in detoxification process CO 3: They learn about the biochemical basis of aging CO 4: They are also introduced with the clinical aspects of biochemical processes in human body
ZO 213	Biophysics, Instrumentation and Computer Science	CO 1: The students learn about the concepts of energy and thermodynamics CO 2: Students develop concrete understanding on radiation biophysics and nanotechnology CO 3: Students develop concepts regarding the principles behind the working of instruments such as different types of microscopes, centrifuge CO 4: They learn about different types of electrophoresis, chromatography, and also biophysical methods like Atomic absorption spectrophotometer, IR spectrophotometer, NMR, CO 1: EMR, MS, UV-Vis Spectrophotometer, X-ray diffraction etc. CO 5: Students are introduced with different computer softwares and operating systems
ZO 221	Advanced Physiology and Functional Anatomy	CO 1: Students develop in depth knowledge about the physiological aspects of various organ systems in the human body CO 2: Students develop deep understanding about the anatomy of different organ system in relation to their functions CO 3: Students understand about the various disorders associated with the different organ systems and also their clinical implications CO 4: Develop a better understanding on the physiological mechanisms adopted by the human body for the maintenance of homeostasis
ZO 222	Genetics, Quantitative Analysis and Research Methodology	CO 1: Students learn about the concepts of Mendelian Genetics and its applications CO 2: Learn about the various aspects of population genetics, human genetics and microbial genetics CO 3: Learn about of the role of genetics in medicine and forensic science CO 4: Students are familiarized with the various statistical techniques such as Chi-square, t-test, ANOVA, Correlation, Regression etc. which are employed in quantitative analysis in scientific research CO 5: Students develop concepts about the characteristics of good research, formulation and design of research, execution of research plan, scientific documentation of research CO 6: Students develop a good understanding of the ethics in research
ZO 223	Cell Biology, Molecular Biology and Bioinformatics	CO 1: Students learn about the various pathways involved in cell-cell signalling CO 2: Students learn about cell cycle and its regulatory role in the propagation of malignant cells CO 3: Students learn about the chromatin structure, topology of nucleic acids and the organization of eukaryotic chromosome CO 4: Students learn about DNA replication, transcription, RNA processing and translation CO 5: Students develop a concrete understanding on the gene regulation mechanisms CO 6: Students are familiarized with various biological databases, construction and interpretation of phylogenetic trees and their use in analyzing evolutionary trends CO 7: Students get an overview of computational biology and analyses of genomes and proteomes
ZO 214	Practical I Systematics, Evolutionary Biology, Biochemistry, Biophysics, Instrumentation and Computer Applications	CO 1: Students develop skills in collection of zoological specimens and their identification with the assistance of taxonomic keys CO 2: Students get hands on training on various analytical techniques in biochemistry CO 3: Students get an understanding on various biophysical methods and working of various instruments CO 4: Students learn to apply softwares for the statistical analysis of scientific data originating from research
ZO 224	Practical II – Advanced Physiology, Functional	CO 1: Students learn to do experiments on physiological aspects of body functions CO 2: Students do a comparative study of the functional anatomy and morphology of animals from diverse taxa CO 3: Students learn to observe the chromosomes of insects and to analyse the stages in cell

	Anatomy, Genetics and Quantitative Analysis, Cell and Molecular Biology	<p>division</p> <p>CO 4: Students develop expertise in doing statistical analysis of scientific data</p> <p>CO 5: Students learn to estimate DNA from the given tissue extract and to localize proteins and glycogen in the samples</p>
ZO 231	Microbiology and Biotechnology	<p>CO 1: Students learn about the classification of microorganisms</p> <p>CO 2: Students learn about the applications of microorganisms in food, beverages, dairy, and pharmaceutical industries</p> <p>CO 3: They study about the role of microorganisms in the cycling of elements in nature and also how microorganisms can be employed for the treatment of waste water and solid wastes</p> <p>CO 4: In Medical Microbiology students study about the mode of action of toxins produced by various pathogens, and the measures which can be adopted for the control of microorganisms. Students also gain knowledge about the drug resistance mechanisms adopted by microorganisms so that they will develop a better idea about the proper use of antibiotics</p> <p>CO 5: Students learn about the various biotechnological methods such as molecular cloning, techniques employed in gene transfer and practical applications of genetic engineering</p> <p>CO 6: Students are also introduced with the recent trends in Biotechnology, and also about the ethical, legal and social issues of Biotechnology</p>
ZO 232	Ecology, Ethology and Biodiversity Conservation	<p>CO 1: Students get a deep knowledge about the flow of energy in ecosystems</p> <p>CO 2: Students learn about the transition and stability in ecosystem and also develop an understanding about the relevance of ecosystem development theory to human ecology</p> <p>CO 3: Students develop a concept about the interactions between various species in the ecosystem and develop a better understanding that all species are essential for the sustainable development of ecosystem and develop an urge for the conservation of nature and its inhabitants</p> <p>CO 4: Students learn about the complex behavioural patterns among animals and the role of nervous system, environment, genetics in the evolution of behaviour</p> <p>CO 5: Students learn about the causes for the depletion of biodiversity and strategies for the conservation of biodiversity</p> <p>CO 6: Students are familiarized with the international conventions and treaties for the conservation of biodiversity</p>
ZO 233	Immunology and Developmental Biology	<p>CO 1: Students understand the principles and mechanisms of immunology</p> <p>CO 2: Learn the malfunctioning and disorders of the immune system</p> <p>CO 3: Students acquire knowledge on immunodeficiency diseases</p> <p>CO 4: Learn the transplantation and mechanism of graft retention and rejection</p> <p>CO 5: Students learn about the scope and practical applications of developmental biology</p> <p>CO 6: Learn about the sequence of embryonic development in selected model organisms</p> <p>CO 7: Students understand the role of genes in the control of embryonic development</p> <p>CO 8: Students develop concepts on inductive interactions and the role of organizers in embryonic development</p> <p>CO 9: Students understand the different medically assisted reproductive technologies in practice and cloning experiments</p>
ZO 234	Practical – Microbiology, Biotechnology, Ecology, Immunology and Developmental Biology	<p>CO 1: Students develop skills in techniques for microbial isolation, enumeration and Gram staining</p> <p>CO 2: Students gain expertise in assessing the quality of milk depending of microbial load</p> <p>CO 3: Students get hands on training in the isolation of DNA and plasmids</p> <p>CO 4: Students study about the antigen-antibody interaction and other immunology techniques</p> <p>CO 5: Students get familiarized with techniques such as induced ovulation and artificial fertilization</p> <p>CO 6: Students are able to observe the developmental sequences in chick and also the effects of drug on chick embryo</p> <p>CO 7: Students gain expertise in ecological studies such as productivity, population diversity and density, diversity indices, ecological adaptations of animals</p>
ZO 241	Pollution Biology and Environmental Physiology	<p>CO 1: Students understand the different causes of environmental pollution</p> <p>CO 2: Students learn about the impact of different types of pollution on biosphere and its inhabitants</p> <p>CO 3: Students learn about the technologies developed so far for the abatement of water pollution</p> <p>CO 4: Students develop concepts on the physiological adaptations of animals in response to environmental factors such as temperature, pressure, osmotic pressure, etc.</p> <p>CO 5: Students learn about eco-physiological adaptations of animals such as mimicry,</p>

		camouflage, echolocation, bioluminescence, bioelectricity
ZO 242	Environmental Management	<p>CO 1: Students get a deep understanding about the various resources on earth and the impact of human exploitation of earth's resources</p> <p>CO 2: Students develop an urge for the biological conservation and management of the resources</p> <p>CO 3: Students learn about the social, economic and legal aspects of environmental policy</p> <p>CO 4: Students learn about the enforcement of environmental laws and the role of Government, media and voluntary organizations in environment management</p> <p>CO 5: Students learn about environment impact assessment and sustainable development</p> <p>CO 6: Students learn about various biotechnological techniques that are useful for pollution abatement</p>
ZO 243	Practical I – Pollution Biology and Environmental Physiology	<p>CO 1: Students get hands on training in soil analysis for texture, moisture, pH, organic carbon, porosity, chlorine content etc</p> <p>CO 2: Student learn to determine the lethality of fishes exposed to pollutants and the effect of pollution on oxygen consumption by fishes</p> <p>CO 3: Students learn about the impact of soil pollution on inhabitants like earthworms</p> <p>CO 4: Students study about the various ecological indicators of pollution</p> <p>CO 5: Students get an opportunity to make a field study on the problem of environmental pollution in their area</p>
ZO 244	Practical II – Environmental Management	<p>CO 1: Students gain expertise in determining water quality parameters such as pH, electrical conductivity, turbidity, salinity, hardness, BOD and COD</p> <p>CO 2: Students study the working of instruments like pH meter, electrical conductivity meter, flame photometer, hygrosopic soil thermometer</p> <p>CO 3: Students learn to estimate primary and secondary productivity in aquatic ecosystem</p> <p>CO 4: Students learn to construct ecological pyramids</p> <p>CO 5: Students learn to estimate species diversity in an ecosystem</p>