MAHATMA GANDHI COLLEGE THIRUVANANTHAPURAM

Course Outcomes, Program Outcomes and Program Specific Outcomes

1. Zoology
2. Commerce
3. History
4. Economics
5. Chemistry
6. English
7. Botany
8. Hindi
9. Sociology
10. Mathematics
11. Psychology
12. Malayalam
13. Physics
14. Political Science
15. Physical Education

DEPARTMENT OF ZOOLOGY

B.Sc. ZOOLOGY DEGREE PROGRAM

Courses Offered

THEORY-CORE

First Semester
1. ZO1141. Animal Diversity –I
Second Semester
2. ZO1241 Animal Diversity II

Third Semester
3. ZO1341-Methodology and Perspectives of Zoology
Fourth Semester
4. ZO1441 Cell Biology
Fifth Semester
5. ZO1541-Genetics and biotechnology
6. ZO1542-Immunology and Microbiology
7. ZO1543: Physiology and Biochemistry
8. ZO.1551.2 Human Health and Sex Education (Open Course)
Sixth Semester
9. ZO1621-General informatics and Bioinformatics
10. ZO1641: Developmental biology and experimental embryology
11. Z01642: Ecology, ethology, evolution and zoogeography
PRACTICALS
First to Fourth Semester
1. ZO1442: Practical I-Methodology and Perspectives of zoology, Animal diversity I and Animal diversity II (Practicals of ZO1141, 1241, 1341)
Fifth and Sixth Semester
2. ZO1643: Practical II - Cell Biology, Genetics, Biotechnology, Immunology and Microbiology
3. ZO1644: Practical III - Physiology and Biological Chemistry, Molecular Biology and Bioinformatics.
4. ZO1645: Practical IV - Developmental Biology, Ecology, Ethology, Evolution and Zoogeography
Project, Field Study & Study tour
ZO1646: Project, Field Study & Study tour (First to Sixth Semester)

First Semester

ZO1241: Animal Diversity –I

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

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

CO3. Able to identify the invertebrates and classify them up to the class level with the basis of systematic

CO4. Understand the basis of life processes in the non-chordates and recognize the economically important invertebrate fauna.

Second Semester

ZO1241: Animal Diversity II

CO1.Describe the diversity in form, structure and habits of vertebrates

CO2. Explain general characteristics and classification of different classes of vertebrates

Third Semester

ZO1341: Methodology and Perspectives of Zoology

CO1. Realise the fundamental characteristics of science as a human enterprise

CO2. Apply scientific methods in day to day life

Fourth Semester

ZO1441: Cell Biology

CO.1. Develop deeper understanding of what life is and how it functions at cellular level.

CO2. Describe cellular membrane structure and function, fine structure and function of cell organelles.

CO3.Perform a variety of molecular and cellular biology techniques

Practical I: Methodology and Perspectives of zoology, Animal diversity I and Animal diversity II

CO1. Familiar with Scientific method

CO2.Recognise the importance of conservation

Fifth Semester

ZO1541: Genetics and biotechnology

CO1.Appreciate the contribution of great scientists

CO2.Distinguish Classical Genetics and Molecular Genetics

CO3.Understand the applications of Biotechnology

CO4.Familiar with the tools and techniques of Genetics and Biotechnology

ZO1542: Immunology and Microbiology

CO1.Appreciate the contribution of great immunologists

CO2.Distinguish Innate immunity and Acquired Immunity

CO3.Understand the importance of Immune system

CO4.Familiar with the tools and techniques used in Microbiology and pathogenic Microbes

ZO1543: Physiology and Biochemistry

CO1.Understand the function of various systems

CO2.Apply the knowledge to lead a healthy life

CO3.Understand the importance of Bio molecules

CO4.Familiar with various biochemical pathways

ZO.1551.2 Human Health and Sex Education (Open Course)

CO1.Realise the factors affecting Health

CO2.Apply the knowledge to lead a healthy lifestyle

CO3.Understand various Contraceptive methods

CO4.Familiar with various Lifestyle diseases

CO5. Redress problems associated with health and sex thereby promoting fitness and wellbeing.

Sixth Semester

ZO1621: General informatics and Bioinformatics

CO1.Familiar with Digital knowledge

CO2.Apply the knowledge to collect various Biological data

CO3.Understand the importance of Bio molecules

CO4.Familiar with various Applications of Bioinformatics

CO5.Get awareness about nature of the emerging digital knowledge society

ZO1641: Developmental biology and experimental embryology

CO1.Familiar with various stages involved in the developing embryo

CO2.Apply the knowledge to collect various Biological data

CO3.Understand the initial development al procedures involved in *Amphioxus*, frog and chick

CO4.Familiar with types of placenta

CO5.Ability to explain various Prenatal Diagnosis

CO6. Familiarise with the principle of developmental biology

CO7.Familiarise with various Techniques and tools of Embryology

Z01642: Ecology, ethology, evolution and zoogeography

CO1.Familiar with various stages involved in the developing embryo

CO2.Apply the knowledge to collect various Biological data

CO3.Understand the initial development al procedures involved in *Amphioxus*, frog and chick

CO4.Familiar with types of placenta

CO5.Ability to explain various Prenatal Diagnosis

CO6. Familiarize with the principle of developmental biology

CO7.Familiarise with various Techniques and tools of Embryology

ZO1643: Practical II - Cell Biology, Genetics, Biotechnology, Immunology and Microbiology

CO1. Ability to observe chromosomal arrangements during cell division

CO2.Distinguish different chromosomal aberrations in man

CO3.Familiarise knowledge of conventional biotechnological procedures

CO4. Ability to perform routine blood analysis.

ZO1644: Practical III - Physiology and Biological Chemistry, Molecular Biology and Bioinformatics.

CO1. Demonstrate basic principles in physiology Objectives of the course

CO2. Learn clinical procedures for blood & urine analysis

CO3.Develop skill in simple biochemical laboratory procedures

CO4.Recognise the importance of various databases

CO5.Skill in observing and to some extent in analysing various Biological Data

ZO1645: Practical IV - Developmental Biology, Ecology, Ethology, Evolution and Zoogeography

CO1. Demonstrate various types of Eggs

CO2. Learn about various types of Placenta

CO3.Develop skill in observing sperm motility

CO4.Ability to Estimate of dissolved oxygen and CO2

CO5.Skill in observing Turbidity using Secchi disc

CO6. Ability to extract soil organisms using Berlese funnel

CO7.Ability to construct food web

CO8.Familiar with ecological adaptations

CO9. Measure pH of different water samples using pH meter, pH paper and indicator solution.

CO10. Demonstrate Alarm pheromones in ants.

CO11.Identify the contributions of various evolutionists.

CO12.Identify different zoogeographical realms with fauna.

Program Outcome

PO1.Apply the knowledge of various branches of Zoology and General biology meant both for a graduate terminal course and for higher studies.

PO2 .Develop positive attitude towards sustainable development

PO3.Understand the unity of life with the rich diversity of organisms and their ecological and evolutionary significance

PO4.Acquire basic skills in the observation and study of nature, biological techniques, experimental skills and scientific investigation

Program specific Outcomes:

PSO1.Identify and list out common animals

PSO2.Explain various physiological changes in our bodies

PSO3.Analyze the impact of environment on our bodies

PSO4.Understand various genetic abnormalities

PSO5.Develop respect for nature

PSO6.Explain the role and impact of different environmental conservation programmes

PSO7.Identify animals beneficial to humans

PSO8.Identify various potential risk factors to health of humans

PSO9.Explain the importance of genetic engineering

PSO10. Use tools of information technology for all activities related to zoology

Complementary Course

Courses Offered

ZO1131: Semester I Animal Diversity I
ZO1231: Semester II Zoology Animal Diversity II
ZO1331: Semester III .Functional Zoology
ZO1431: Semester IV .Applied Zoology
ZO1432.Practical I -Animal Diversity I &II, Functional Zoology and Applied Zoology

ZO1131: Semester I Animal Diversity I

CO1.Ability to love and understand the fascinating world of invertebrates

CO2.Get a concrete idea of the evolution, hierarchy and classification of invertebrate phyla

CO3.Understand the basics of systematics by learning the diagnostic and general characters of various groups

CO4. Getting an overview of typical examples in each phyla

CO5.Aware the economic importance of invertebrates with the special reference to insect pest

ZO1231: Semester II Zoology Animal Diversity II

CO1. Inculcate in the student a fascination for nature and learn the bionomics of vertebrates.

CO2.Learn the evolution, hierarchy and classification of different classes of chordates

CO3. Get an overview of the morphology and physiology of typical examples.

CO4.Familarise the adaptations and economic importance of specific vertebrates.

ZO1331: Semester III .Functional Zoology

CO1. Familiarize students on the physiology of their own body and urge them to take precautionary measures to safeguard their health. CO2.Aware about the structure and function of each system in the human body.

CO3.Describe common physiological disorders, syndromes and diseases.

ZO1431: Semester IV .Applied Zoology

CO1. Identify various methodology and perspectives of applied branches of zoology for the possibilities of self-employment.

CO2. Learn the basic principles involved in the culture and breeding of common edible and ornamental fishes of Kerala and the art of aquarium keeping.

CO3. Get a basic understanding of human genomics and reproductive biology

CO4.Aware about stem cell research and prenatal diagnostic techniques.

ZO1432.Practical I -Animal Diversity I &II, Functional Zoology and Applied Zoology

CO1. Experience in anatomy through simple dissections

CO2. Familiarize organ system.

CO3.Aware about economically important specimen (preserved)

CO4. Ability to carry out routine clinical analysis of blood and urine

M.SC. ZOOLOGY PROGRAM

Courses Offered

First Semester

1. ZO211- Systematics and Evolutionary biology
2. ZO212-Biochemistry
3. ZO213-Biophysics, instrumentation and computer science
4. ZO214-Practical (Based on ZO211, ZO212 &ZO213)

Second Semester

1. ZO221- Advanced Physiology and functional anatomy
2. ZO222-Genetics, quantitative analysis and research methods
3. ZO223- Cell and Molecular Biology
4. ZO224- Practical -(Based on ZO221, ZO222 &ZO223)

Third Semester

1. ZO231- Microbiology and Biotechnology
2. ZO232-Ecology, Ethology, Biodiversity and Conservation
3. ZO233-Immunology and Advanced Developmental Biology
4. ZO234-Practical-(Based on ZO231, ZO232 &ZO233)

Fourth Semester- Environmental science (Elective)

1. ZO241—Pollution Biology and environmental physiology
2. ZO242-Environmental management
3. ZO243-Practical I-(Based on ZO241)
4. ZO244-Practical II-(Based on ZO242)
5. ZO201-Project
6. ZO202-Comprehensive Viva Voce

Course Outcomes

First Semester

1. ZO211- Systematics and Evolutionary biology

CO1. Thorough understanding in the principles and practice of systematics.

CO2. Acquire an in-depth knowledge on the diversity and relationships in animal world.

CO3. Develop a holistic appreciation on the phylogeny and adaptations in animals.

CO4. Enable the students to understand the evolution of universe and life.

CO5. Understanding on the process and theories in evolutionary biology.

CO6. Develop an interest in the debates and discussion taking place in the field of evolutionary biology

2. ZO212-Biochemistry

CO1. Understand the chemical nature of life and life process.

CO2 Get an idea on structure and functioning of biologically important molecules.

CO3. Help to explore new developments in biochemistry.

CO4. Enable the students to illustrate various Biochemical pathways.

CO5. Develop an interest in the debates and discussions associated with Lifestyle Diseases.

ZO213-Biophysics, instrumentation and computer science

CO1. Understand the importance of Physics to recognize life process.

CO2 Get an idea on tools and techniques available for studying biochemical and biophysical nature of life.

CO3. Equip the learner to use the tools and techniques for project work and research.

CO4. Equip the learner to carry out original research in biology.

CO5. Improve analytical and critical thinking skills through problem solving.

CO6. Training in the use of various tools and techniques.

ZO214Practical I- Systematics and Evolutionary biology, Biochemistry, Biophysics, instrumentation and computer

CO: Developing Observational, Analytical and Evaluation skills related to ZO211, ZO212 &ZO213.

Second Semester

ZO221- Advanced Physiology and functional anatomy

CO1. Compare the functioning of organ systems across the animal world.

CO2. Learn more about human physiology and anatomy.

ZO222-Genetics quantitative analysis and research methods

CO1. In-depth understanding on the principles and mechanisms of inheritance.

CO2 Explain the fine structure and molecular aspects of genetic material.

CO3. Learn the mechanism of Inheritance in Man.

CO4. Expose the learners to the emerging field of research and equip them the various research methodologies.

ZO223- Cell and Molecular Biology

CO1. Understanding on the details of the basic unit of life at the molecular level.

CO2 Explain the fine structure and functions of cell organelles.

CO3. Introduce the new developments in molecular biology and its implications in human welfare.

CO4. Expose the learners to the emerging field of research in Molecular Biology.

ZO224- Practical II-Advanced Physiology and Functional Anatomy, Genetics quantitative analysis, Cell and Molecular Biology and Bioinformatics

CO: Developing Observational, Analytical and Evaluation skills related to ZO221, ZO222 &ZO223.

Third Semester

ZO231- Microbiology and Biotechnology

CO1. Over view of the microbial world, its structure and function.

CO2. Familiarize the learner with the applied aspects of microbiology.

CO3. Intensive and in-depth learning in the field of biotechnology.

CO4. Understand the modern biotechnology practices and approaches with an emphasis in technology application, medical, industrial, environmental and agricultural areas.

CO5. Familiarize the students with public policy, biosafety, and intellectual property rights issues related to biotechnology.

ZO232-Ecology, Ethology and Biodiversity

CO1. Understanding on the basic theories and principles of ecology.

CO2. Learn current environmental issues based on ecological principles.

CO3. Gain critical understanding on human influence on environment.

CO4. Expose to the basics and advances in ethology.

CO5. Generate an interest in Ethology in order to understand the complexities of both animal and human behavior.

CO6.Positive attitude towards Biodiversity conservation.

ZO233-Immunology and Advanced Developmental Biology

CO1. Provide an intensive and in-depth knowledge to the students in immunology.

CO2. Understand the role of immunology in human health and well-being.

CO3. Familiarize new developments in immunology.

CO4. Expose to concepts and process in developmental biology.

CO5. Understand and appreciate the genetic mechanisms and the unfolding of the same during development.

CO6. Expose the learner to the new developments in embryology and its relevance to man.

ZO234-Practical- Microbiology and Biotechnology, Ecology, Ethology and Biodiversity, Immunology and Advanced Developmental Biology.

CO: Developing Observational, Analytical and Evaluation skills related to ZO231, ZO232 &ZO233.

Fourth Semester

ZO241—Pollution Biology and environmental physiology

CO1. Broad and deep understanding on environment and influence of man on environment.

CO2. Equip the students to use various tools and techniques for the study of environment.

ZO242-Environmental management

CO1. Enable the learner to understand, think and evolve strategies for management and conservation of environment for sustaining life on earth.

CO2. Motivation for further studies and research in the field.

ZO243-Practical I-Pollution Biology and Environmental Physiology

CO: Developing Observational, Analytical and Evaluation skills related to ZO241.

ZO244-Practical II-Environmental Management

CO: Developing Observational, Analytical and Evaluation skills related to ZO242.

5. ZO201-Project

CO: Develop scientific attitude and Problem solving ability.

6. ZO202-Comprehensive Viva Voce

Program Outcomes

PO1. Enable the learners to take certification of Master's degree in Zoology.

PO2. Equipped with an in-depth knowledge in the area of Zoology

PO3. Enable them to specialize in one of the branches of Zoology that would be offered as elective courses.

PO4. Opportunities of continuing education and professional development.

PO5. Widen the scope of the learners for careers in different sectors of employment.

PO6. Enable the students to avail career opportunities in teaching, industry and research.

Program Specific Outcomes

PSO1. Developing academically sound future researchers and intellectuals in the area of general biology, Molecular biology, Biotechnology, Genetics, Cell biology, and Environmental Conservation.

PSO2.Producing Contributors in the area of Biological Research, Teaching and Biodiversity Conservation

PSO3.Cultivating a generation with Scientific Ethics and Temper.

DEPARTMENT OF COMMERCE

B.Com

SEMESTER – I

Foundation Course I: CO 1121 – METHODOLOGY AND PERSPECTIVES OF BUSINESS EDUCATION

Course outcome:
1. Understand business and its role in society.
2. Identify the significance of entrepreneurship and its heuristics
3. Comprehend the business environment
4. Initiate the students to undertake business activities
5. Ensure a holistic, comprehensive and integrated perspective to business education

Core Course I: CO 1141 – ENVIRONMENTAL STUDIES
Course outcome:
1. Enable the students to acquire basic ideas about environment and emerging issues about environmental problems.
2. Aware about the need and importance of environmental protection

3. Develop knowledge and understanding of the environment and enable the students to contribute towards maintaining and improving the quality of the environment.

Core Course II: CO 1142 - Functional Application of Management

Course outcome:

1. Familiarise the students with various aspects of organizational management.
2. Give an understanding on the functional application of management

Complementary Course I: CO 1131 – MANAGERIAL ECONOMICS

Course outcome:

1. Familiarize the students with the economic principles and theories underlying various business decisions.
2. Equip the students to apply the economic theories in different business situations.
3. Acquaint the students with the application of economics in the context of managerial decision making.

SEMESTER – II

Foundation Course II: CO 1221-INFORMATICS AND CYBER LAWS

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Course outcome:

1. Review the basic concepts and fundamental knowledge in the field of informatics.
2. Aware about the nature of the emerging digital knowledge society and the impact of informatics on business decisions.
3. Awareness about the cyber world and cyber regulations.
4. Update and expand informatics skills and attitudes relevant to the emerging knowledge society and to equip the students to effectively utilise the digital knowledge resources for business studies

Core Course III: CO 1241 - BUSINESS COMMUNICATION AND OFFICE MANAGEMENT

Course Outcome:

1. Develop communication skills among students relevant to various business situations
2. Impart knowledge on the management of Modern Offices.

3. Explore the talents in business communication and enable the students to understand the appointment and role of a Company Secretary in business.

Core Course IV: CO 1242 - FINANCIAL ACCOUNTING

Course Objectives

1. Familiarize the students with Accounting Standards.
2. Equip the students to prepare the accounts of special business areas.
3. Impart knowledge and understanding of the principles and concepts of financial accounting and develop the skill required for the preparation of financial statements and accounts of various business areas.

Complementary Course II: CO 1231 - BUSINESS REGULATORY FRAMEWORK

Course outcome:

1. Provide a brief idea about the framework of Indian business Laws
2. Enable the students to apply the provisions of business laws in business activities
3. Motivate the students to take up higher studies in business Laws

SEMESTER – III

CORE COURSE V: CO 1341- ENTREPRENEURSHIP DEVELOPMENT

Course outcome:

1. Familiarize the students with the latest programs of the government authorities in promoting small and medium industries.
2. Impart knowledge regarding how to start new ventures.
3. Equip the students to have a practical insight for becoming an entrepreneur.

Core Course VI CO 1342: COMPANY ADMINISTRATION

Course Outcome:

1. Familiarize the students about the salient provisions of Indian Companies Act 2013.
2. Acquaint the students about Management and Administration of Companies, Compliance requirements, investigation into the affairs of the company and Winding up procedure.

Core Course VII: CO 1343 - ADVANCED FINANCIAL ACCOUNTING

Course Outcome:

1. Create awareness of accounts related to dissolution of partnership firms.
2. Acquaint students with the system of accounting for different branches and departments.
3. Enable students to prepare accounting of consignments and joint venture.
4. Equip the students with the preparation of accounts of various business areas.

Complementary Course IV: CO 1331- INFORMATION TECHNOLOGY IN BUSINESS

Course Outcome:

1. Review the basic concepts and functional knowledge in the field of IT**.**
2. Expose the students to computer application in the field of Business.
3. Expose the students to the innovations in information technology and its potential application in business.

Elective Course I: Stream 1 – Finance

CO 1361.1 - FINANCIAL MANAGEMENT

Course Outcome:

1. Familiarise the students with the conceptual framework of financial management.
2. Enable the students to understand the practical application of financial management.
3. Provide conceptual and analytical insights to make financial decisions skilfully.

SEMESTER – IV

Core Course VIII CO 1441 Capital Market

Course Outcome:

1. Provide the students with a clear-cut idea about the functioning of Indian Capital Market
2. Provide an in-depth knowledge on Capital Market

Core Course IX CO 1442 BANKING THEORY AND PRACTICE

Course Outcome:

1. Provide basic knowledge of the theory and practices of banking.
2. Familiarize the students with the changing scenario of Indian Banking.

3. Expose the students to the changing scenario of Indian banking.

Core Course X: CO 1443 - CORPORATE ACCOUNTING

Course Outcome:

1. Enable the students to develop awareness about corporate accounting in conformity with the provisions of Companies Act, IAS and IFRS.
2. Enable the students to prepare and interpret financial statements of joint stock companies in different situations.
3. Expose the students to the accounting practices prevailing in the corporate.

Complementary Course III: CO 1431 - BUSINESS STATISTICS

Course Outcome:

1. Enable the students to gain understanding of statistical techniques as are applicable to business.
2. Enable the students to apply statistical techniques for quantification of data in business.
3. Develop the skill for applying appropriate statistical tools and techniques in different business situations.

Elective Course II: Stream 1 - Finance

CO 1461.1 - PROJECT FINANCE

.Course Outcome**:**

1. Provide knowledge on the concept of project finance.
2. Highlight the sources and application of finance.
3. Enable the students to learn the process and issues relating to preparation, appraisal, review and monitoring of projects.

SEMESTER – V

Core Course: XI: CO – 1541: FUNDAMENTALS OF INCOME TAX

Course Outcome:

1. Familiarize the students about the fundamental concepts of Income Tax
2. Enable the students to acquire the skills required to compute Gross Total Income with more emphasis on income from salary and income from house property.
3. Impart the basic knowledge and understanding of the concepts and practices of Income Tax Law in India.

Core Course XII: CO 1542 - COST ACCOUNTING

Course Outcome:

1. Familiarize the students with cost concepts.
2. To make the students learn cost accounting as a separate system of accounting
3. Impart knowledge of cost accounting system and acquaint the students with the measures of cost control.

Core Course XIII: CO 1543- ACCOUNTING FOR SPECIALISED INSTITUTIONS

Course Outcome:

1. Familiarise the students with the accounting practices prevailing in various specialised institutions.
2. Acquaint the students with the preparation of final accounts of the specialized
3. Develop the skill for the preparation of final accounts of specialised institutions and enable the students to acquire professional competence in accounting.

Open Course 1. CO 1551.3 CAPITAL MARKET OPERATIONS

Course Outcome:

1. Create an interest among students towards stock market investment
2. Familiarize the students with capital market operations

Elective Course III: Stream 1 - Finance

CO 1561.1 Financial Markets and Services

Course Outcome:

1. Provide a general awareness about the financial markets and services
2. Familiarize the students with the structure and functioning of the financial markets and financial service sector in India

. **SEMESTER – VI**

Core Course XIV: CO 1641 – AUDITING

Course Outcome:

1. Understand the principles and practice of auditing
2. Familiarise the students with the principles and procedure of auditing.
3. Enable the students to understand the duties and responsibilities of auditors.

Core course XVI: CO 1643 - MANAGEMENT ACCOUNTING

Course Outcome:

1. Develop professional competence and skill in applying accounting information for decision making.
2. Equip the students to interpret financial statements with specific tools of management accounting.
3. Enable the students to have a thorough knowledge on the management accounting techniques in business decision making.

ELECTIVE COURSE VI: CO 1661.6 MARKETING MANAGEMENT

Course Outcome:

1. Provide knowledge of the concepts, principles, tools and techniques of marketing.
2. Help the students to understand marketing concepts and its applications
3. Make the students aware of modern methods and techniques of marketing.

CO 1661.1 – INCOME TAX LAW AND ACCOUNTS

Course Outcome:

1. Equip the students with the practical skill and knowledge of Income Tax Law and Accounts.
2. Enable the students to understand the provisions of Income Tax for computing Total Income and Tax Liability of various persons.
3. Familiarize the students with the procedure of income tax assessment.

Program Outcome

The Bachelor of Commerce aims to provide students with the knowledge, tools of analysis and skills with which to understand and participate in the modern business and economics world, to prepare them for subsequent graduate studies and to achieve success in their professional careers

1. Graduates of this degree will be knowledgeable across the core requirements of the degree.
Graduates will be able to:

- Demonstrate knowledge of major theories and models in key areas of organisational behaviour.

- Analyse organisational problems and generate realistic solutions based on current academic research in organisational behaviour
- Demonstrate a knowledge of macroeconomic theory as it relates to current macroeconomics policy and issues
- Demonstrate a knowledge of microeconomic theory as it relates to markets, firms, government policy, and resource allocation
- Demonstrate a knowledge of key concepts underlying quantitative decision analysis
- Apply basic mathematical and statistical skills necessary for analysis of a range of problems in economics, actuarial studies, accounting, marketing, management and finance

2. Graduates of this degree will be knowledgeable of an area of specialisation in the Faculty.
Graduates, subject to their areas of specialisation, will be able to:

- Demonstrate knowledge of the theories, concepts and findings of the Faculty specialisations

3. Graduates of this degree will be knowledgeable of domestic and international economic and organisational environments.
Graduates will be able to:

- Analyse commerce /business issues in the international contexts
- Compare international contexts and issues through the lens of the commerce disciplines
- Evaluate national and international debates and discussions on economic, commercial, and business issues

4. Graduates of this degree will be knowledgeable of disciplines outside the faculty.
Graduates will be able to:

- Demonstrate an understanding of the concepts, principles, theories and arguments of their selected areas of study outside the core disciplines of economics and business.

Program Specific Outcome

Graduates of the degree will have the capacity to:

- Work collaboratively and productively in groups.
- Use basic mathematical and statistical tools of analysis.
- Apply critical and analytical skills and methods to the identification, evaluation and resolution of complex problems.
- Engage confidently in self-directed study and research.
- Communicate ideas effectively in both written and oral formats.
- Operate effectively in multicultural and diverse environments.
- Use effectively information from diverse sources.
- Be proficient in the use of appropriate information technologies.
- Critically evaluate new ideas, research findings, methodologies and theoretical frameworks in a specialised field of study.
- Recognise and understand the ethical responsibilities of individuals and organisations in society.

- Analysis and evaluation of evidence in the commerce disciplines in support of an argument, proposition or solution to problems in organisations and in society.
- Strategic and critical thinking in relation to business and commerce related issues.

- Knowledgeable across disciplines.
- Synthesis of knowledge across disciplines.
- Problem solving through the application of appropriate theories, principles and data.
- Skilled in the use of computer systems and software used in commerce and business through practical assignments, exercises and demonstrations.

- Aware of cultural differences and able to account for these in developing solutions to commerce related problems.

- Effective communicators on matters related to economics and commerce
- Participants in discussion and debate on national and international issues related to the disciplines of the faculty.

- Effective decision makers in business and commerce.
- Ethical and collegial in professional practice.

M.Com

SEMESTER 1

PAPER 1 – CONTEMPORARY MANAGEMENT CONCEPTS AND THOUGHT

Course Outcome:

1. Create awareness and interest among the students in modern management concepts and thought
2. Enable the students to choose appropriate functional area of management in their future studies.

PAPER 2-MANAGEMENT INFORMATION SYSTEM

Course Outcome:

1. Make the students aware of the need for information systems, its application in managerial decision making.
2. Make the students aware of the recent trends in information system.

PAPER 3 – RESEARCH METHODOLOGY

Course Outcome:

1. Provide an insight into the fundamentals of social science research
2. Understand the need, significance and relevance of research and research design
3. Acquire practical knowledge and required skills in carrying out research

PAPER 5- ADVANCED CORPORATE ACCOUNTING

Course Outcome:

1. Make the students to understand International Financial Reporting Standards and tools & techniques in various accounting situations.
2. Expose the students to advanced accounting issues and practices like Investment, Consolidation of financial statements, Liquidation etc.

SEMESTER II

PAPER 1- E-BUSINESS & CYBERLAWS

Course Outcome:

1. Equip the students with the emerging trends in business
2. Equip the students to introduce and explore the use of information technology in all aspects of business
3. Familiarise with the students cyber world and cyber regulations

PAPER 2- BUSINESS ETHICS AND CORPORATE GOVERNANCE

Course Outcome:

1. Impart knowledge on Business Ethics and Social responsibility of Business
2. Provide knowledge of various factors influencing the corporate sector

PAPER 3- QUANTITATIVE TECHINIQUES

Course Outcome:

1. Impart expert knowledge in the application of quantitative techniques in research.
2. Impart knowledge in the use of SPSS in processing and analysis of data

PAPER 4-INTERNATIONAL BUSINESS

Course Outcome:

1. Provide an understanding of international business and its various dimensions

PAPER 5-STRATEGIC MANAGEMENT

Course Outcome:

1. Create a conceptual awareness on various strategies
2. Familiarise students with the formulation and implementation of strategies

SEMESTER III

PAPER 1-INCOME TAX PLANNING AND MANAGEMENT

Course Outcome:

1. Expose the students to the latest provisions of Income Tax Act.
2. Identify the Tax Planning and Assessment Procedures for Individuals, Firms and Companies.

PAPER 2-SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT

Course Outcome:

1. Provide the students a comprehensive understanding on the areas of security analysis and portfolio management and acquainting them with various tools and techniques for making prudent investment decisions.
2. Identify the principles of security analysis and the development of skills in portfolio management.
3. Understand the inputs from IFM and Financial services

PAPER 3- STRATEGIC FINANCIAL MANAGEMENT

Course Outcome:

1. Convey the basic concepts of strategic financial management.
2. Impart knowledge on strategies that support corporate finance.

PAPER 4-Advanced Cost and Management Accounting

Course Outcome:

1. Comprehend and familiarize the established techniques, methods and practices in advanced Cost and Management Accounting to the students.
2. Introduce the evolving dynamic Cost and Management Techniques developed to support the emerging business models.

SEMESTER IV

PAPER 1-INDIRECT TAX LAWS AND PRACTICES

Course Outcome:

1. Gain expert knowledge of the principles and laws relating to the Service Tax, Central Excise Duty, Customs duty and Central Sales Tax

PAPER 2- INTERNATIONAL FINANCE

Course Outcome:

1. Familiarise the students with the international financial markets and instruments.
2. Create awareness on the global financial markets and institutions
3. Convey an understanding on the management of funds by MNCs

PAPER 3-MANAGEMENT OPTIMIZATION TECHNIQUES

Course Outcome:

1. Impart knowledge on various facets of project management viz. project preparation, feasibility study as well as project scheduling and monitoring.
2. Convey basic principles of project optimization using various Operational Research tools.

PAPER 4-FINANCIAL STATEMENTS- INTERPRETATION AND REPORTING

Course Outcome:

1. Familiarize the students about the new developments in the reporting of financial statements.
2. Equip the students with the techniques to interpret the financial statements

Program outcomes

The students will develop an ability to apply knowledge acquired in problem solving

- The students will be ready for employment in functional areas like Accounting, Taxation, Banking, Insurance and Corporate Law

- Students will be able to pursue their career in teaching and research

- Students will exhibit inclination towards pursuing professional courses such as CA/ CS/ CFA etc.

- Students will be able to handle computer based software in areas of Accounting, Taxation, and Banking

- Ability to work in teams with enhanced communication and inter-personal skills

- Ability to start entrepreneurial activities

- An inclination towards lifelong learning and acquiring contemporary knowledge

- An informed, aware and active citizen

Program Specific Outcomes:

- After completion of the programme students will have an in-depth knowledge of Accounting, Finance, Taxation and Business laws

- The students will have basic understanding in Business Mathematics, Economics, Statistics, Operations Research and Management

- The program prepares the students to build competencies for research activities

- The program aims to equip the students with professional skills, inter personal skills and entrepreneurial qualities

- To inculcate ethical values, team work, leadership and managerial skills

DEPARTMENT OF HISTORY

Course Outcome

Methodology and Perspectives of Social Science –

CO - Familiarize the main concerns of Social Science disciplines

Cultural formation of the Pre-Modern World

CO – Aware about the conceptual and general issues regarding culture and civilization of the ancient period

Evolution of Early Indian Society and Culture

CO – familiarize with the heritage of India

Medieval India Socio-Cultural Processes

CO – Equip with an idea on the Social – Cultural and administrative features during the medieval period

History of Modern World (Part 1)

CO – Familiarize about the changes in the history of modern world

Major Trends in Historical Thoughts and Writings

CO- Enable to understand the history of historical writings

Colonialism and Resistance Movements in India

CO – Analyze the circumstances that led to the establishment of colonialism in India and analyze the resistance movements against the British

History of Modern World (Part 2)

CO – Gets an idea about the First and Second World Wars and evaluate the achievements and failures of the international organizations

History of Pre-Modern Kerala

CO- Gets an idea on early and medieval Kerala History, Society, Polity and Economy

Making of Indian Nation

CO- Aware about the various stages in the Indian National movements

Making of Modern Kerala

CO – Familiarize about European advances, Socio-Political agitations, social reform movements and the formation the State of Kerala

Major Trends in Indian Historical Thought and Writings

CO – To understand the origin and development of historical writings in India

Contemporary India

CO- Provide with a graphic account of the circumstances that led to the formation of Indian Union

The Twentieth Century Revolutions

CO – Introduce the four Major Revolutions of the 20th century (Russian, Chinese, Cuban and Vietnamese)

Introduction to Archaeology (Open Course)

CO - Introduces the basic awareness of the development of Archaeology, Exploration, and Museums etc.

Project Work

CO – to understand any social Problem relevant to the study of History

Program Outcomes

(a) An understanding of the past and in depth of knowledge concerned with specific historical periods

(b) Giving an aid to the students for knowing an understanding about the cultures and traditions of the societies

(c) show students' familiarities with major events, personalities and issues related to the period being taught and studied

Program Specific Outcomes

Understanding the Students an elementary awareness about the chronological seque3nce of world events and its social and cultural interaction with the humans through ages

DEPARTMENT OF ECONOMICS

B.A Economics - Course Outcome

EC01Methodology and Perspectives of social sciences intends to familiarises the common methodology of social sciences with which the student can understand and explain a social phenomenon with clarity and precision. It also gives the students an insight into the origin and development of economic ideas and their interrelations.

EC02 Microeconomics – I enables the students to analyse how individual decision-makers, both consumers and producers, behave in a variety of economic environments.

EC03Informatics provides basic informatics skills and attitudes relevant to the emerging knowledge society and also equip the students to effectively utilize the digital knowledge resources for their chosen courses of study.

EC04 Microeconomics – II provides the students an understanding of the various market structures and also the normative aspects of microeconomics and also the analysis of real world characterized by uncertainty and asymmetric information.

EC05 Basic Tools for Economics – I facilitates the students to understand economic concepts with the aid of mathematical tools and enable them to quantify the variables.

EC.06 Macroeconomics - I makes the students understand the theoretical framework and the working of an economy as a whole and also about the basic macroeconomic concepts and policy alternatives used in controlling the economy.

EC.07 Money and Modern Banking gives an idea to the students about the evolution and role of money in the economy and also provides an insight into the innovative role of banks in the changing economic set up.

EC.08 Macroeconomics – II helps the students to understand the theoretical development of the macroeconomic issues of inflation, unemployment and business fluctuations.

EC.09 Economics of Growth and Development enable the students understand the basic concepts of Development and Growth ,provides the theoretical framework for growth and development discourses under different schools of economic thought and a better insight and knowledge on issues and challenges on economic development.

EC.10 Indian Economy provides the students an understanding of the various issues of the Indian Economy, enabling them to comprehend and critically appraise current issues and problems of Indian economy.

EC.11 Public Economics intends to provide basic information to students on the scope of Public Economics, significance of government and its functions, governmental finance and its economic impacts, and budgeting with special reference to India.

EC.12 Human Resource Management (HRM) enables the students to understand the significance of Human Resource in constituting economic growth.

EC.12 Kerala Economy makes the students understand the structural changes, sectoral aspects and features of the Kerala Economy and also the emerging trends and issues of Kerala Economy.

EC.13 Financial Economics familiarises the students with the basic concepts in financial economics, role of finance in the operation of an economy, the operation of the Indian Financial System and the activities in the financial markets.

EC.14 Basic Tools for Economics equip the students with statistical tools and techniques and enable them to apply these tools in economics.

EC.15 International Economics enables the students to understand the basic concepts and theories of international trade and also an

understanding of the emerging trends, issues and polices in the field of international Economic system.

EC.16 Industrial Economics provides the students an understanding of the aspects of industrial structure and location, theories related to Industrial economics and the role of policy in the context of competition, industrial policies and regulation.

M.A Economics - Course Outcome

EC001 Microeconomics - I equips the students to analyse how individual decision-makers, both consumers and producers, behave in a variety of economic environments.

EC.002 Economics of Growth and Development makes the students understand the theoretical dynamics and practical strategies of growth and development.

EC.003 Indian Economic Policy-I helps the students to analyse the various issues of the Indian economy with a policy perspective.

EC.004 Quantitative Methods – I enables the students to apply the quantitative techniques in finding solution to economic problems.

EC.005 **Microeconomics - II** provides the students an understanding of the normative aspects of microeconomics and also the analysis of real world characterized by uncertainty and asymmetric information.

EC.006 Economics of Social sector and Environment gives the students an understanding and application of the key economic concepts in the context of sectors like education, environment and healthcare.

EC.007 Indian Economic Policy Kerala's economy provides an understanding of the sectoral development that has taken place in Indian economy as well as in Kerala economy with a view to look into the national and regional issues with a policy perspective.

EC.008 Research Methodology and Econometrics provides basic econometric methodology which enables them to apply real economic data by means of empirical models.

EC.009 Macroeconomics - I makes the students understand the structural underpinnings of theoretical development of macroeconomic thoughts and their application.

EC.010 International economics - I provides a framework for consistent reasoning about international flow of goods, factors of production, and financial assets, trade policy and monetary in the open economy.

EC.011 Public Economics makes the students understand the theoretical and empirical dimensions of public goods and public choice, fiscal instruments and fiscal federalism with special reference to India.

EC.012 Macroeconomics – II helps the students to understand the latest development of the macroeconomics in dealing with issues like inflation, unemployment and business fluctuations.

EC.013 International economics – II familiarise the students with the theories of international finance flows, determination of interest and exchange rates in interconnected economies, macroeconomic policies available to the government and the nature of financial crisis.

EC.014 Finance and capital markets economics provides the students an understanding of financial institutions, financial markets, financial instruments and financial services.

EC.015 Agricultural Economics equip the students with the knowledge and skills required to analyse the agricultural economic issues for efficient use of scarce resources in agricultural sector and its development, consistent with the interest of all stakeholders.

EC.016 Industrial Economics provides the students to use theoretical models to understand industries and regulatory decision making, basic

issues in the industrial development of India and international experience of industrial progress.

DEPARTMENT OF CHEMISTRY

B.Sc. Degree Chemistry Program

The first degree programme in Chemistry comprises of fourteen core courses one project cousre , one elective courses , one open course ,one core specific foundation course ,one area specific foundation course ,the complementary courses and and language courses. The open course in Vth semester is open to students from other majors.

Semester – I Course code CH1141 Inorganic Chemistry I

CO 1 - Studied about the structure of atom dual character of electron
CO2- The importance of hydrogen, its similarities and dissimilarities with the other elements in the periodic table and as a fuel of next generation
Co3-will give knowledge about S- block elements in the periodic table
CO-4- About the importance of non-aqueous solvents and students identifie the difference between acids and bases
CO5- about the environment and causes of environmental pollution and its remedies -about causes of water pollution and its remedies

Semester - IICourse code CH1221 Foundation course II

CO1- Help the student understand how Science or Specially Chemistry works.Able to understand scientific laws, and importance of models,simulationsand virtual testing in Chemistry

CO2- On completion of this course student understand about the basic ideas of interdisciplinary areas involving Chemistry

CO3- Help the student to understand the difference between hypothesis and law . He Will be able to prepare a project report.

CO4- Student understand about Information Technology nad Chemiinformatics

CO5- He will learn about Qualitative and Quatitative analysis in Chemistry

CO6- Analytical Chemistry help the student to understand about the experimental part of the theory and measures which could follow when doing experiments using chemicals

Semester III Course code-CH1341 Inorganic Chemistry II

CO1- To provide a necessary foundation for Inorganic Chemistry

CO2- This course build a thorough knowledge in Chemical bonding and compounds of non-transition elements

CO3- Give an elementary idea about nanomaterials

CO4- It aims to to lay a strong foundation in the area of Nuclear Chemistry

Semester IV Course code CH 1441Organic Chemistry Paper I

CO1- It imparts the behavior of aliphatic and aromatic compounds

CO2- It introduces the concept of reaction mechanism

CO3- Make the students to understand the mechanism of reactions of organic compounds,stereochemical aspects,photochemical reactions and aromaticity.

CO4- It make an awareness about the theory of colour and dyes

Semester V Course code CH 1541 Physical Chemistry I

CO1- Students will gain exposure and practice in the area of different state of mater like gaseous state, liquid state and solid state.

CO2- Students will become aware of determination of molecular mass of solutes from colligative properties

CO3- They understood about Abnormal molecular mass,determination of degree of dissociation and association

CO4- They understood about laws of thermodynamics and its importance in industry

CO5- They should be aware of group theory and liquid crystals

Semester V course code CH1542 Inorganic Chemistry III

CO1-tudents will get practice in the area of coordination Chemistry,transition and inner transition elements

CO2- Students understood about the classification of organomettalic compounds and their role in organic synthesis

CO3- They knew about the role of metal ions in biological systems.and the Chemistry behind the oxygen carrying role of Haemoglobin

CO4- They understood about the different steps in the separation of metals from their ores

CO5- They knew abut different instrumental methods of analysis like TG,DTA,and DSC

Semester V Course code CH1543 Organic Chemistry II

CO1- They understood about the methods p[reparation and properties of alcohols ,aldehydes,ketones and carboxylic acids

CO2- The understood about the mechanism of several organic reactions and interconversions

CO3- They became expert in identifying organic compounds using spectroscopy

CO4- They beame aware of supramolecular Chemistry and Green Chemistry

Open course

Semester V Course-CH1551.3 Environmental Chemistry

CO1- studied about the structure of atmosphere
CO2-About the sources and causes of Air pollution
CO3-About the sources and causes of water polution
CO4- About the sources and causes of land pollution Marine pollution and radio active polution
CO5- Majour environmental disasters , itai-itai diseases,
CO6- studied about environmental laws

Semester VI course code CH1641 Physical Chemistry II

CO1- Students will explain and apply the concepts of Thermodynamics, Quantum Mechanics and Spectroscopy to chemical and biochemical systems
CO2- Students will be able to derive essential mathematical relationship in Thermodynamics, and Spectroscopy
CO3- Students will evaluate physical chemical systems by nonspectroscopic techniques

Semester VI Course codeCH1642 Organic Chemistry III

CO1- Students understood about the difference between mosaccharide, disaccharides and polysaccharides in Carbohydrates
CO2-They studied about the structural difference between glucose and fructose
CO3- They understood about the importance of heterocyclic compounds in drugs.
CO4-They knew about the synthesis of protins from aminoacids
CO4- They understood about the nucleic acids DNA and RNA
CO4- They understood about Terpenes alkaloids vitamins and lipids
CO5- They became aware of the preparion of soap and detergents and cleaning action of soaps and detergents
CO6- They knew about polymers and polymerization reactions

Semester VI Course code CH1643 Physical Chemistry III

CO1- The important outcome of this course is the y understood about the speed of chemical reaction and the methods we can use to increase the speed of reactions. This is very useful in industries
CO2- They studied how a reaction attains equilibrium and what are the factors affecting equilibrium
CO3- Studied the phase diagram of different reactions and photochemical reactions
CO4- Knew about fuel cells, Primary cells and secondary cells

Lab course

Semester 2

CO1- Help the people to know about the use of computer and internet in learning
CO2- Students know about the educational softwares ,information mining from internet using inflibnet /NICNET

CO3- Understand chemical structure drawing, visualization of molecules using Chemistry softwares

Semester I, III.IV Course codeCH1442

CO1- can practice the qualitative inorganic analysis using microscale methods of a mixture containing two acidic and two basic radicals
CO2- Can prepare inorganic compiexes in normal laboratory conditions

Semester V course code CH1544 Inoganic Volumetric Analysis

CO1- Able to prepare solutions of different concentrations
CO2- Understand the method standardization and estimation of solutions
CO3- Familiar with the Quantitative analysis –Volumetric analysis

Semester V course code CH1545 Physical Chemistry Experiments

CO1-Understand the experiment and calculation of molecular masses of solute using depression in freezing point method
CO2- Familiar with conductometric titrations and potentiometric titrations
CO3- Able to find out the critical solution temperature of phenol-water system
CO4- Able to find out the concentration of acids and bases using conductometric titrations
CO5- Became familiar with potentiometric titrations

Semester VI course codeCH1644 Organic Chemistry Experiments

CO1- Able to find out the melting and boiling points of different substances
CO2- practice to prepare different organic compounds
CO3- Understand the qualitative organic analysis

Semester VI course codeCH1645 Gravimetry
CO1- Able to understand the difference between volumetric and gravimetric analysis
CO2-Get practice on gravimetric analysis of different matals

Semester V & VI Course code CH1646 Chemistry project and factory visit
CO1- Inculcate proficiency to identify appropriate Project.
CO2-Familarise the prepation of project report and its presentation

CO3- Study tour in a factory or research institute help the student to visualize the chemical reactions and understand the working of sophisticated instruments

Elective course
Semester VI course code CH1651.1 Supramolecular, Nanoparticles and Green chemistry

CO1- explores how to apply the 12 Principles of Green Chemistry in the real world
CO2-Study about the green Chemistry route for some chemical reactions
CO3- Students will get a basic knowledge about nanomaterials and their preparations
CO4- Understand the charactarisation techniques of nano compounds
CO5- They will get an idea about supramolecular Chemistry

COMPLEMENTARY CHEMISTRY

Physics Major

SEMESTER I Course code CH1131 .1 Theoretical chemistry
CO 1- explain about the structure of atom and electronic configuration
CO2- Studied about the different types of bonding in atoms
CO3- Understand Rock dating, Stability of atom,Atomic fission ,atomic fusion
CO4-- Came to know about the theory of volumetric analysis – Acid- Base titration, permanganometry, iodometry etc

SEMESTER 1I Course Code -CH1231 .1Physical Chemistry I

CO1- Deals about the First and second law of Thermodynamics
CO2- Explain about the heat changes taking place during Chemical reactions
CO3- Understand about reversible reactions and chemical equilibrium
CO4-Came to know about concepts of acids and bases, pH and its determination

Semester III Course code CH1331.1 Physical Chemistry II

CO1-Students identify why real gases are deviating from ideal behavior.
CO2- They understand the method to liquefy gases
CO3- Study about he structure of sodium chloride and other crystals

CO4- Understand about emf, standard electrodes, fuel cells and potentiometric titrations
Co5- They study how the rate of reactions can be changed using catalysts and radiations
CO6- Get knowledge about Symmetry, point groups, and group multiplication table

Semester IV Course code CH1431.1 Spectroscopy and Material Chemistry

CO1- Students wii be able to identify molecules using spectroscopy
CO2- Able to understand coordination Chemistry and Metallurgy
CO3- Understand the different methods used to separate metals from their ores
CO4-Study about the preparation and charactarisation of nano materials

Laboratory courses
Semesters I,II,III,& IV Course code CH1432.2
CO1- Study the methods for the inorganic qualitative analysis
CO2- Able to separate and identify Cations and anions from mixtures
CO3- study the different methods for quantitative analysis

Botany major
Semester I Course code CH1131.3 Theoretical Chemistry

CO 1- explain about the structure of atom and electronic configuration
CO2- Studied about the different types of bonding in atoms

CO3- about the environment and causes of environmental pollution and its remedies -about causes of water pollution and its remedies
CO4- Came to know about the theory of volumetric analysis – Acid- Base titration, permanganometry, iodometry etc

Semester II Course code CH1231.3 Inorganic and Bioinorganic Chemistry

CO1- Studied how metals are linked with organic compounds and the applications of these compounds

CO2-- It aims to to lay a strong foundation in the area of Nuclear Chemistry

CO3- Study the application of metal complexes in qualitative and quantitative analysis

CO4- They knew about the role of metal ions in biological systems and the Chemistry behind the oxygen carrying role of Haemoglobin

Semester III course code CH1331.3 Physical Chemistry

CO1- understood about the speed of chemical reaction and the methods we can use to increase the speed of reactions. This is very useful in industries
Co2- They studied how a reaction attains equilibrium and what are the factors affecting equilibrium
CO3- Know about Solutions and dilute solutions
CO4- Know how spectroscopy can be used to find out the structure of simple molecules

Semester IV Course code CH1431.3 Organic Chemistry

CO1-Study about different types of chromatographic techniques for the separation of mixtures
CO2- Know about the synthesis of proteins from aminoacidsa
CO3-Study about oils, fats,alkaloids vitamins and terpenes
CO4- familiar nwith the cleaning action of sopaps and detergents
CO5- Study about dyes and drugs

Lab course

Semester I,II,III& IVCourse code CH1432.3

CO1- Study the methods for the organic qualitative analysis
CO2- Able to identify organic substances
CO3- study the different methods for quantitative analysis

Zoology Major
Semester I Course code CH1131.4 Theretical Chemistry

CO1- explain about the structure of atom and electronic configuration
CO2- Studied about the different types of bonding in atoms
CO3- Understand Rock dating, Stability of atom, Atomic fission, atomic fusion
CO4-Came to know about the theory of volumetric analysis – Acid- Base titration, permanganometry, iodometry etc

Semester II Course code CH1231.4 Inorganic Chemistry

CO1- Studied how metals are linked with organic compounds and the applications of these compounds

CO2-- It aims to lay a strong foundation in the area of Nuclear Chemistry

CO3- Study the application of metal complexes in qualitative and quantitative analysis

CO4- They knew about the role of metal ions in biological systems.and the Chemistry behind the oxygen carrying role of Haemoglobin

Semester III Course code CH1331.4 Organic Chemistry

CO1- Students understood about the difference between mosaccharide, disaccharides and polysaccharides in Carbohydrates
CO2-They studied about the structural difference between glucose and fructose
CO3-They knew about the synthesis of protins from aminoacids
CO4- They understood about the nucleic acids DNA and RNA
CO5- study the mechanim of organic substitution reactions and Stereo Chemistry

Semester IV Course code CH1431.4 Physical Chemistry

CO1- The important outcome of this course is the y understood about the speed of chemical reaction and the methods we can use to increase the speed of reactions. This is very useful in industries
Co2- They studied how a reaction attains equilibrium and what are the factors affecting equilibrium
CO3- Know about Solutions and Colloids and applications of colloids
CO4- Know how spectroscopy can be used to find out the structure of simple molecules

Lab Course
Semester I, II,III,&I course code CH1432.4

CO1- Study the methods for the organic qualitative analysis
CO2- Able to identify organic substances
CO3- study the different methods for quantitative analysis

Programme Outcome

This programme provide the student an indepth understanding of the basic concepts of Chemical Sciences and enable them with tools needed for the practice of Chemistry,which remains a discipline with much stress on experimentation . It attempts to provide a detailed knowledge of the terms, concepts,methos, principles and experimrntatal techniques of Chemistry.The interdisciplinary approach of the program helps the student to contribute the academic knowledge to industrial requirement of the society. They will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems. . They will become proficient in the Chemistry lab. They have the ability to follow and understand general lab practice guidelines and safety measures. They can perform qualitative and quantitative chemical analysis, chemical synthesis and use modern chemical instrumentation.

M.Sc.Degree Program

M.Sc. degree chemistry program is for two years consisting of 4 semesters. It will give the students a in-depth knowledge of the fundamental theoretical concepts and experimental methods in Chemistry and have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistry, The student should get an expert knowledge of a well defined area of research with in Chemistry and will be able to design and carry out scientific experiments as well as accurately record and analyze the results of such experiments. They will be able to communicate clearly the results of scientific work in oral, written and electronic formats to both scientists and the public at large,. It will help the student to understand the relationship of Chemistry and other disciplines and applications of Chemistry.

DEPARTMENT OF ENGLISH

B.A. ENGLISH DEGREE PROGRAM

Courses Offered

LANGUAGE COURSES FOR SEMESTER I TO IV (B.A/B.SC)

First Semester

1. EN1111.1 Listening, Speaking and Reading
2. EN1121 Writing on Contemporary issues(FOUNDATION COURSE1)

Second Semester

3. EN1211.1 Environmental studies
4. EN1212.1 Modern English Grammar and Usage

Third Semester

5. EN1311.1 Writing and Presentation Skills

Fourth Semester

6. EN1411.1 Readings in Literature

LANGUAGE COURSES FOR SEMESTER I TO IV (B.Com)

1. EN1111.1 Listening, Speaking and Reading- **First Semester**
2. EN1212.1 Modern English Grammar and Usage- **Second Semester**
3. EN1311.1 Writing and Presentation Skills- **Third Semester**
4. EN1411.1 Readings in Literature- **Fourth Semester**

CORE/COMPLEMENTARY COURSES FOR B.A. ENGLISH LITERATURE & LANGUAGE

First Semester

1. EN 1141 Reading Poetry
2. EN1131History of English Literature 1(**COMPLEMENTARY COURSE)**

Second Semester

3. EN1241 Reading Drama
4. EN1231History of English Literature 2 (**COMPLEMENTARY COURSE)**

Third Semester

5. EN1341 Reading Fiction
6. EN1342 20th century Malayalam literature in English Translation
7. EN1331 History of English Literature 3 (**COMPLEMENTARY COURSE)**

Fourth Semester

8. EN 1441 Reading Prose
9. EN 1431 History of English language (**COMPLEMENTARY COURSE)**
10 EN 1421 Informatics **(FOUNDATION COURSE)**

Fifth Semester

11. EN1541 Literary criticism
12. EN1542 Indian Writing in English
13. EN 1543 Film Studies
14. EN 1544 Linguistics and Phonetics
15. EN 1545 Post Colonial literatures in English
16. EN 1551.1 Communicative applications in English **(OPEN COURSE)**

Sixth Semester

17. EN 1641- world classics
18. EN1642 Methodology and perspectives of Humanities
19. EN 1643 English for the Media
20. EN1644 Women's Writing
21. EN1661.1 Translation Studies **(ELECTIVE COURSE)**
22. EN 1645 PROJECT

Language courses

First Semester-

EN1111.1 Listening, Speaking and Reading (B.A/ B.Sc/B.Com)

CO1. Develop in the learners the ability to understand English in a wide range of contexts

CO2. Enhances general standard of spoken English with the help of phonetic training

CO3. Preparing the learners to face situations with confidence and to seek employment in the modern globalized world

EN1121 Writing on Contemporary issues (FOUNDATION COURSE1) (B.A/ B.Sc)

CO1. Enable student to develop an overall empathetic attitude towards Contemporary issues of modern world

CO2. Encourage the students to read literary pieces critically.

CO3. Sensitize the students to the major issues in the society and the world.

Second Semester

EN1212.1 Modern English Grammar and Usage (B.A/ B.Sc/B.Com)

CO1. Helps the students improve their verbal communication skills.

CO2. Equip students with necessary skill and knowledge to produce grammatically and idiomatically correct language help them minimize mother tongue influence.

EN1211.1 Environmental studies (B.A/ B.Sc)

CO1.Sensitize students towards the threats faced by environment

CO2. To enable and ensure possible means &methods for environmental protection through student community.

Third Semester(B.A/ B.Sc/B.Com)

EN1311.1 Writing and Presentation Skills

CO1. Students are trained in academic writing and other soft skills which will be helpful for them in shaping a successful career.

CO2. Help them master writing techniques to meet academic and professional needs.

CO3. Improves their reference skills, take notes, refer and document data and materials and to prepare and present seminar papers and project reports effectively.

Fourth Semester(B.A/ B.Sc/B.Com)

EN1411.1 Readings in Literature

CO1. They are able to understand and appreciate literary discourse.

CO2 Students are sensitized to the aesthetic, cultural and social aspects of literature.

CO3 They get acquainted with the best pieces of literary writing and critically analyze literature as a cultural and interactive phenomenon.

Program Outcome (B.A/ B.Sc/B.Com)

PO1. Apply the LSRW skills in the advancement of the career, higher studies and

in all walks of their future life and minimise mother tongue influence.

PO2. Develop a favourable attitude towards English literature and language.

PO3. Comprehend the importance of five skills in language acquisition.

PO4. Recognise the importance of reference skills, grammatical skills and the enrichment of vocabulary.

PO5. The knowledge of the phonetic alphabets/symbols acquired helps the students to refer the dictionary for correct pronunciation.

Program Outcome (B.A/ B.Sc)

PO1. Gets a proper understanding of the environmental issues, its intensity and anticipates precautions for preventing it in future.

PO2. The problems prevalent in the contemporary world and its awareness make them vigilant of the happenings in their surroundings.

PO3. The courage to face the crucial situations in academic, professional and everyday life adds impetus in them.

Program specific Outcomes:

PSO1. Identify the difference between academic and informal writing.

PSO2. Realize the importance of exposure to English language and how it is necessary for progression in their career.

PSO3. Apprehend the significant impact of grammatical skills in writing.

PSO4. Understand various dimensions of English language and literature.

PSO5. Develop a proper understanding of the environmental, contemporary issues.

PSO6.The students employ correct usage based on Standard English and not conceptual excellence.

CORE COURSES FOR B.A. ENGLISH LITERATURE & LANGUAGE

First Semester

EN 1141 Reading Poetry

CO1. Enhances the reading and critical skill.
CO2. Sensitize students to the language, forms and types of poetry.

CO3. Make them aware of the diverse poetic devices and strategies.
CO4. Help them to read, analyze and appreciate poetry.
CO5. Enhance the level of literary and aesthetic experience and to help them respond creatively.

Second Semester

EN1241 Reading Drama

CO1The students are equipped with different aspects of the theatre and its production.
CO2. Sensitize them to the verbal and visual language of drama
CO3. Enable the students to read, analyse and appreciate drama.

Third Semester

EN1341 Reading Fiction

CO1. They are capable of appreciating and understanding the production of fiction as a genre.
CO2. The creativity of the students gets enriched through the vast canvas of fictional literature.
CO3. Students identify the different fictional forms, analyse and appreciate fictional writings as well as write imaginatively.

EN1342 20th century Malayalam literature in English Translation

CO1. The students acquaint themselves with the world of Malayalam literature- its history till the present
CO2. They can identify the vast body of 20th century Malayalam literature.
CO3. They understand native Malayalam literature through the English opening up a way to translation studies.

Fourth Semester

EN 1441 Reading Prose

CO1. Sharpen critical and creative insight of the student.
CO2. They are acquainted with cultural diversity and divergence in perspectives.
CO3. The students are capable of analysing, understanding and appreciating prose writings.

EN 1421 Informatics (FOUNDATION COURSE)

CO1. They are well trained in the usage of Digital Resources & information technology helpful in their studies.
CO2. The students have updated and expand basic informatics skill and attitudes relevant to the emerging knowledge society.
CO3. They are capable of understanding the nature of the emerging digital knowledge society.

Fifth Semester

EN1541 Literary criticism

CO1. The students develop a better critical expertise.
CO2. They compare and relate various critical traditions prevalent in literature from ancient times to the present.
CO3.They can read and analyze literary texts from different perspectives.

EN1542 Indian Writing in English

CO1. The invaluable contribution of Indian writers to the arena of English literature is thoroughly understood by the students.
CO2. The students are capable of tracing the development of Indian writing in English.

CO3.They can explain the Indianness in Indian literature in English, read and appreciate Indian literature.
CO4. They also analyse the strength and constraints of Indian English as a literary medium.

EN 1543 Film Studies
CO1. The students are well equipped in analyzing the dynamics of Cinema.
CO2. The knowledge about its technicalities, film theories and viewing it through a critical perspective enhances a better understanding of the films at a universal level.
CO3. They would better appreciate the popular media of films than they used to do.
CO4. Enable them pursue higher studies and careers in film.

EN 1544 Linguistics and Phonetics
CO1. Sensitize them to the nuances of spoken and written forms of English
CO2. They are able to overcome specific problems resulting from mother tongue interference
CO3. They develop a neutral accent and improve their general standard of pronunciation and can speak globally intelligible English.

EN 1545 Post Colonial literatures in English
CO1. Students have gained adequate knowledge of Post Colonial literature, life and culture.
CO2. They identify what is distinctly Post Colonial literature &read and appreciate Post Colonial literature with insight.

CO3. Their aesthetic and intellectual faculties are found to be broadened.

Sixth Semester

EN 1641- world classics
CO1. They can critically evaluate and appreciate classical texts.
CO2. They broaden their outlook and sensibility through the world of the classics in literature.
CO3. They evaluate classical texts critically and assess their own culture and classics.

EN1642 Methodology and perspectives of Humanities
CO1. They get a clear sense of literature and can approach literature from a theoretical perspective.
CO2. They gain a critical perspective in pursuing literary studies.
CO3. They can make sense of literature and read literature critically from a theoretical perspective.

EN 1643 English for the Media
CO1. The students comprehend the nature and scope of the communication media
CO2. They write headlines and articles for newspapers and magazines and design their content.
CO3. They produce and present scripts and programmes for Radio and TV and can even design and write webs, blogs and advertisements.

EN1644 Women's Writing
CO1. The students understand the development of women's writing in various countries.
CO2. They are familiar with the diverse concerns addressed by feminism and are motivated to critically analyse literary works from a feminist perspective.

CO3. The students have a clear cut awareness of class, race and gender as social constructs and about how they influence women's lives.

Program Outcome

PO1. Identify the various forms and types of poetry, dramatic forms and fictional forms.

PO2. Read, analyse and appreciate poetry, drama and fiction critically.

PO3.Develop the ability to organise, evaluate and present ideas from one coherent body of knowledge.

PO4. Discern the richness and distinctiveness of twentieth century Malayalam writing.

PO5. Understand and appreciate different types of prose writing.

PO6. Use digital knowledge resources effectively for their studies.

PO7. Develop a critical perspective and capacity to relate and compare various critical practices and schools.

PO8. Trace the development of Indian writing in English.

PO9. Understand Post Colonial culture and its varying modes of literary expression.

PO10. Acquire familiarity with both the Western and the Indian theatre.

PO11. Read and appreciate classical works.

PO12. Develop critical perspective in pursuing literary studies.

Program specific Outcomes:

PSO1. Understand the nature of the emerging digital knowledge society

PSO2. Understand some of the significant concepts that had a seminal influence on the development of critical thought.

PSO3. Analyse the strength and constraints of Indian English as a literary medium.

PSO4. Broaden and sharpen the aesthetic and analytical skills.

PSO5. Discover the language of cinema.

PSO6. Analyse films as texts and write critically about films.

PSO7. Improve the general standard of pronunciation as well as speak globally intelligible English

PSO8. Broaden the aesthetic and intellectual faculties.

PSO9. Respond creatively to the world around.

PSO10. Unravel new meanings in classics of all languages accessible.

PSO11. Read literature critically from a theoretical perspective.

Complementary Courses

Courses Offered

SEMESTERI-**EN1131 History of English Literature 1(COMPLEMENTARY COURSE)**
SEMESTERII- **EN1231History of English Literature 2 (COMPLEMENTARY COURSE)**
SEMESTERIII-**EN1331 History of English Literature 3 (COMPLEMENTARY COURSE)**
SEMESTERIV-**EN 1431 History of English language (COMPLEMENTARY COURSE)**
SEMESTERV-**EN 1551.1 Communicative applications in English (OPEN COURSE)**
SEMESTERVI- **EN1661.1 Translation Studies (ELECTIVE COURSE)**
SEMESTERVI-**EN 1645 PROJECT**

EN1131 History of English Literature 1(COMPLEMENTARY COURSE)
CO1. Students gain a wholesome understanding of British History.
CO2. Students comprehend the social and political organisations in Britain.
CO3. Students understand the culture of Britain & the kind of literature that emerged out of these conditions.

EN1231History of English Literature 2 (COMPLEMENTARY COURSE)
CO1. Provide them with an insight on different periods and the English literature of those times.
CO2.The evolution of most important works in literature and the significant English writers enhance the students' knowledge and their impetus in higher studies.

EN1331 History of English Literature 3 (COMPLEMENTARY COURSE)
CO1. Students have adequate knowledge of the later periods in English literature.
CO2. The socio-political changes of the age and its impact on literary works and writers gives an anticipation of what can be expected from contemporary literary works.

EN 1431 History of English language (COMPLEMENTARY COURSE)
CO1. Students have a better understanding of the origin and the development of English language.
CO2. Students can identify the various language families& knows about the evolution of the English language.

EN 1551.1 Communicative applications in English (OPEN COURSE)
CO1. The students attain high level proficiency in all the four language skills.

CO2. They are equipped for competitive examinations and various International English Language Tests.

CO3. Their personality is fine tuned through their communication and presentation skills.

EN1661.1 Translation Studies (ELECTIVE COURSE)
CO1. The students know the concepts and theories of translation and even undertake various translation works.
CO2. The art of translation motivates most of them and this helps them to pursue translation as a profession.
EN 1645 PROJECT
CO1. The students have gained a proper insight of various aspects of research, its limitations and the vast arena of analysis.
CO2. Their research attitude and aptitude is given vent to, motivating them and preparing them for the broad areas of research awaiting them.

Program Outcome

1. Enable the students to understand and appreciate individual works from any age better, develop a sense of history.
2. Trace the evolution of the English language.
3. Respond critically and creatively to the world around having gained valuable background information about the ages, authors and works of English.

Program specific Outcomes:

PSO1. Identify the various language families.
PSO2. Draw comparisons on the literary history of English and other similar languages of importance in career development.
PSO3. Make them capable of using English effectively and intelligibly for future use and during job interviews.
PSO4. Recognise the importance of translation process and choose it as a profession.
PSO5. Make use of the research aptitude in an apt manner.

M.A. ENGLISH LITERATURE & LANGUAGE PROGRAMME

Courses Offered

First Semester

1. EL 211 Paper 1 – Chaucer to the Elizabethan Age
2. EL 212 Paper 2- Shakespeare
3. EL 213 Paper 3- The Augustan Age
4. EL 214 Paper 4- The Romantic Age

Second Semester

4. EL 221 Paper 5-The Victorian Age
5. EL 222 Paper 6-The 20thcentury
6. EL 223 Paper 7- Indian Writing in English
7. EL 224 Paper 8- Literary Theory 1

Third Semester

8. EL 231Paper 9- Linguistics & Structure of the English Language
9. EL 232 Paper 10-Literary Theory 2
10. EL 233 Paper11- Elective Paper I - European Drama
11. EL 233.6 Paper12- Elective PaperII- Women's Writing

Fourth Semester

12. EL 241Paper 13-English Language Teaching
13. EL 242 Paper 14- Introduction to Cultural Studies
14. EL 243.2 Paper 15- Elective 3- American Literature
15.EL 243.1Paper 16-Elective 4- European Fiction
16. EL 244 Comprehensive Paper
17. EL 245 - Project & Project based Viva Voce

Course Outcomes

First Semester

EL 211 Paper 1 – Chaucer to the Elizabethan Age

CO1. Student will have an overall understanding of the historical background of the age

CO2. Student has adequate knowledge of the major literary works and writers during this period.

EL 212 Paper 2- Shakespeare

CO1. Have an Enhanced and in-depth knowledge of Shakespeare's works

CO2. Understand the socio-political background of his times.

EL 213 Paper 3- The Augustan Age

CO1. Develop enriched understanding about the literal, political conditions of the period

CO2. Understand evolution of Novel as a genre

EL 214 Paper 4- The Romantic Age

CO1. Establish a deeper connection towards romantic ethos.

CO2. Understand about Romantic poets, prose writers and Novelists.

Second Semester

EL 221 Paper 5-The Victorian Age
CO1.They will be able to analyze Rise of imperialism and literature and literature as powerful tool.
CO2.The rise of colonial ideology, science and religion and their conflict, Victorian compromise and the prominent literal figure.

EL 222 Paper 6-The 20thcentury
CO1.Student will have comprehensive knowledge of the socio-political discourse of the time.

CO2.Comprehend the two major world wars, literary and aesthetic movements, liberal humanistic approaches and modernism.

EL 223 Paper 7- Indian Writing in English
CO1. Develop an insight into the recent trends in Indian English Writing and the contribution of Indian writers to the English literary scenario.

EL 224 Paper 8- Literary Theory 1
CO1. Possess an in-depth knowledge of the different literary theories and their cultural production.

Third Semester

EL 231Paper 9- Linguistics & Structure of the English Language
CO1. Possess a profound knowledge of linguistics.
CO2.Proper understanding of the structure of English Language is inculcated.

EL 232 Paper 10-Literary Theory 2
CO1.Instigates an understanding that the human societies are structured by the economic system and that all social and political activities aim at gaining and sustaining economic power.

CO2.The fact that history is not linear and progressive and that it is impossible to analyze history objectively is made available to students.

CO3. A literary text represents various aspects of colonial oppression and that media has its effects on society and culture together with media's relationship with other forms of arts and society is informed by ideology is the thought process formed in the minds of students.

CO4.Discourses wield power for those in charge and they do not remain permanent together with the fact that colonization is a process of political domination mainly based on race, ethnicity, economic greed and expansionism.

EL 233 Paper11- Elective Paper I - European Drama

CO1. Possess an innate knowledge of the Invaluable contributions of major European Dramatists and their innovative theatrical techniques are brought into light.

EL 233.6 Paper12- Elective PaperII- Women's writing

CO1. Students are able to discern the richness and variety of Women's writing and traces the female literary tradition.

Fourth Semester

EL 241Paper 13-English Language Teaching

CO1. Introduce students to the basic concepts and principles of language teaching, the schools of thought and their impact on language teaching.

CO2. Understand the role of sociolinguistics and psychology in language teaching and different teaching methods.

CO3.Students are acquainted to the manifold classroom strategies, teaching aids, the lesson plan to teach the language skills and different genres, and also the process of testing and evaluation.

EL 242 Paper 14- Introduction to Cultural Studies

CO1.Cultural Studies is a new area of research and teaching that brings in new perspectives to the notions regarding 'texts' and 'meanings' and thereby relating it to the study of literatures, cultures and societies.

CO2. Inculcate theoretical tools and critical perspective to interrogate the medias such as advertisement, film, television, newspaper and internet texts that saturate our lives.

EL 243.2 Paper 15- Elective 3- American Literature

CO1. Provide an insight into the historical background, colonization and European heritage along with an essence of American writings and the recent trends in American literature.

EL 243.1Paper 16-Elective 4- European Fiction

CO1. Delineates the beginnings of fiction in Europe, Italian renaissance, Contributions of Boccaccio, Rabelias and Cervantes, the Romantic Movement, Neo Romanticism, post modernism and Contemporary Greek fiction

EL 244 Paper 17-Comprehensive Paper

CO1. Sums up the learning output the student has achieved through the learning of literature

CO2. Tests the student's cognitive abilities in this regard

EL 245 Paper18- Project & Project based Viva Voce

CO1.Sharpens the research capabilities of the students by analyzing and arriving at their findings regarding various topics of literature

Program Outcomes

PO1. Enable the learners to take certification of Master's degree in English.

PO2. Equipped with indepth knowledge of English literature and English language.

PO3. Enable them to specialize in Linguistics, Women's Writing and other offered elective courses.

PO4. Capable of grabbing the opportunities of continuing education and professional development.

PO5. Widen the scope of the learners for careers in different sectors of employment.

PO6. Enable the students to avail career opportunities in English language teaching and research.

Program Specific Outcomes

PSO1. Develop academically sound future researchers and intellectuals in the varied areas concerning English literature and language.

PSO2. Inculcate interest in theatre and its technicalities, seeking it as a career option.

PSO3. Cultivate a generation of liberal humanistic approaches and aesthetic sense.

CORE /COMPLEMENTARY COURSES FOR B.A. ENGLISH LITERATURE & LANGUAGE
First Semester

DEPARTMENT OF BOTANY

Programme Outcome and Course Outcome – B.Sc. Botany

Course outcome

Course I. BO1141 – Angiosperm Anatomy and Reproductive Botany and Palynology

Angiosperm Anatomy is often viewed as a source of independent data that may be used to assess evolutionary relationships among angiosperms. Comparative anatomical studies document suites of correlated characters that have been interpreted as general evolutionary trends, of which several have been asserted to be irreversible. After the completion of the study an expert student or an expert person in Anatomical studies may able to identify any wood samples without plant leaf of flowers.

Course II.BO1221- Methodology and Perspectives in Plant Science

The course intends to provide the students with experience in advanced scientific techniques used in modern plant science through an intensive course. The course will cover state of the art techniques and methods within Plant Research, including the genetic basis of several important plant properties. In addition to this, students achieve an interest in plant Research. The course will be relevant for students who wish a practical introduction to the newest techniques and theory within plant science and who wish to understand the potentials of these techniques in future plant production.

Course III. BO 1341- Microbiology, Phycology, Mycology, Lichenology and Plant Pathology

In this paper aims the students get awareness of different microorganisms and it importance. In this stage beneficial and harmful effect of microorganism will be discussed.

Course IV. BO 1441- Bryology Pteridology, Gymnosperms and Paleobotany

The importance of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany will be discussed in this paper. For example Bryphytes are important in initiating soil formation on barren terrain, in maintaining soil moisture, and in recycling nutrients in forest vegetation. Indeed, discerning the presence of particular bryophytes is useful in assessing the productivity and nutrient status of forest

types. Further, through the study of bryophytes, various biological phenomena have been discovered that have had a profound influence on the development of research in such areas as genetics and cytology. In this study, give awareness the students to the importance of conservation of this species for future aspects.

Course V. BO1541- Angiosperm Morphology, Systematic Botany, Economic Botany, Ethnobotany and Pharmacognosy

Plant morphology "represents a study of the development, form, and structure of plants, and, by implication, an attempt to interpret these on the basis of similarity of plan and origin. Plant morphology is useful in the visual identification of plants. Systematic Botany helps to study the arrangements of plants in different families and students get chance to identify plants in surrounding localities. The study of Economic botany helps to the importance and uses of plant and plant parts. Ethonbotany give a chance to familiarize the traditionally useful medicinal plants. Pharmacognosy as a course should be one of the fundamental contents of Pharmacy curriculum in view of its meaning and the content of the course. Generally Herbs are also best source of novel medicines, thus its necessary to understand the medicinal purposes of herbs.

Course V. BO1542- Environmental Studies and Phytogeography

The aim of the Course as follows

The students familiarize with modern environmental concept like how to conserve biodiversity, to know the more sustainable way of living, to use natural resources more efficiently, to know the behavior of organism under natural conditions, to know the interrelationship between organisms in populations and communities and to aware and students regarding environmental issues and problems at local, national and international levels.

The main theme of the study of plant geography is to discover the similarities and diversities in the plants and floras of the present and past found in widely separated parts of the earth.

Course V. BO 1543 - Cell Biology, Genetics and Evolutionary Biology

The study of cell biology helps to understand tissue morphogenesis and disease pathogenesis; ultimately we must understand what happens at the *cellular* and molecular levels.

Genetics is the *study* of genes, *genetic* variation, and heredity in living organisms. It is generally considered a field of biology, but intersects frequently with many other life sciences and is strongly linked with the *study* of information systems. A brief idea may generate in student community in connection with genetics and its uses in modern medicine.

Aware the students to understand the evolution and its importance. It helps us solve biological problems that impact our lives and to control hereditary diseases in people,. In these ways, knowledge of evolution can improve the quality of human life.

Course V. BO1551.3 Forestry

Forestry provides a focused lense through which to understand, influence and practice sustainable resource management and utilization, as well as sustainable development. Unlike environmental science, it is a profession and craft as well as a field of *study*

Course VI. BO1641- Plant Physiolgy and Biochemistry

The knowledge of plant physiology will help in forging several advances in agriculture, horticulture, forestry, plant pathology and other disciplines of botany. In fact, researches in plant physiology have been and are likely to contribute immensely to crop improvement. Increase in crop production is based on exploiting maximal levels or plant metabolic processes.

The study of Biochemistry combines both biology and chemistry as equal components. When one *studies biochemistry*, he will come to have an intimate knowledge about the function as well as structure of molecular components within the human body.

Course VI. BO1642- Molecular Biology, General informatics and Bioinformatics

Molecular Biology study helps students to find out information of the molecular basis of life processes, including cellular respiration, excretion, and reproduction.

General Informatics may help to the study of informatics with computational, mathematical, biological, cognitive and social aspects, including study of the social impact of information technologies.

Bio-informatics study may help students to analyze and catalogue the biological pathways and networks that are an important part of systems biology. In structural biology, it aids in the simulation and modeling of DNA, RNA, and protein structures as well as molecular interactions.

Course VI. BO1643- Plant Breeding, Horticulture and Research Methodology

Plant breeding techniques also help contribute to the incredible efficiency of modern agriculture. A *breeder's* goal is to find solutions for many different regions, soil types, and climates. The course helps students to apply basic technique in plant breeding and may produce variety of plant species including agriculture crops.

Rather than staple crops, *horticulture* focuses on fruit, vegetables, flowers, and landscape plants. Students in the plant science and food systems majors *study horticultural* science to be challenged intellectually, to work in a job they love, and to make a difference in the quality of life for countless

others. This also means that the students can change his mind about what constitutes a weed over time: that self-seeding basil that escapes to invade the neighboring dill becomes a weed as soon as it crosses the border.

Research Methodology is so important for students to take research methods or research laboratory courses as part of their behavioral science degree. To fully understand the material in a science course, you must first understand how and why the research you are reading about was conducted and what the collected data mean. A fundamental understanding of research methodology will help you read about and correctly interpret the results of research in any field of science.

Course VI. BO1651- Biotechnology and Nano biotechnology

The study of Biotechnology may help to create awareness in use of biological processes, organisms, or systems to manufacture products intended to improve the quality of human life and also biotechnology involves industrial processes such as the production of new chemicals or the development of new fuels for vehicles.

Nanotechnology is creating a wealth of new materials and manufacturing possibilities, which in turn will profoundly impact our economy, our environment, and our society. Using *nanotechnology*, researchers and manufacturers can fabricate materials literally molecule-by-molecule. The students may get an idea about the possibilities of nanobiotechnology in the present scenario.

Programme Outcome

The curriculum for the B. Sc. Programme in Botany has been designed with an aim of encouraging the broad instructional goals and to support the growing demands and challenging trends in the educational scenario. It targets at providing an environment that encourages, promotes and stimulates the intellectual, professional and personal development of the student. The curriculum caters to the all-round development of the student, rolling out globally ready individuals into the fast pacing world. The specific outcome of the program are as follows:

- Know the importance and scope of the discipline
- Inculcate interest in and love of nature with its myriad living forms
- Impart knowledge of Science as the basic objective of Education
- Create a scientific attitude to make students open minded, critical and curious
- Develop the ability to work hard and make students fit for society
- Expose students to the diversity amongst life forms

- Develop skill in practical work, experiments, equipments and laboratory use along with collection and interpretation of biological materials and data
- Make them aware of natural resources and environment and the importance of conserving it.
- Develop the ability for the application of acquired knowledge in various fields of life so as to make our country self sufficient
- Appreciate and apply ethical principles to biological science research and studies

Programme Outcome and Course Outcome – M.Sc. Botany

Course Outcome of M.Sc. Botany

- **Course I. BO211- Phycology, Mycology and Plant pathology**

- In this paper aims the students get awareness of different microorganisms and it importance. In this stage beneficial and harmful effect of microorganism will be discussed.

- **Course II. BO 212 – Bryophyta, Pteridophyta and Gymnosperms**

- The importance of Bryophytes, Pteridophytes, Gymnosperms and Paleobotany will be discussed in this paper. For example Bryphytes are important in initiating soil formation on barren terrain, in maintaining soil moisture, and in recycling nutrients in forest vegetation. Indeed, discerning the presence of particular bryophytes is useful in assessing the productivity and nutrient status of forest types. Further, through the study of bryophytes, various biological phenomena have been discovered that have had a profound influence on the development of research in such areas as genetics and cytology. In this study, give awareness the students to the importance of conservation of this species for future aspects.

- **Course III BO213 – Micrbiology, Histoogy, Micrtechnique and Histochemistry**

- In this paper aims the students get awareness of different microorganisms and it importance. In this stage beneficial and harmful effect of microorganism will be discussed. Comparative anatomical studies document suites of correlated characters that have been interpreted as general evolutionary trends, of which several have been asserted to be irreversible. After the completion of the study an expert student or an expert person in Anatomical studies may able to identify any wood samples without plant leaf or flowers.
- **Course IV BO 221- Taxonomy, Economic Botany, Ethnobotany and Evolution**

- Systematic Botany helps to study the arrangements of plants in different families and students get chance to identify plants in surrounding localities. The study of Economic botany helps to the importance and uses of plant and plant parts. Ethonbotany give a chance

to familiarize the traditionally useful medicinal plants. Aware the students to understand the evolution and its importance. It helps us solve biological problems that impact our lives and to control hereditary diseases in people,. In these ways, knowledge of evolution can improve the quality of human life.

- **Course V BO222 – Environmental Biology, Phytogeography and Conservation Biology**

- The students familiarize with modern environmental concept like how to conserve biodiversity, to know the more sustainable way of living, to use natural resources more efficiently, to know the behavior of organism under natural conditions, to know the interrelationship between organisms in populations and communities and to aware and students regarding environmental issues and problems at local, national and international levels.

- The main theme of the study of plant geography is to discover the similarities and diversities in the plants and floras of the present and past found in widely separated parts of the earth.

- **Course VI BO223 – Cell and Molecular Biology and Genetics**

- The study of cell biology helps to understand tissue morphogenesis and disease pathogenesis; ultimately we must understand what happens at the *cellular* and molecular levels.

- *Genetics* is the *study* of genes, *genetic* variation, and heredity in living organisms. It is generally considered a field of biology, but intersects frequently with many other life sciences and is strongly linked with the *study* of information systems. A brief idea may generate in student community in connection with genetics and its uses in modern medicine.

- **Course VII BO231 – Plant Breeding, Horticulture and Reproductive Biology**

- *Plant breeding* techniques also help contribute to the incredible efficiency of modern agriculture. A *breeder's* goal is to find solutions for many different regions, soil types, and climates. The course helps students to apply basic technique in plant breeding and may produce variety of plant species including agriculture crops.

- Rather than staple crops, *horticulture* focuses on fruit, vegetables, flowers, and landscape plants. Students in the plant science and food systems majors *study horticultural* science to be challenged intellectually, to work in a job they love, and to make a difference in the quality of life for countless others. This also means that the students can change his mind about what constitutes a weed over time: that self-seeding basil that escapes to invade the neighboring dill becomes a weed as soon as it crosses the border.

- **Course VIII BO232 – Biochemistry, Plant Physiology and Research Methodology**

- The knowledge of plant physiology will help in forging several advances in agriculture, horticulture, forestry, plant pathology and other disciplines of botany. In fact, researches in plant physiology have been and are likely to contribute immensely to crop improvement. Increase in crop production is based on exploiting maximal levels or plant metabolic processes.

- The study of Biochemistry combines both biology and chemistry as equal components. When one *studies biochemistry*, he will come to have an intimate knowledge about the function as well as structure of molecular components within the human body.

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- Research Methodology is so important for students to take research methods or research laboratory courses as part of their behavioral science degree. To fully understand the material in a science course, you must first understand how and why the research you are reading about was conducted and what the collected data mean. A fundamental understanding of research methodology will help you read about and correctly interpret the results of research in any field of science.

- **Course IX BO233 – Biostatistics and Plant Biotechnology**

- The study of Plant Biotechnology may help to create awareness in use of biological processes in different plant species. In addition to these students get awareness in genetically modified plants and its positive and negative impact to the environment.

- **Course X BO241 – Special paper – 1 Bioinformatics**

- Bio-informatics study may help students to analyze and catalogue the biological pathways and networks that are an important part of systems biology. In structural biology, it aids in the simulation and modeling of DNA, RNA, and protein structures as well as molecular interactions.

- **Course XI BO 242 – Special paper II – Biotechnology**

- The study of Biotechnology may help to create awareness in use of biological processes, organisms, or systems to manufacture products intended to improve the quality of human life and also biotechnology involves industrial processes such as the production of new chemicals or the development of new fuels for vehicles.

Programme Outcome of M.Sc. Botany

- The M.Sc. Botany programme aims to give confidence students to take dependability for developing themselves throughout their studies at our College. It encourages students to reproduce on the broader intention of their education. The students who are completing M. Sc. Programme in Botany will reflect the following graduate attributes.

- 1. Understandable, complete and higher mastery in the field of Botany.
- 2. Appreciate the highly developed areas of biological sciences with extraordinary position to Botany and its applied branches.
- 3. Ability in practical work, experiments, use of biological instruments and techniques
- 4. Capability in statistical analyses of data for improved interpretations and problem solving.
- 5. Self-confidence to apply the acquired information in practical life so as to make our country self dependent.
- 6. Ability to propose new programs to be concerned for nature and life for sustainable growth.
- 7. Consciousness to search the details of life forms at cellular, molecular and nano level.
- 8. Inspiration and interest to understand the beauty of different life forms.
- 9. Motivation to distribute the idea of biodiversity conservation.
- 10. Problem solving skills in students to take out inventive research projects thus enkindling in them the strength of information creation.

DEPARTMENT OF HINDI

DEPARTMENT OF HINDI

AIM/OBJECTIVE OF THE COURSE

Common Course – Hindi (for B.A/B.Sc)

Prose a nd OneAct Plays :- To sensitize the student to the aesthetic and cultural aspects of literary appreciation and analysis. To introduce modern Hindi prose to the students and to understand the cultural, social and moral values of modern Hindi prose

Fiction, Shortstory &Novel:- To guide the students to the world of Hindi Fiction & to develop the capacity of creative process and communication skill

Poetry &Grammar :- To sensitize the student to the aesthetic and cultural aspects of literary appreciation and to introduce poetry and Grammar.

Drama, Translation &Correspondence:- To appreciate and analyze the dramatic elements in literature. To understand the distinct features of Hindi drama, the qualities of a translator and to familiarize official correspondence in Hindi.

Common course Bcom

Prose, Commercial Hindi and Letter Writing:- To understand and appreciate Hindi Prose, To enrich the knowledge of commercial letter writing and the form and style of other letters.

Poetry,Translation,Technical Terminology& Communication:- To sensitize the student to the aesthetic and cultural aspects of literary appreciation and to introduce Hindi poetry. For communicative skills in Hindi and English through the

Translation. To familiarize the Technical terms and terms used in offices. To enrich the developments of communicative skills.

COMPLIMENTARY COURSE- HINDI

Women's Literature in Hindi :- To show light on the efforts done by women writers in Hindi with specia; reference to Modern Hindi writers and evaluate their vision about women. To study the growth of women's writing in Hindi.

Bharatiya Sanskriti:- To enrich the knowledge of History and to familiarize with the important events of Indian culture from the age of Sultanate. To enrich the knowledge of cultural History in India&the historical developments.

Special Author Kabeerdas:- To enrich the knowledge of the famous ancient poet Kabeerdas. To understand the distinct features of Kabeer and the contemporariness 0of Kabeerdas.

Eco Literature:- To understand the echo of the literature and the elements of the different types of poems &stories. To familiarize the transformation and its formation.To understand the relation between environment and the human beings.

Comparative Literature with Special reference to Hindi and Malayalam:- To understand the comparative literature and the use and nature of comparative literature . To know about the similarities between Hindi and Malayalam Literature . To get general awareness of Malayalam and Hindi Literature and to introduce major writers of each literature and their thought and philosophy.

Development of Hindi as Official Language and communicative Hindi:- To understand the different forms of Hindi and the power of Hindi Language . To

develop the communication skills in Hindi Language and inculcating values of communication among the students.

Indian Literature:-To understand the origin and development of ancient Indian Literature and different trends of each period. To familiar with great writers and their thought and philosophy.

Script writing and Advertisement:-To know the formation ofScript Advertisement &the technique and process of Script writing. To understand the forms &procedure of advertisement. To enrich the imaginative power and skill of art.

CORE COURSE

Hindi Prose:- To enrich the knowledge of Prose. To appreciate andcriticise prose.

History of Hindi Literature upto Ritikal:- To understand the origion and development of the ancient Hindi literature and different trends of each kal. To be familiar with great poets like Kabeer, Jayasi, Thulsi Soor , Bihari and their thought and philosophy.

History of Hindi Literature Modern Period:- To understand the modern trends of Hindi literature. To realize development of Prose, Novel, Shortstory, Drama, Sketch, Diary, Report etc.To appreciate different trendsof Hindi poetryand Modern and post modern trends and to understand the difference between modernism and post modernism.

Hindi Drama and OneAct plays:- To appreciate and analize the dramaticelements in literature and to understand the distinct features of Hindi drama. To enrich the knowledge of the art of Drama.

Premchand's Fiction:- To enrich the knowledge of world famous Hindi writer Premchand.To realize the theme and problems and style of Premchand'sFiction.To

underststand Premchand's pilot age to HINDI Fictionand vision about Indian society and his genius in the portrayal of miseries of Indian peasantryand the struggle if middle class and the tragedy of poor people.

Ancient Poetry and Epic poems:-To understandthe Anciet poetry, the thems,thought and philosophy of ancient poets. To realize the difference between the poetries od different kals. To introduce the dialects of ancient poetry. And to understandthe the prominent writers.

Modern Poetry- To enrich the knowledge of Modern Hindi poetry and to familiarize with prominent n modern poets and poems.

Hindi Fiction upto 1980:- To enrich the knowledge the knowledge of Hindi Fiction upto 1980 .

Hindi Grammar :Theory and Practice-To understans the grammar of Hindi and the structure of Hindi language and to know the grammatical rules.To develop the use of language without errors.

History of Hindi Languagge and Linguistics:- To understand the classification and language and the development of Hindi Language and Lipi and linguistics.

Post Modern Hindi fiction from 1980-2000:- To famililiarize the post modernism, post modern culture and the theme and form of post modern fiction.

Literary Criticism:-To understand the theories of Aesthetic pleasure and different schools of Indian Literary theorie and thoughts and to sensitize the student to the western criticism.

Translation theory and Practice:- To familiarize the theory and practice of translation and the use of translation.

Film: History and Production:-To explain the history of Indian Films

Foundation Course

Information and computer:- To update and expand basic informatics skills

Elective course

Journalism and Hindi journalism in Kerala:- To introduce the origin and development of journalism in India. To introduce the student the theory and types of journalism and to develop the skill of journalism.

M A HINDI OBJECTIVES

I SEMESTER

1. HL 211 ANCIENT POETRY :- To make students aware of the early and Riti periods and to know the important epic of Hindi Literature.
2. HL 212 - novel and short Stories :-To make the students aware of the novels and short stories representing various trends.
3. HL 213- History of Hindi Literature: Early and Medieval periods:- To understand the Early and Medieval periods of History of Hindi Literature and socio- cultural impact on medieval poetry.
4. HL 214 - Indian and western literary thought: - To make the students aware of different types of critical approach and the varying trends of Indian and western literary thoughts.

II SEMESTER

1. HL221:- Medieval Poetry:- Bhakti period:- To understand the distinct features of Medieval and Bhakti periods

2. HL 222:- To make the students familiar with Linguistics theories, analytical techniques and terminologies; to enable them to understand and interpret the traditional Grammatical treatises.
3. HL223:- To get an analytical and in depth knowledge of modern period of Hindi literature.
4. HL 223:- Functional Hindi:- To understand and acquire the knowledge in employing Hindi Language, science , administration, judiciary, journalism and communication.

III SEMESTER

1. HL 231:- Modern Poetry upto Prayogavad:- To make the students aware of the new trends of poetry.
2. HL 232:- Prose : Essays and other forms :- To make the students aware of the essays of prominent writers.
3. HL 233:- Indian Literature:- To familiarize the socio-cultural, political impacts , Indian values and morals reflected in Indian literature.
4. HL 234 : Special author : Premchand :- The aim of the course is to show light on the efforts done by premchand with special reference to modern Hindi writers.

IV SEMESTER

1. HL 241: Modern poetry Since Prayogvad :- The aim of the course is to enrich the knowledge of Modern poetry & to introduce with prominent modern poets & poems.

2. HL 242: Drama and one act plays: To Understand the distinct features of Hindi Drama and the difference between drama & one act plays.

3. HL 243: Translation and Structural Grammar :- To make the students aware of the problems of translating creative and no creative problems of translation

4. HL 244: South Indian Writers with Special reference to Kerala :- To Realize the contemporary south Indian Writers with Special reference to kerala.

DEPARTMENT OF SOCIOLOGY

DEPARTMENT OF SOCIOLOGY

CRITERION – II 2.6.1 (COURSE OUTCOME)

Teaching Learning and Evaluation

I. COURSE OUTCOME

SEM I

CORE 1 : Introduction to Social Sciences

OUTCOME: To understand historical roots of social science. Make aware on the various concepts of Sociology and relevance of Sociology as a distinct discipline.

SEM II

CORE 2 : Understanding Indian Society

OUTCOME: For conceptualizing about Indian Society in a comprehensive and integrated way empirically. To understand structural make, theoretical perspective and social institutions of Indian society.

SEM III

CORE 3 : Sociological Theory

OUTCOME: Acquaintance with contributions of classical sociological theories in understanding various social issues**.**

Foundation Course: Social Informatics

OUTCOME: To know the conceptual and functional knowledge in the field of informatics. To create awareness about social issues and concerns in the use of digital technology. Enhance skills to use ICT resources in learning.

SEM IV

CORE 4: Research Methodology

OUTCOME: To faster the knowledge of fundamentals in research methodology and its applications. To introduce the different techniques and methods of social science empirical research.

CORE 5: Social Psychology.

OUTCOME: To know about social behaviour of human beings and basic concepts in social psychology.

SEM V

CORE 6: Structure and Transformation of Kerala Society.

OUTCOME: To aware the socio- cultural context and historical understanding of Kerala Society. To know about the necessity of sociological imagination of various social problems of Kerala**.**

CORE 7: Sociology of Development

OUTCOME: To conceptualize process of social development in different settings. To give a holistic approach for the understanding of different theories of development.

CORE 8: Gender and Society

OUTCOME: To impart gender sensitization by analysing the gender attributes. To understand beyond binary concepts in gender studies.

Core 9: NGO and Social Interventions

OUTCOME: To create an understanding about the role, functioning and strategies of NGO in developmental process**.** Impart practical knowledge through the field work as group and individual assignments.

CORE 10: Social Anthropology

OUTCOME: To introduce social anthropology its methods as a discipline to equip the students for a comprehensive understanding of the social cultural transformations among tribal society in India**.**

OPEN COURSE: Life Skill Education.

OUTCOME: To provide basic understanding of Life Skill Education. To impart elements of soft skill and means to enhance capabilities for personality development**.**

SEM VI

CORE 11: Environmental Sociology

OUTCOME: To make them aware about environment and corresponding issues. To find out working remedial measures to the pondering environmental problems.

CORE 12: Public Health and Social

OUTCOME: To impart the awareness about social background of health and disease to bring out the importance of social intervention and medical interventions in the prevention and control of disease**.**

CORE 13: Social Stratification

OUTCOME: To develop an understanding about various dimensions of inequality in society. Major approaches of stratification studies to acquire knowledge regarding differentiations in the society.

CORE 14: Sociology of Education

OUTCOME: To acquaint with relationship between education and society, understanding religion, culture as agents of education.

Complementary Course offered by the Department

SEM I

Complementary I: Introduction to Sociology

OUTCOME: To assist the students in identifying the key concepts, origin and development of sociology.

Complementary II: Political Sociology

OUTCOME: To understand critically the fields of political sociology, political participation and political socialization.

Complementary III: Social Gerontology

OUTCOME: To introduce social Gerontology and acquaint the students with the need for addressing the issues and familiarises the policies of Elderly

Complementary IV: Women and Society

OUTCOME: Introduce women studies and analyse the conceptual and theoretical perspective on women studies through gender perspective**.**

II. PROGRAMME OUTCOME (P.O)

P.O 1: Acquaint with the theoretical and application level knowledge on sociological theories in accordance with social values.

P.O 2: Apply the conceived perspectives on various social issues in finding practical remedial measures.

P.O 3: Since any society is dynamic, change should be in tune of progress. Be catalysts in the process of social change.

III. Programme Specific Outcome (PSO)

PSO (1): Conducting social survey and field studies on the basis of empirical data by using relevant research methods and techniques**.**

PSO (2): Identify and locating felt needs and requirements of a given society for their daily livelihood and sustainable development.

PSO (3): Sensitising gender equality and women empowerment in contemporary society**.**

PSO (4): Field participation in socially relevant desirable activities with NGO's in different social service areas.

DEPARTMENT OF MATHEMATICS

DEPARTMENT OF MATHEMATICS

BSc Mathematics

Courses offered:

SemI Code: MM1141, Methods of Mathematics

Sem-II Code: MM1221 ,Foundations of Mathematics

Sem III Code: Mm1341, Methods of Algebra and Calculus –I

Sem IV Code: MM1441: Methods of Algebra and Calculus -II

Sem V Code : MM1541:- Real Analysis

Code : MM1542:- Complex Analysis

Code : MM1543:- Differential equations and their applications.

Code: MM1544 :- Numerical Methods

Code: MM1545 :- Computer Programming-I

Code: MM1551. Operations Research (open course)

Sem VI

Code : MM 1641:- Real Analysis-II

Code: MM1642:- Linear Algebra

Code : MM1643:- Vector Analysis

Code: MM1644:- Graph Theory

Code: MM1645:- Computer Programming –II Practical

Code: MM1651:- (Elective) Fuzzy Mathematics.

Code : MM1646 :- Project

Course Outcome (2010-2014)

SemI Code: MM1141, Methods of Mathematics

CO1: Explain Theory of Numbers and its application to cryptography.

CO2: Understand the basis of Functions and their graphs, concept of limits, continuity and differentials.

CO3: Impart knowledge of Conic sections and sketching of conics.

Sem-II Code: MM1221 ,Foundations of Mathematics

CO I: -Explain Foundations of Algebra .

CO2:-Provide knowledge in Foundations of Calculus and Analytic geometry and Polar coordinates in coordinate geometry.

Sem III Code: Mm1341, Methods of Algebra and Calculus –I

CO1: Create awareness in Basic concepts of Abstract Algebra.

CO2: Develop deeper understanding of Vectors in three dimensional space.

CO3:Familiar with Calculus of vector valued functions.

Sem IV Code: MM1441: Methods of Algebra and Calculus -II

CO1:Provide knowledge of Polynomials and division theorem.

CO2:Familiar with Calculus of functions of two or more variables, Surface area and volume of solids.

CO3:- Provide knowledge of Triple integral and using it to compute volume.

Sem V Code : MM1541:- Real Analysis

CO1:-Familiar with Applications of completeness property.

CO2:Familiar with Basic idea of mathematical analysis.

Code : MM1542:- Complex Analysis

CO1:- Explain Properties of differentiable complex functions of open sets.

CO2:-Realise Harmonic functions .

CO3:-Familiar with Concepts of conformal mapping.

Code : MM1543:- Differential equations and their applications.

CO1:Explain Applications of Differential equations to physics, chemistry and biology.

CO2: Familiar with Differential equations with constant coefficients and their solutions.

CO3: Familiar with Second order equations with variable coefficients and their solutions.

CO4: Understand the basis of Laplace transform.

Code: MM1544 :- Numerical Methods

CO1: Describe Methods to find roots.

CO2: : Describe Solutions of linear equations.

CO3: Understand the basis of Interpolation

Code: MM1545 :- Computer Programming-I

CO1: Able to identify Algorithms and data

CO2:- Realise BASIC , UNIX command, and concepts

CO3:-Develop deeper understanding in C language , basics, syntax and examples.

Code: MM1551. Operations Research (open course)

CO1: Familiar with Linear programming transportation problems and project management

CO2: Explain Queuing models

Sem VI

Code : MM 1641:- Real Analysis-II

CO1:- Develop deeper understanding of Real - valued functions, properties of continuity ,differentiability and Riemann integral.

CO2:- Establish the links between anti-differentiation and Riemann integrals.

Code: MM1642:- Linear Algebra

CO1:- Provide knowledge in Algebra of matrices and some applications of matrices to conic sections and system of linear equations .

CO2:- Familiar with Invertible matrix and linear mappings.

CO3:- Describe Matrix connection.

Code : MM1643:- Vector Analysis

CO1:- Understand the basis of Vector fields, graphical representation, line integrals.

CO2:-Explain Green's Theorem and its applications .

CO3:-Provide knowledge in Surface integral , and its applications.

Code: MM1644:- Graph Theory

CO1:-Explain History of graph theory.

CO2:- Create awareness in history of graph theory.

CO3:- Realise Basic concepts of graphs.

CO4:- Desribe Applications.

Code: MM1645:- Computer Programming –II Practical

CO1:- Impart knowledge inLatex Programming

CO2:- Familiar with Python

Code: MM1651:- (Elective) Fuzzy Mathematics.

CO1:-Describe Basic concepts of fuzzy sets.

CO2:-Describe Operations of fuzzy sets and fuzzy arithmetic

CO3:-Provide knowledge in Fuzzy relations and fuzzy logic.

Statistics

Complementary to Mathematics

Courses offered:

Sem I:- ST 1131.1 Statistical Methods.

Sem II:- ST 1231.1 Probability Theory.

Sem III:- ST 1331.1 Distribution theory and Limit theorems.

Sem IV:- ST 1431.1 Statistical Inference.

ST 1431.2 Statistical practical

Sem I:- ST 1131.1 Statistical Methods.

Co1:- Familiar with Data collection, classification, tabulation, diagrammatic representation.

Co 2:-Explain Descriptive statistics.

Co 3:- Familiar with Correlation and regression.

Sem II:- ST 1231.1 Probability Theory.

Co 1:- Create awareness in Concepts of probability.

Co 2:- Familiar with Different theorems in probability.

Co 3:-Recognise the importance of Random variable and probability distribution.

Co 4:- Realise Bivariate distributions.

Sem III:- ST 1331.1 Distribution theory and Limit theorems.

Co 1:- Develop deeper understanding in Standard distributions like binomial, poisson, normal etc.

Co 2:- Familiar with Tchebycheff's inequality, Weak law of large numbers, Central limit theorem.

Co 3:-Recognise the importance of Sampling distributions.

Sem IV:- ST 1431.1 Statistical Inference.

Co 1:- Explain Estimation theory.

Co 2:- Imart knowledge in Testing of hypothesis.

Co 3:- Understand the basis of Analysis of variance.

ST 1431.2 Statistical practical

Co 1:-Familiar with Problems solving and data analysis using Excel

Complementary for Physics

Course offered :

Sem I

Code: MM1131.1:- Differentiation and Analytic geometry.

Sem II

Code: MM1231.1:- Integration and Vectors.

Sem III

Code:MM1331.1:- Theory of equations, Differential equations and theory of matrix.

Sem IV

Code : MM1431.1:- Complex Analysis, Fourier series and Fourier transforms.

Sem I

Code: MM1131.1:- Differentiation and Analytic geometry

CO1:- Describes some applications of mathematical methods to physics.

CO2:- Give basic ideas about functions and it graphs with examples from physics.

CO3:- Explains about different types of functions and their properties. Also give an idea about differentiation with applications to physics.

Sem II

Code: MM1231.1:- Integration and Vectors.

CO1:- Give details about applications of integral calculus to problems in physics.

CO2:- Explains vector calculus and its applications.

Sem III

Code:MM1331.1:- Theory of equations, Differential equations and theory of matrix.

CO1:- Describes analytical methods for solving polynomial equations.

CO2:- Give basic concepts about differential equations and their solutions.

Sem IV

Code : MM1431.1:- Complex Analysis, Fourier series and Fourier transforms.

CO1:- Explains basic concepts about complex numbers.

CO2:- Introduce the idea of complex integration and differentiation.

Complementary for Chemistry

Courses offered:

Sem I

Code: MM1131.2:- Differentiation and matrices.

Sem II

Code: MM1231.2:- Integration, Differential equations and Analytic geometry.

Sem III

Code: MM1331.2:- Theory of equations and vector analysis.

Sem IV

Code:MM1431.2:- Abstract Algebra, linear transformations and coordinate systems

Sem I

Code: MM1131.2:- Differentiation and matrices.

CO1:- Create awareness on differentiation with application to chemistry.

CO2:- Impart knowledge on basic concepts of matrices.

Sem II Code: MM1231.2:- Integration, Differential equations and Analytic geometry.

CO1:- Create awareness on integration with application to chemistry.

CO2:- Equip students to familiarize with the basic concepts about differential equations and their solutions.

Sem III

Code: MM1331.2:- Theory of equations and vector analysis.

CO1:- Describes applications of fundamental theorem to equations.

CO2:- Convey an idea of vector differentiation and integration.

Sem IV

Code:MM1431.2:- Abstract Algebra, linear transformations and coordinate systems

CO1:-Enable the students to achieve the concept of Groups, Rings and Vector spaces.

CO2:-Provide knowledge about linear transformation from ¬¬¬R^n toR^m.

CO3:- Help the students to understand about the concepts of Co-ordinate systems and Integration in spherical Co-ordinates.

Complementary to Psychology

Courses offered:

Sem I :- ST1131.5 Statistical Methods for Psychology- I.

SemII :- ST1231.5 Statistical Methods for Psychology- II.

SemIII:- ST1331.5 Statistical Methods for Psychology- III.

SemIV:- ST1431.5 Statistical Methods for Psychology- IV.

Sem I :- ST1131.5 Statistical Methods for Psychology- I.

Co 1 :- Familiar with Data Collection, Classification, Tabulation.

Co 2 :- Explain Diagramatic Representation of Data.

SemII :- ST1231.5 Statistical Methods for Psychology- II.

Co 1 :- Understand Measures of Central Tendancy, Dispersion, Skewness, Kurtosis.

Co 2 :-Explain Correlation, Rank Correlation, Scatter Diagram.

SemIII:- ST1331.5 Statistical Methods for Psychology- III.

Co 1:-Familiar with Regression Analysis.

Co 2:-Realise Association, Independence of Attributes.

Co 3:-Impart knowledge with Basic Concepts of Probability.

Co 4:- Familiar with Normal Distribution, Sampling Distributions, Estimation.

SemIV:- ST1431.5 Statistical Methods for Psychology- IV.

Co 1:- Explain with Testing of Hypothesis, Null Alternative, Significance Level, Power etc.

Co 2:-Able to identify Large Sample, Small Sample Tests

PROGRAMME OUTCOME (2010-2014)

PO1:- Mathematics is a powerful tool with many applications, so in this programme students could acquire basic knowledge in various branches of Mathematics.

PO2:- The resources gives sensible thinking, problem- solving capabilities and the capability to think in subjective ways.

PO3:- Provides an effective communication skill.

PROGRAMME SPECIFIC OUTCOME

PSO1:-The degree programme will provide both mathematical knowledge and communication skills.

PSO2:-Applied Mathematics can lead to many career opportunities.

PSO3:-Mathematics is a building block for everything in our dailylives including mobile devices, architecture, money,in sports etc.

BSc Mathematics

Course Outcome (2014 onwards)

Courses offered:

Sem I Code: MM1141, Methods of Mathematics

Sem-II Code: MM1221 ,Foundations of Mathematics

Sem III Code: Mm1341, Methods of Algebra and Calculus –I

Sem IV Code: MM1441: Methods of Algebra and Calculus -II

Sem V Code : MM1541 Real Analysis I

Code : MM1542 complex Analysis I

Code :MM1543 Differential Equationsand their applications.

Code : MM1544 Vector Analysis

Code :MM1545 :- Abstract Algebra I

Code :MM1551.2 Business Mathematics (Open Course)

Sem VICode : MM1641:- Real AnalysisII

Code: MM1642:- Linear Algebra

Code: MM1643: Complex Analysis II

Code: MM1644 Abstract algebra II

Code: MM1645:- Computer Programming

Code: MM1661.1 Graph Theory (elective)

Code:MM1646 : Project

Sem I Code: MM1141, Methods of Mathematics

CO1: Provide knowledge about Theory of Numbers and its application to cryptography.

CO2: Enable the students to achieve the concept of Functions and their graphs, concept of limits, continuity and differentials

CO3: Impart knowledge on Conic sections ,sketching of conics.

Sem-II Code: MM1221 ,Foundations of Mathematics

CO I: - Enable the students to achieve the concept of Foundations of Algebra

CO2:- Impart knowledge on Foundations of Calculus and Analytic geometry and Polar coordinates in coordinate geometry.

Sem III Code: Mm1341, Methods of Algebra and Calculus –I

CO1: Provide knowledge about Basic concepts of Abstract Algebra.

CO2: Familiar with Vectors in three dimensional space.

CO3:Explain Calculus of vector valued functions

Sem IV Code: MM1441: Methods of Algebra and Calculus -II

CO1: Understand the basis of Polynomials and division theorem

CO2: Familiar with Calculus of functions of two or more variables. Surface area and volume of solids.

CO3:- Impart knowledge with Triple integral and using it to compute volume.

Sem V Code : MM1541 Real Analysis I

CO1:- Explain Applications of completeness property

CO2: : Provide knowledge about Basic idea of mathematical analysis

Code : MM1542 complex Analysis I

CO1:- Impart knowledge with Properties differentiable complex functions of open sets.

CO2:- Provide knowledge in Harmonic functions

CO3:- Explain Concepts of conformal mapping.

Code :MM1543 Differential Equationsand their applications.

CO1: Create awareness on Applications to physics, chemistry and biology

CO2: Explain Differential equations with constant coefficients and their solutions.

CO3: Explain Second order equations with variable coefficient and their solutions.

CO4: : Explain Laplace transform

Code : MM1544 Vector Analysis

CO1:- Convey an understanding on Notion of directional derivatives , divergence of vector field, Green's Theorem.

CO2:- Develops an insight about Surface integral . Gauss' theorem,Stoke's theorem and their applications.

Code :MM1545 :- Abstract Algebra I

CO1: Develop Ideas of binary operation on a set, groups, subgroups, cyclic groups.

CO2: To enrich the knowledge of Group of permutation in detail, Lagrange's theorem, finitely generated abelian groups.

Code :MM1551.2 Business Mathematics (Open Course)

CO1: Create knowledge in Basic mathematics of finance.

CO2: Develop Ideas of Differentiation and their application to Business and Economics

CO3: Convey an understanding on Types of index number, Laspeyer's price index, Paasche's Price index, advantages of index numbers.

Sem VICode : MM1641:- Real AnalysisII

CO1:- Develop skill in Study of Real - valued functions, properties of continuity ,differentiability and Riemann integral.

CO2:- Establish the links between anti-differentiation and Riemann integrals.

Code: MM1642:- Linear Algebra

CO1:- Develop Ideas of Algebra of matrices and some applications of matrices to conic sections, system of linear equations , etc.

CO2:-Familarise Invertible matrix and linear mappings.

CO3:- Convey an understanding on Matrix connection.

Code: MM1643: Complex Analysis II

CO1:- Develop Ideas of Power series representatives for functions analytic in a disc.

CO2:- Convey Application of residue theorem , application of contour integral method to evaluation and estimation of sums.

Code: MM1644 Abstract algebra II

CO1: Enable to understand Homomorphism of groups and factor groups.

CO2: Enable to understand Ring Homomorphism and factor rings

Code: MM1645:- Computer Programming

CO1: Develop Ideas of Fundamental of GNU/ Linux

CO2: Develop Ideas of LaTex Tutorials, (Lab)

Code: MM1661.1 Graph Theory (elective)

CO1:-Create a brief history of graph theory, graphs, subgraphs etc.

CO2:- Develop Ideas of Components of graph , walks, Euler graphs graph models and solutions.

CO3: Enable to understand Trees and their properties, planar graphs characterization of planar graph.

Complementary for Physics

Courses offered :

Sem I

Code: MM1131.1:- Differentiation and Analytic geometry

Sem II

Code: MM1231.1:- Integration and Vectors.

Sem III

Code:MM1331.1:- Theory of equations, Differential equations and theory of matrix.

Sem IV

Code : MM1431.1:- Complex Analysis, Fourier series and Fourier transforms

Sem I

Code: MM1131.1:- Differentiation and Analytic geometry

CO1:- Give basic ideas about Applications of mathematical methods to physics.

CO2:- Enable to understand Functions and it graphs with examples from physics.

CO3:- Familarise Inverse functions, hyperbolic functions, differentiation with applications to physics.

Sem II

Code: MM1231.1:- Integration and Vectors.

CO1:- Develop Ideas of Applications of integral calculus and vectors to problems in physics.

CO2:- Give basic ideas about Vector calculus and its applications.

Sem III

Code:MM1331.1:- Theory of equations, Differential equations and theory of matrix.

CO1:- Give basic ideas about Analytical methods for solving polynomial equations.

CO2:-Create Basic concepts about differential equations and their solutions.

Sem IV

Code : MM1431.1:- Complex Analysis, Fourier series and Fourier transforms.

CO1:- Create Basic concepts about complex numbers.

CO2:- Give basic ideas about Complex integration, differentiation.

Complementary for Chemistry

Courses offered :

Sem I

Code: MM1131.2:- Differentiation and matrices.

Sem II

Code: MM1231.2:- Integration, Differential equations and Analytic geometry.

Sem III

Code: MM1331.2:- Theory of equations and vector analysis.

Sem IV

Code:MM1431.2:- Abstract Algebra, linear transformations and coordinate systems

Sem I

Code: MM1131.2:- Differentiation and matrices.

CO1:- Create awareness in Differentiation with application to chemistry.

CO2:- Ideas in Basic concepts of matrices.

Sem II

Code: MM1231.2:- Integration, Differential equations and Analytic geometry.

CO1:- Create awareness in Integration with application to chemistry.

CO2:- Create ideas in Basic concepts about differential equations and their solutions.

Sem III

Code: MM1331.2:- Theory of equations and vector analysis.

CO1:- Familiar with Applications of fundamental theorem to equations.

CO2:- Familiar with Vector differentiation and integration.

Sem IV

Code:MM1431.2:- Abstract Algebra, linear transformations and coordinate systems

CO1:- Create awareness in Groups, Rings, Vector spaces.

CO2:- Create ideas in Linear transformation from ¬¬¬R^n toR^m.

CO3:- Familiar with Co-ordinate systems; Integration in spherical Co-ordinates.

Complementary to Psychology

Courses offered :

Sem I :- ST1131.5 Statistical Methods for Psychology- I.

Sem II :- ST1231.5 Statistical Methods for Psychology- II.

Sem III:- ST1331.5 Statistical Methods for Psychology- III.

Sem IV:- ST1431.5 Statistical Methods for Psychology- IV.

Sem I :- ST1131.5 Statistical Methods for Psychology- I.

Co 1 :- Enable the students to achieve the concept of Data Collection, Classification, Tabulation.

Co 2 :- Create ideas in Diagramatic Representation of Data.

Sem II :- ST1231.5 Statistical Methods for Psychology- II

Co 1 :- Create ideas in Measures of Central Tendancy, Dispersion, Skewness, Kurtosis.

Co 2 :- Familiar with Correlation, Rank Correlation, Scatter Diagram.

Sem III:- ST1331.5 Statistical Methods for Psychology- III.

Co 1 :- Familiar with Regression Analysis.

Co 2 :- Create ideas in Association, Independence of Attributes.

Co 3 :-Explain Basic Concepts of Probability.

Co 4 :- Familiar with Normal Distribution, Sampling Distributions, Estimation.

Sem IV:- ST1431.5 Statistical Methods for Psychology- IV.

Co 1 :- Enable the students to achieve the ideas inTesting of Hypothesis, Null Alternative, Significance Level, Power etc.

Co 2 :- Familiar with Large Sample, Small Sample Tests.

Co 3 :- Explain Non Parametric Tests.

Statistics complementary to BSc Mathematics (Revised syllabus on 2014)

Courses offered:

Semester I

COURSE I – ST1131.1: Descriptive Statistics and Introduction to Probability

Semester II

COURSE II – ST1231.1: Random Variables and Analysis of Bivariate data

Semester III

COURSE III – ST1331.1: Probability distribution and Theory of Estimation

Semester IV

– ST1431.1: Testing of Hypotheses and Analysis of Variance

COURSE V – ST1432.1: Practical using Excel

Semester I

COURSE I – ST1131.1: Descriptive Statistics and Introduction to Probability

Co1:Familiar with uses of Statistics in various disciplines, Limitations and misuse of Statistics, Types and collection of Data, checking consistency of data, population and sample, different types of scales,Preparation of questionnaires, Census and Sample surveys.

CO2: Explain Types of descriptive statistics.

CO3: Create ideas in Random experiments

CO4: : Create ideas in Probability, Baye's theorem and its application.

CO5: Practical based on CO1, CO2, CO3, CO4.

Semester II

COURSE II – ST1231.1: Random Variables and Analysis of Bivariate data

CO1: Create ideas in Random variables.

CO2: Enable to understand Expectation of random variables and its properties,moment generating function, characteristic function, Bivariate moments, Cauchy-Schwartz inequality and correlation coefficient.

CO3: Enable to understand Bivariate data, Scatter diagram, Fitting curves, fitting of straight lines, fitting parabola, curves.

CO4: Create ideas in Straight line regression and prediction, Karl Pearson's coefficient of correlation, Spearman's rank correlation.

CO5: Practical based on CO1, CO2, CO3, CO4.

Semester III

COURSE III – ST1331.1: Probability distribution and Theory of Estimation

CO1: Create ideas in Univariate probability distributions.

CO2: Explain Chebychev's inequality, Law of large numbers, central limit theorem .

CO3: Create ideas in Sampling distributions.

CO4: Create ideas in Point estimation.

CO5: Practical based on CO1, CO2, CO3,CO4.

Semester IV

ST1431.1: Testing of Hypotheses and Analysis of Variance

CO1: Enable to understand Theory of testing of Hypothesis.

CO2: Explain Testing independence of attributes and homogeneity, Fitting binomial , Poisson and normal distributions and testing goodness of fit.

CO3: Explain Analysis of variance.

CO4: Practical (numerical problems) based on CO1, CO2, CO3 .

COURSE V – ST1432.1: Practical using Excel

CO1: Enable to understand Use of Excel in statistics (Charts, functions and data analysis), Practical covering Semesters I, II, III & IV.

PROGRAMME OUTCOME(2014 onwards)

PO1 :- Mathematics is a powerful tool with many applications , so in this programme students could acquire basic and deep knowledge in various branches of Mathematics .

PO2:- The resources gives sensible thinking, problem- solving capabilities and the capability to think in subjective ways .

PO3:- Provides an effective communication skill .

PO4:-Provides knowledge in python and latex thoroughly.

PROGRAMME SPECIFIC OUTCOME (2014 onwards)

PSO1 :-The degree programme will provide both mathematical knowledge and communication skills.

PSO2:-Applied Mathematics can lead to many career opportunities.

PSO3:-Mathematics is a building block for everything in our dailylives including mobile devices, architecture,money,in sports etc.

MSc Mathematics

Courses offered:

Semester I

MM211 Linear Algebra

MM212 Real Analysis

MM213 Differential Equations

MM214 Topology

Semester II

MM221 Algebra

MM222 Real Analysis II

MM223 Topology II

MM224 Computer Programming in C++

Semester III

MM231 Complex Analysis-I

MM232 Functional Analysis –I

MM233 Operations Research (Elective)

MM234 Graph Theory (Elective)

Semester IV

MM241 Complex Analysis- II

MM242 Functional Analysis-II

MM 243 Coding Theory (Elective)

MM244 Analytic Number Theory (Elective)

MM245 Project

Semester I

MM211 Linear Algebra

CO1:-Impart knowledge in Vectors Spaces, Subspaces.

CO2:- Deepened outlook regarding the different layers of Linear maps .

CO3:- Able to understand Invariant subspaces, eigen values .

CO4:- Explain Concept of generalized eigen vectors, Nipotent operators .

CO5:- Create ideas in Change of basis , trace of an operator.

MM212 Real Analysis

CO1:- Able to understand Functions of Bounded Variation and Rectifiable Curves.

CO2:- Explain The Riemann- Steiljles Integral.

CO3:-Describes Sequences of Functions.

CO4:-Explain Multivariate Calculus.

CO5:- Able to understand Partial and Total Differentiation.

MM213DifferentialEquations

CO1:- Familiar with Solving second order of first order linear Equations.

CO2:- Describes Series of fist order equations.

CO3:- Able to understand Special functions.

CO4:- Familiar with First order PDE .

CO5:- Familiar with Second order PDE .

MM214 Topology

CO1:- Familiar with Open sets, Closed sets and their properties.

CO2:- :- Describes Complete metric spaces.

CO3:- Develop deeper understanding ofTopological spaces.

Co4:- Explain Special axioms T0,T1,T2,T3 and T4 Spaces.

CO5:- Familiar with Connected spaces, Locally connected spaces, Path wise connected spaces, Locally path wise connected spaces.

Semester II

MM221 Algebra

CO1:- Explain Groups.

CO2:- Familiar with Isomorphisms.

CO3:- Familiar with Group Homomorphisms, Classification of finite abelian groups up to order 15 .

CO4:- Familiar with Rings,Homeomorphisms, Construction of field of quotients.

CO5:- Explain Polynomial rings.

MM222 Real Analysis II

CO1:- Deepened outlook regarding the different layers of Lebesgue Outer Measure, Measurable sets, Regularity, Measurable functions, Borel and LebsesqueMeasurabilty

CO:-2 Describes Integration for Non-negative functions.

CO3:- Describes Abstract Measure Spaces.

CO4:- Describes The L”spaces,Convex Funcnctions.

CO5:- Deepened outlook regarding Convergence in Measure, Signed Measures and Some Application of the Radon-Nikodym Theorem

MM223 Topology II

CO1:- Familiar with Locally Compact Spaces.

CO2:-Describes Quotients and products.

CO3:- Familiar with Convergence, Net, Filter, Ultrafilter, Relationship between net and filter.

CO4:- Describes Fundamental Group and Covering spaces.

CO4:- Familiar with Simplical Complexes.

MM224 Computer Programming in C++

CO1:- Familiar with Characteristics of Object Oriented Languages.

CO2:-Explain Structures.

CO3:-Familiar with Object Classes.

CO4:- Explain Operator overloading , Data conversion, Inheritance-Derived class and basic class.

CO5:- Realise Pointers .

Semester III

MM231 Complex Analysis-I

CO1:-Provide knowledge in Elementary properties and examples of analytic functions, Power series, Analytic , Riemann Stieltjes integrals.

CO2:-Describes Power series representation of an analytic function.

CO3:- Understand the basis of Cauchy's Theorem and integral formula.

CO4:- Familiar with singularities.

CO5:-Explain The extended plane and its spherical representation .

MM232 Functional Analysis –I

CO1:- Understand the basis of Normed Spaces and Continuity of Linear maps

CO2:- Familiar with Hahn-Banach Theorem and Banach Spaces

CO3:- Explain Uniform Bounded Principle –closed and Open Mapping Theorems, Bounded inverse Theorems

CO4:- Explain Spectrum of a Bounded Operator-Dual and Transposes

CO5:- Explain Reflexivity-Compact Linear Maps, Spectrum of a compact Operator

MM233 Operations Research (Elective)

CO1:- Able to understand Linear programming

CO2:-Impart knowledge in Transportation problem, Assignment problem

CO3:- RealiseProject Management

CO4:- Describes Non-Linear programming

CO5:-Familiar with Dynamicprogramming

MM234 Graph Theory (Elective)

CO1:- Provide knowledge in Isomorphism of graphs

CO2:-Explain Hamiltonian graphs

CO3:- Familiar with Tournaments,Peterson graph

CO4:-Realise The four colourproblem.The Ramsey number of a graph

CO5:- Able to identify Distance between graphs.

Semester IV

MM241 Complex Analysis- II

CO1:- Able to understand Compactness and Convergence in the space of Analytic functions

CO2:-Explain Wiestrass factorization Theorem.

CO3:- Able to understand Riemann Zeta function .

CO4:- Able to identify Analytic continuation and Riemann surfaces .

CO5:- Explain Basic properties of harmonic functions.

MM242 Functional Analysis-II

CO1:- Familiar with Inner Product Spaces ,Orthogonal Sets.

CO2:- Able to understand Approximation and Optimization

CO3:- Able to understand Bounded Operators .

CO4:- Familiar with Spectrum and Numerical Range of Compact Self-Adjoint Operators

CO5:- :- Familiar with Banach algebra.

MM 243 Coding Theory (Elective)

CO1:- :- Able to understand Detecting and correcting error pattern

CO2:- :- Familiar with Linearcodes and its distance

CO3:- :- Able to understand Perfect codes, Hammingcodes

CO4:- Able to identify Cyclic linear codes,Dualcycliccodes ,decoding

CO5:- :- Familiar with BCH codes

MM244 Analytic Number Theory (Elective)

CO1:- Familiar with The fundamental Theorem of Arithmetic

CO2:- :- Familiar with Arithmetical Function

CO3:-Explain Congruence ,The Chinese Reminder Theorem

CO4:- Realise Quadratic residues

CO5:- :- Familiar with Primitive roots

PROGRAMME OUTCOME

PO1:-The Mastersdegreeprogrammewiil provide both mathematical knowledge and communication skills.

PO2 :- Mathematics is a powerful tool with many applications , so in this programme students could acquire basic knowledge in various branches of Mathematics .

PO2:- The resources gives sensible thinking, problem- solving capabilities and the capability to think in subjectiveways .

PO3:- Provides an effective communication skill that can be applied to their jobs.

PO4:- Could enter higher level careerswith greater salaries, receive promotions,etc.

PROGRAMME SPECIFIC OUTCOME

PSO1 :-The Masters degree program will provide a academic recognition.

PSO2:-Many careers that require masters degree are typically found in sectors such as research and academic Professionals .Masters degree offers benefit from higher pay and increased job responsibilities.

PSO3:-Mathematics is a building block for everything in our daily lives including mobile devices, architecture, money, in sports etc.

PSO4:- Will expand their knowledge of fields related to their current areas of professional specialization.

DEPARTMENT OF PSYCHOLOGY

Criterion II Teaching Learning and Evaluation
Course Outcome

To enable the student to get the basic to intermediate level understanding in the various branches of psychology
Students will get the understanding of General psychological concepts and also its application in various fields like school, organization, clinical and social.
To get research methodology knowledge and be able to do basic research
To get the understanding of related subjects like physiology and statistics

Semester I: Core Course I
Course 1: FOUNDATIONS AND METHODS OF PSYCHOLOGY
CO1.1: To understand the basics of various schools in psychology
CO1.2: To develop scientific attitude and critical thinking capacity in students
CO1.3: To provide basic knowledge about systems and processes like sensation perception and attention
CO1.4: To enable the student to understand the process of knowledge building in psychology and to familiarize the students with the methods in psychology
CO1.5: To familiarize the student with classic researches and their methods
Note for instructors: At the completion of the first three core courses, a clear understanding of all major concepts and terms in basic psychology is to be developed in the student. Rather than working on the various theories and controversies in psychology at the First Degree level, learning and teaching need to concentrate on making the student comprehend basic psychological concepts. Conceptual clarity needs to be stressed upon more than theoretical elaborations at this level.
Semester I: Complementary Course I
Course 2: BRAIN AND BEHAVIOUR
CO2.1: This course familiarizes the students of psychology with the most essential fundamental physiological processes underlying psychological events.

Complementary Course to First Degree Programmer for Psychology
I Semester- Complementary Course 1
Course 3: STATISTICAL METHODS FOR PSYCHOLOGY I

Semester II: Core Course II
Course 4: PSYCHOLOGICAL PROCESSES
CO4.1: To familiarize the students with the basic concepts of various psychological processes
CO4.2: To generate interest in psychology
CO4.3: To understand the basics of various data collection methods in psychology
CO4.4: To provide basic knowledge about systems and processes like memory and cognition

Semester II: Complementary Course III
Course 5: BIOLOGICAL BASIS OF SENSORY PROCESSES
CO5.1: This course familiarizes the students of psychology with the most essential fundamental physiological processes underlying psychological events.

Complementary Course to First Degree Programme for Psychology
II Semester- Complementary Course IV
Course 6: STATISTICAL METHODS FOR PSYCHOLOGY II

Semester III: Foundation Course II

Course 7: INFORMATICS
CO7.1: To update and expand basic informatics skills and attitudes relevant to the emerging knowledge society and also to equip the students to effectively utilize the digital knowledge resources for their chosen courses of study.
CO7.2: To review the basic concepts & functional knowledge in the field of informatics
CO7.3: To review functional knowledge in a standard office package and popular utilities
CO7.4: To create awareness about nature of the emerging digital knowledge society
CO7.5: To create awareness about social issues and concerns in the use of digital technology
CO 7.6: To create awareness about major informatics initiatives in India and Kerala

CO 7.7: To impart skills to enable students to use digital knowledge resources in learning

Semester III: Core Course III
Course 8: PSYCHOLOGY AND ASSESSMENT OF INDIVIDUAL DIFFERENCES
CO8.1: To provide basic knowledge about systems and processes like intelligence and personality
CO8.2: To familiarize the students with the concepts of basic psychological processes
CO8.3: To familiarize the student with various types of tests in psychology
CO8.4: To understand the basics of various approaches in these areas

Semester III: Complementary Course V
Course 9: PHYSIOLOGY OF MOTIVATION
CO9.1: To familiarize the student of psychology with important physiological processes underlying human behavior.

Complementary Course to First Degree Programme for Psychology
III Semester – Complementary Course VI
Course 10 : STATISTICAL METHODS FOR PSYCHOLOGY III

Semester IV : Core Course IV
Course 11. BEHAVIOUR
CO11.1: To enable the student to understand and explain behavior in the social setting.
CO11.2: To enable the student to explain the psychological aspects of various social phenomena.

Semester IV : Core Course V

Course 12: EXPERIMENTAL PSYCHOLOGY – 1
PRACTICALS
CO12.1: To create interest in the subject matter of psychology
CO12.2: To develop scientific and experimental attitudes in the student
CO12.3:To facilitate comprehension of the theoretical concepts through experiments
CO12.4:To develop the skills of observation and scientific reporting in psychology
CO12.5:To provide basic training in planning and conducting a psychological experiment
CO12.6:To familiarize the student with psychological instruments and tools.

Semester IV: Complementary Course VII
Course 13 :PHYSIOLOGY OF EMOTION AND COGNITION
CO13.1: To familiarize the student of psychology with important physiological processes underlying human behavior.

Complementary Course to First Degree Programme for Psychology
IV Semester- Complementary Course VIII
Course 14 : STATISTICAL METHODS FOR PSYCHOLOGY IV

Semester V : Core Course VI
Course 15: SOCIAL PSYCHOLOGICAL PROCESSES
CO15.1: To enable the student to understand and explain behavior in the social setting
CO15.2: To enable the student to explain the psychological aspects of various social and group phenomena
CO15.3: To enable the student to understand the psychological aspect of various social issues in the society and nation

Semester V; Core Course VIII
Course 16: INDIVIDUAL IN ORGANIZATION
CO16.1: To equip the students to understand about:
16.1.1: Individual aspects of employees.
16.1.2: Assessment and analysis of individual aspects
16.1.3: Implementation of techniques to enhance the individual potentials.

Semester V: Core Course VIII

Course 17 :INTRODUCTION TO MALADAPTIVE BEHAVIOR

CO17.1:To introduce characteristics and consecutive factors of different disorders and the classification system

CO17.2:To introduce the students with different views and perspectives on normality and abnormality

CO17.3:To familiarize the students with models of treatment and prevention

Semester V: Core Course IX

Course 18: PSYCHOLOGICAL ASSESSMENT - I

CO 18.1:To nurture the ability in students to understand himself/herself and other persons

CO18.2: To develop the skills of testing and scientific reporting in psychology

CO18.3: To familiarize the students to various psychological tests and assessment tools

CO18.4: To generate an interest in working of the community with a psychological outlook

The list includes tools that measure intelligence,
personality, memory, stress, locus of control etc.

Semester V : Core Course X

Course 19 : EXPERIMENTAL PSYCHOLOGY – II

PRACTICAL

CO19.1:To develop scientific and experimental attitudes in the student

CO19.2:To facilitate comprehension of the theoretical concepts through experiments

CO19.3:To develop the skills of observation and scientific reporting in psychology

CO19.4:To provide basic training in planning and conducting a psychological experiment

CO19.5:To familiarize the student with psychological instruments and tools

Semester VI: Core Course XII

Course 20 : PSYCHOLOGICAL ASSESSMENT - II

CO20.1:To nurture the ability in students to understand himself/herself and other persons

CO20.2:To develop the skills of testing and scientific reporting in psychology

CO20.3:To familiarize the students to various psychological tests and assessment tools
CO20.4:To generate an interest in working of the community with a psychological outlook
The list includes tools that measure interest, aptitude,
attitude, creativity, adjustment, values, health, well-being, basic tools for child assessment
etc.

Semester VI : Core Course XII
Course 21: HUMAN DEVELOPMENT
CO21.1:To familiarize the students with theories and process of development
CO21.2:To familiarize the students with the age – related changes in different domains of development.

Semester VI; Core Course XIII
Course 22: ORGANIZATIONAL BEHAVIOUR
CO22.1:To equip the students to understand about:
CO22.1.1: Formation of organization.
CO22.1.2: Assessment and analysis of organizational aspects.
CO22.1.3: Implementation of techniques to deal the organization effectively.

Semester VI: Core Course XIV
Course 23: MALADAPTIVE BEHAVIOR AND INTERVENTION
CO 23.1:To familiarize the students with different views and perspectives on normality and abnormality
CO23.2:To familiarize the students with models of treatment and prevention
CO23.3: To introduce the classification system and characteristics and consecutive factors of different disorders

OPEN COURSE FOR NON PSYCHOLOGY STUDENTS
PG 155.1 TO 1551.8
PG 1555.1 Understanding human behavior
PG 1551.2 Child Development
PG 1551.3 Yoga and dress Management
PG 1551.4 Life skill Development

PG1551.5 Sports Psychology
PG 1551.6 Health Psychology
PG 1551.7 Psychology in the class room
PG 1551.8 Child Development

PROGRAMME OUTCOME
Programme : B.Sc Psychology
PO1.

DEPARTMENT OF MALAYALAM

TEACHING LEARNING EVALUATION

Co- Course Outcome PO Programme Outcome PSO Programme Specific Outcome

PROGRAMME -

മലയാള ഭാഷയും സംസ്കാവും സാഹിത്യവും (CBCSS)

2014 Admission onwords

സെമസ്റ്റർ I

1. Language Course II Addl. Language -1
   ML 1111.1 മലയാള കവിത
2. Core Course 1 നോവൽ ചരിത്രവും പാഠവും ML 1141
3. Core Course കേരള സംസ്കാരം ഭാഗം 1ML 1131.1
4. Core Course 1I സംസ്കൃതം SK 1131.2

ML 1111.1 മലയാളം കവിത

* മലയാള കവിതയെ സംബന്ധിച്ച് സാമാന്യജ്ഞാനം നേടുക.
* കാവ്യാനുഭൂതി, കാവ്യാസാവാദനം, വിശകലനം ഇവയ്ക്കു പ്രാപ്തരാക്കുക

ML 1141 നോവൽ ചരിത്രവും പാഠവും

* നോവൽ സാഹിത്യചരിത്രം അറിയുക.
* പ്രശസ്ത നേവലിസ്റ്റുകളെ പരിചയപ്പെടുക

ML 1131. Comp കേരള സംസ്കാരം

* A.D 14 ാം നൂറ്റാണ്ടുവരെയുള്ള സാസ്കാരിക ചരിത്രം അറിയുന്നു.
* ഭാഷാ സാഹിത്യങ്ങൾക്കൊപ്പം സാഹിത്യ പശ്ചാത്തലം കൂടി അറിയുന്നു.

Comple SK 1131.2 സംസ്കൃതം

സെമസ്റ്റർ 1I

ML 1121.1 Addl Lang II ഗദ്യസാഹിത്യം

* നോവൽ, ചെറുകഥ, നാടകം, ഉപന്യാസം, അനുഭവ സാഹിത്യം തുടങ്ങിയവ മലയാള ഗദ്യത്തിന്റെ വിവിധ മാതൃകകളുമായി വിദ്യാർത്ഥികളെ പരിചയപ്പെടുത്തുന്നു.

ML 1241Core Course 11 നാടകം, ചരിത്രം, പാഠം പ്രയോഗം

* നാടകകലയുടെ ഉത്ഭവവികാസ പരിണാമ ചരിത്രം
* ഇതരകലകളുമായുള്ള ബന്ധം, വിദ്യാഭ്യാസം
* അവതരണ സവിശേഷതകൾ
* അരങ്ങിന്റെ വൈവിധ്യം ഇവ അറിയുക.
* ശ്രദ്ധേയമായ നാടകങ്ങൾ അറിയുന്നു.

ML 1231 Comp III കേരള സംസ്കാരം ഭാഗം -2

* കേരളത്തിന്റെ സാംസ്കാരിക പശ്ചാത്തലം അറിയുന്നു
* A D 14 -ാം നൂറ്റാണ്ടുമുതൽ വർത്തമാനകാല കേരള സംസ്കാരം വരെ അറിയുന്നു.

S K (Sanskrit)

സെമസ്റ്റർ - 1II

ML 1131.1 ദൃശ്യകലാസാഹിത്യം Addl Lang

* ദൃശ്യകലാസഹിത്യത്തിന്റെ സമ്പന്നതയെക്കുറിച്ച് വിദ്യാർത്ഥികളിൽ പരിജ്ഞാനം പകർന്നു കൊടുക്കുക.

* കഥകളി, തുള്ളൽ, നാടകം, സിനിമ തുടങ്ങിയ ദൃശ്യകലകളെയും അവയടെ പാഠങ്ങളെയും പരിചയപ്പടുന്നു.

ML 1321 Foundation Course (Informatics)

ആധുനിക സാങ്കേതിക വിദ്യയും ഭാഷാപഠനവും

* വിവര സാങ്കേതിക വിദ്യഭാഷാ സാഹിത്യരംഗങ്ങളിൽ ചെലുത്തുന്ന സ്വാധീനത്തെ തിരിച്ചറിയുന്നു.

* സൈബർ സാഹിത്യത്തെ പരിചയപ്പെടുന്നു.

ML 1341 Core Course III

സാഹിത്യ സിദ്ധാന്തങ്ങൾ -പൗരസ്ത്യവും പാശ്ചാത്യവും

* കുട്ടികളിലെ കാവ്യാസ്വാദനശേഷിയും നിരൂപണ സിദ്ധിയും മെച്ചപ്പെടുന്നു.

* വൃത്തം, അലങ്കാരം തുടങ്ങിയ കാവ്യരചനോപാധികളെയും വിവിധ സാഹിത്യ പ്രസ്ഥാനങ്ങളെയും പ്രവണതകളെയും മനസ്സിലാക്കുന്നു.

ML 1331 Complementary 5

പരിസ്ഥിതി സിദ്ധാന്തവും ആവിഷ്കാരവും

* പരിസ്ഥിതി ദർശനവുമായി ബന്ധപ്പെട്ട ആശയങ്ങൾ തത്വങ്ങൾ, പ്രവണതകൾ, പ്രതിഭാസങ്ങൾ എന്നിവയെക്കുറിച്ച് അറിവു നേടുന്നു.

* പരിസ്ഥിതി ദർശനത്തിന്റെ ഭൂമികയിൽ നിന്നുകൊണ്ട് കലയെയും സാഹിത്യത്തെയും വിലയിരുത്താനുള്ള പ്രാഗത്ഭ്യം നേടുന്നു.

സെമസ്റ്റർ 1V

ML 1141.1 Additional Language IV

വിനിമയം സർഗ്ഗാത്മക രചന ഭാഷാവബോധം

* ആശയവിനിമയത്തിന്റെ വിഭിന്ന ഘടകങ്ങളും പ്രക്രിയകളും വിദ്യാർത്ഥികൾക്ക് പരിചയപ്പെടുത്തുന്നു.

* ആശയവിനിമയ സിദ്ധാന്തങ്ങൾ അറിയുന്നു.

* ഭരണഭാഷ എന്ന നിലയിൽ മലയാളം അറിയുന്ന പ്രശ്നങ്ങൾ, സാധ്യതകൾ ഇവ അറിയുന്നു.

* എഴുത്തുകാരുടെ രചനാനുഭവങ്ങൾ മനസ്സിലാക്കുന്നു.

ML 1441 Core Course

മലയാള കവിത - പൂർവ്വഘട്ടം

* മലയാളത്തിലെ കാവ്യശാഖയുടെ ആവിർഭാവം മുതൽ 14 -ാം നൂറ്റാണ്ടു വരെയുള്ള വ്യത്യസ്ത കാവ്യസമ്പ്രദായങ്ങളും വ്യത്യസ്ത കാവ്യങ്ങളെയും പരിചയപ്പെടുന്നു.

* മലയാള ഭാഷയ്ക്കും സാഹിത്യത്തിനും കാലഘട്ടങ്ങളിലൂടെ സംഭവിച്ച പരിണാമങ്ങൾ മനസ്സിലാക്കുക.

* കേരളീയ സത്വത്തിന്റെ രൂപീകരണത്തിൽ മലയാള കവിത വഹിച്ച പങ്ക് കണ്ടെത്തുക.

ML 1442 Core Course

മലയാള സാഹിത്യ നിരൂപണം

* മലയാള സാഹിത്യ വിമർശനത്തിന്റെ ചരിത്രം പഠിക്കുക.

* പത്രമാസികകൾക്ക് വിമർശനത്തിനുള്ള പങ്ക്, പ്രാസവാദം, വിവിധ കാലഘട്ടങ്ങളിലെ വിമർശന കലയുടെ സവിശേഷതകൾ ഇവ മനസ്സിലാക്കുക.

ML 1443.1 Complementary Course

ദളിതെഴുത്ത്, പെണ്ണെഴുത്ത് : സിദ്ധാന്തവും ആവിഷ്കാരവും

* ആഗോള ശ്രദ്ധയാകർഷിച്ചിട്ടുള്ള ദളിതെഴുത്ത്, പെണ്ണെഴുത്ത് എന്നീ വിഷയങ്ങളെ വിദ്യാർത്ഥികൾ പരിചയപ്പെടുകയും സിദ്ധാന്തതലത്തെ അറിയുകയും ചെയ്യുന്നു.
* ആവിഷ്കാര തലത്തിൽ ഇവയുടെ മാതൃകകൾ പരിചയപ്പെടുന്നു.

SK 1431.2 Complementary

സംസ്കൃതം

സെമസ്റ്റർ V

ML 1541 Core Course

ഭാഷാ ശാസ്ത്രം, ഭാഷാ ചരിത്രം

* ഭാഷയുടെ ശാസ്ത്രീയ പഠനം ലക്ഷ്യമാക്കുന്ന കോഴ്സ്
* ഭാഷാ സ്വരൂപം അപഗ്രഥിച്ച് ഭാഷാ നിയമം രൂപവൽക്കരിക്കുകയും പ്രായോഗിക പാഠ്യപദ്ധതി രൂപപ്പെടുത്തി മുന്നോട്ടു പോവുകയുമാണ് ഭാഷാശാസ്ത്രത്തിന്റെ ലക്ഷ്യം.
* മലയാള ഭാഷയുടെ ഉൽപത്തി വികാസ പരിണാമങ്ങളെക്കുറിച്ചുള്ള സമാന്യജ്ഞാനം പ്രാപ്തമാക്കുന്നു.

ML 1542 Core Course

ചെറുകഥാ പഠനം

* ചെറുകഥാ സാഹിത്യ ചരിത്രം
* കഥാപാരമ്പര്യം
* കഥയുടെ വൈവിധ്യം
* ചെറുകഥയുടെ ഘടനാപരമായ സിവശേഷതകൾ
* പ്രമേയ വൈവിധ്യം
* എഴുത്തുകാരെ അറിയുന്നു. ഇവയൊക്കെ സാധ്യമാകുന്നു.

ML 1543 Core Course

നാടോടി വിജ്ഞാനീയം

* കേരളത്തിലെ സംസ്കൃതിയുമായി ബന്ധപ്പെട്ട നാടോടി വിജ്ഞാനീയത്തെക്കുറിച്ചറിയുന്നു.
* വാമൊഴി വഴക്കങ്ങൾ, സംസ്കാരം, കലകൾ എന്നിവയെക്കുറിച്ചുള്ള അറിവുണ്ടാവുക.
* പൈതൃക സമ്പത്തിനെയും കലകളെയും സംരക്ഷിക്കാനുള്ള ഉൾപ്രേരണ നൽകുന്നു.

ML 1554 ജീവചരിത്രം, ആത്മകഥ, യാത്രാനുഭവം

* ജീവചരിത്രം, ആത്മകഥ, അനുഭവരചന, യാത്രാവിവരണങ്ങൾ ഇവ അടുത്തറിയുന്നു.
* അനുഭവവൈവിധ്യമുള്ള വ്യക്തിത്വങ്ങളെ അറിയുന്നു.

ML 1545 Core Course ചലച്ചിത്ര പഠനം

* ആധുനിക കാലത്തെ കലയായ സിനിമയുടെ പ്രസക്തിയും പ്രാധാന്യവും അറിയുന്നു.
* ദൃശ്യമാധ്യമങ്ങളുടെ സംവേദന ക്ഷമത അറിയുന്നു.
* തിരക്കഥാരചന, ചലച്ചിത്രകലയുമായി ബന്ധപ്പെട്ട ഇതരമേഖലകൾ പഠിക്കുന്നു.
* പ്രശസ്തമായ ചലച്ചിത്രങ്ങൾ കാണുന്നു.

Open Course ML 1551.4 ചലച്ചിത്ര പഠനം
(As above Same Syllabus)

സെമസ്റ്റർ VI

ML 1641 മാധ്യമലോകം

* വ്യത്യസ്ത മാധ്യമങ്ങൾ സമൂഹത്തിൽ ചെലുത്തുന്ന സ്വാധീനത്തെക്കുറിച്ച് അറിയുക.
* അച്ചടിയും പത്രപ്രവർത്തനവും റേഡിയോ, ടെവലിവിഷൻ, വിവിര സാങ്കേതികവിദ്യ ഇവയിൽ സാമാന്യമായ് ആവഗാഹം നൽകുന്നു.

ML 1642 മലയാള വ്യാകരണം

* ഭാഷയുടെ നേരും നേറിയും തിരിച്ചറിയുന്നു.
* ഭാഷയുടെ ഉത്ഭവം, വളർച്ച, സാമൂഹിക സമകാലികാവസ്ഥ ഇവ മനസ്സിലാക്കുന്നു.
* പ്രയോഗ വൈവിധ്യം, ദേശഭാഷകൾ എന്നിവയെക്കുറിച്ച് അറിവ് നേടുന്നു.

ML 1643 – മലയാള കവിത ഉത്തരഘട്ടം

* നാലാം സെമസ്റ്ററിലെ കവിതാ പഠനത്തിന്റെ തുടർച്ച
* ഇരുപതാം നൂറ്റാണ്ടു മുതൽ ഇന്നോളമുള്ള മലയാള കവിതയുടെ പുരോഗതിയും ഭാവുകത്വ പരിണാമവും മനസ്സിലാക്കുക.
* കവിതയിലെ നവോത്ഥാനന്തര പ്രവണതകളെയും ആധുനിക ആധുനികോത്തര പ്രണതകളെയും അറിയുന്നു.

ML 1664 വിവർത്തനം സിദ്ധാന്തവും പ്രയോഗവും

* വ്യത്യസ്ത സമൂഹങ്ങൾ തമ്മിലുള്ള സമ്പർക്കത്തെ ആശയ വിനിമയത്തിലൂടെ ദൃഢവും അനായാസവുമാക്കിത്തീർക്കുന്ന മാധ്യമമെന്ന നിലയിൽ വിവർത്തനത്തെ അടുത്തറിയുക.
* വിവർത്തനത്തിന്റെ സ്വഭാവവും പ്രയോജനവും സാധ്യതകളും പഠനവിധേയമാക്കുന്നു.
* വിവർത്തനത്തിന്റെ സ്വഭാവം വ്യത്യസ്ത സമീപനങ്ങൾ, സിദ്ധാന്തങ്ങൾ.
* സാഹിത്യ വിവർത്തനത്തിന്റെ പ്രശ്നങ്ങൽ എന്നിവ മനസ്സിലാക്കുകയാണ്.

ML 1661.4 Elective

തിരക്കഥാ രചന : തത്വവും പ്രയോഗവും

* ചലച്ചിത്ര കലയുടെ മുഖ്യഘടകമായ തിരക്കഥയുടെ രചനസങ്കേതങ്ങളും സവിശേഷതകളും പഠനവിധേയമാക്കുന്നു.
* സാഹിത്യകൃതികൾ തിരക്കഥയാകുമ്പോൾ ഉണ്ടാകുന്ന സവിശേഷതകൾ പ്രധാന തിരക്കഥകളുടെ സഹായത്തോടെ വിശദമാക്കുന്നു.

U G Programme Out Come

സർവ്വകലാശാല വിദൂര വിദ്യാഭ്യാസം പൂർത്തിയാക്കുന്ന വിദ്യാർത്ഥി ഇംഗ്ലീഷ് ഭാഷാ പ്രയോഗത്തിലും സാഹിത്യത്തിലും പ്രാവീണ്യം നേടുകയും ഒരു ഇന്ത്യൻ ഭാഷയിലും അതിന്റെ സാഹിത്യത്തിലും വിജ്ഞരാവുകയും ചെയ്യുന്നു. വിദ്യാർത്ഥികൾ തെരഞ്ഞെടുക്കുന്ന ഐശ്ചിക (Core) വിഷയത്തിൽ പുതിയ അറിവുകൾ വ്യാപനം ചെയ്യാനും അവ പ്രയോഗിക്കാനും പ്രാപ്തരാവുന്നു. ഐശ്ചിക വിഷയത്തോടൊപ്പം രണ്ടു ഉപവിഷയങ്ങളിലെ (Complementary) വിജ്ഞാനോൽപാദനവും പ്രയോഗവും സാധ്യമാകുന്നുണ്ട്. നിലവിലെ ബിരുദ വിദ്യാർത്ഥികൾക്ക് ഐശ്ചിക ഉപവിഷയങ്ങൾ കൂടാതെ മറ്റൊരു വൈജ്ഞാനിക മണ്ഡലത്തിലേയ്ക്ക് പ്രവേശനം ലഭിക്കുകയും ചെയ്യുന്നു. ഓപ്പൺ കോഴ്സിലൂടെ, അവരവർക്ക് കൂടുതൽ താൽപര്യമുള്ള ഒരു അറിവിന്റെ മണ്ഡലം തുറന്നു കിട്ടുന്നു.

B A Degree Malayalam
Programme -
Malayalam Language Culture and Literature

Programme Specific Out come

മലയാള ഭാഷ, സംസ്കാരം, സാഹിത്യം എന്നീ മേഖലകളുമായി ബന്ധപ്പെട്ട അടിസ്ഥാനകാര്യങ്ങൾ വിവിധ കോഴസുകളിലൂടെ വിദ്യാർത്ഥികളിൽ എത്തുന്നു. കലയെയും സാഹിത്യത്തെയും വിഭിന്ന കാഴ്ചക്കോണിലൂടെ സമീപിക്കാൻ പ്രാപ്തരാക്കുന്നു. വിദ്യാർത്ഥികളുടെ മനോഭാവങ്ങളിൽ നിന്നും ചിന്താവേഗങ്ങളിൽ നിന്നും അന്വേഷണങ്ങളിൽ നിന്നും പുത്തൻ ആശയങ്ങളും കാഴ്ചപ്പാടുകളും പുറത്തുവരുന്നു. വിദ്യാർത്ഥികൾക്കുള്ള ഉപരിപഠനസാധ്യതയും പഠനവിഷയങ്ങളിലുള്ള കൂടുതൽ വിശദമായ അന്വേഷണ മേഖലകളെ കണ്ടെത്താൻ ഈ പ്രോഗ്രാം വിദ്യാർത്ഥികളെ പ്രാപ്തരാക്കുന്നു. ദേശീയ തലത്തിലുള്ള സിവിൽ സർവ്വീസ് പരീക്ഷയുൾപ്പെടെയുള്ള മത്സര പരീക്ഷകളിൽ പങ്കെടുക്കുന്നതിനുള്ള യോഗ്യത നേടുന്നു. മലയാള ഭാഷയും സാഹിത്യവും കലയും ഏറെ താൽപര്യത്തോടെ സമീപിക്കാൻ വിദ്യാർത്ഥികൾ പ്രാപ്തരാകുന്നു. പത്രപ്രവർത്തനം, മാസ്മീഡിയ, അഡ്വർടൈസ്മെന്റ്, ഇമേജ് എഡിറ്റിംഗ്, ഡോക്കുമെന്ററി തയ്യാറാക്കൽ തുടങ്ങിയവയിൽ പ്രാഗത്ഭ്യം സിദ്ധിക്കുന്നു.

MA Malayalam
(2013 Onwards)

PROGRAMME SPECIFIC OUTCOME

മലയാള ഭാഷയ്ക്കും സാഹിത്യത്തിനും പ്രാധാന്യം നൽകി വിദ്യാർത്ഥികൾക്ക് ചരിത്രാവബോധത്തോടെ ആഴത്തിലുള്ള അറിവ് പ്രകാശനം ചെയ്യുക എന്നതാണ് മലയാളം ബിരുദാനന്തരബിരുദ പഠനത്തിന്റെ ലക്ഷ്യം. ബിരുദ ക്ലാസ്സുകളിൽ സാമാന്യ ധാരണമാത്രം നേടിയിട്ടുള്ള വിഷയങ്ങളെ സമഗ്രബോധ്യത്തോടെ തിരിച്ചറിയാനുള്ള അവസരമാണ് എം.എ ക്ലാസ്സുകളിൽ നിന്നും വിദ്യാർത്ഥികൾക്ക് ലഭിക്കുന്നത്. കേവലമായ പാഠപുസ്ത പഠനം എന്നതിലപ്പുറം അവർക്ക് സ്വമേധയാ അന്വേഷണ നിരീക്ഷണങ്ങൾക്ക് അവസരമൊരുക്കാൻ പാഠ്യപദ്ധതി ശ്രമിക്കുന്നു. എം.എ ബിരുദം നേടി പുറത്തിറങ്ങുന്ന ഒരു വിദ്യാർത്ഥി ഭാഷാ സാഹിത്യമേഖലകളിൽ വിപുലവും വ്യക്തവുമായ അറിവുള്ള ആളായിരിക്കണം. സിലബസിൽ നൽകിയിട്ടുള്ള പാഠ്യസാമഗ്രികൾക്കു പുറത്തേയ്ക്ക് കടന്നു ചെല്ലുന്നതിനും പഠനവിശകലനങ്ങളിലൂടെ സ്വകീയമായ കാഴ്ചപ്പാടുകൾ രൂപീകരിക്കുന്നതിനും വിദ്യാർത്ഥിക്കു സാധിക്കുന്നു. നാലു സെമസ്റ്ററുകളിലെ വിവിധ കോഴ്സുകളിലായി വ്യത്യസ്ത പഠന മേഖലകളെയാണ് വിദ്യാർത്ഥി അഭിമുഖീകരിക്കുന്നത്. പ്രസ്ഥാനങ്ങൾ, വ്യക്തികൾ തുടങ്ങിയവയെക്കുറിച്ചു പഠിക്കുമ്പോൾ അതിൽ മാത്രം ഊന്നിനിൽക്കാതെ കാലഘട്ടത്തെയും സംസ്കാരത്തെയും കൂടി മനസ്സിലാകത്തക്ക വിധത്തിൽ വിദ്യാർത്ഥിയുടെ പഠന സമീപനത്തെ നിർണ്ണയിച്ചിരിക്കുന്നു. സെമിനാർ, അസ്സെസ്മെന്റ്, പരീക്ഷ തുടങ്ങിയ മൂല്യനിർണ്ണയോപാധികളിലെല്ലാം ഇത്തരമൊരു സമീപനത്തിനാണ് ഊന്നൽ നൽകിയിട്ടുള്ളത്.

ബിരുദാനന്തരബിരുദം പൂർത്തിയാക്കുന്ന ഒരു വിദ്യാർത്ഥിക്ക് ഗവേഷണ പഠനത്തിനായി സാധ്യതകൾ തുറന്നു കിട്ടുമെന്നതിനാൽ പി.ജി തലത്തിൽ തന്നെ ഗവേഷണത്തെക്കുറിച്ചുള്ള സാമാന്യബോധം അവനിൽ അങ്കുരിപ്പിക്കാൻ പാഠ്യപദ്ധതി ഊന്നൽ നൽകുന്നു. 2013 മുതൽ 'ഗവേഷണ രീതി ശാസ്ത്രം ' സിലബസിന്റെ ഒരു പ്രധാനഭാഗമാണ്. നാലാം സെമസ്റ്ററിൽ വിദ്യാർത്ഥികൾ തെരഞ്ഞെടുത്ത വിഷയത്തെ മുൻനിർത്തി പ്രബന്ധം തയ്യാറാക്കി സർവ്വകലാശാലയ്ക്ക് സമർപ്പിക്കേണ്ടതുണ്ട്. ഗവേഷണത്തിന്റെ അടിസ്ഥാനപാഠങ്ങൾ ഇതുവഴി വിദ്യാർത്ഥി മനസ്സിലാക്കുന്നു. വിശകലന പാടവവും വായനാശീലവും വിപുലമാക്കുന്നു. ഭാഷാ സാഹിത്യമേഖലകളെ സമഗ്രമായി സ്പർശിക്കുന്നതുകൊണ്ടു തന്നെ ബിരുദാനന്തരബിരുദ പഠനത്തോടെ വിദ്യാർത്ഥി ബന്ധപ്പെട്ട മേഖലയിൽ സ്വകാര്യവും വിപുലവുമായ ധാരണ നേടുമെന്ന കാര്യത്തിൽ സംശയമില്ല.

COURSE OUTCOME

സെമസ്റ്റർ 1

ML 211 പ്രാചീന സാഹിത്യം

കേരളീയരുടെ സാഹിത്യ പാരമ്പര്യത്തെക്കുറിച്ചുള്ള അന്വേഷണം നടത്തുന്നു. പഴയകാലത്തെ ഭാഷ, സാമൂഹിക ജീവിതം, സംസ്കാരം ഇവ മനസ്സിലാക്കുന്നു. ഇതര ഭാഷകളുമായി മലയാളത്തിനുള്ള ബന്ധം തിരിച്ചറിയുന്നു. പ്രാചീന സാഹിത്യത്തിന്റെ വ്യത്യസ്ത ധാരകൾ തിരിച്ചറിയുന്നു.

ML 212 മധ്യകാല സാഹിത്യം

പ്രാചീന സാഹിത്യത്തിന്റെ തുടർച്ചയായ സാഹിത്യ പഠനമാണിത്. ഭക്തിപ്രസ്ഥാനവും സാഹിത്യവും വിശദമായി പഠിക്കുന്നു. എഴുത്തച്ഛൻ സൃഷ്ടിച്ച കാവ്യസൗന്ദര്യബോധവും, ആധുനികഭാഷാ സാഹിത്യസമീപനങ്ങളിൽ ചെലുത്തിയ സ്വാധീനവും ചർച്ചയ്ക്കെടുക്കുന്നു. കവിത മാത്രമല്ല, ഗദ്യവികാസത്തെയും പഠനവിധേയമാക്കുന്നുണ്ട് ഈ കോഴ്സിൽ.

ML 213 കേരള സംസ്കാരം

സംസ്കാരവും സാഹിത്യവും തമ്മിലുള്ള അഭേദ്യബന്ധത്തിന്റെ പശ്ചാത്തലത്തിൽ കേരള സംസ്കാര ചരിത്രരചനയും പഠനവുമാണ് ലക്ഷ്യം വയ്ക്കുന്നത്. കേരളത്തിന്റെ സാംസ്കാരിക ചരിത്രം വിശകലനം ചെയ്യുന്നു.

ML 214 മലയാള വ്യാകരണം

എം.എ പഠനം പൂർത്തിയാക്കിയ ഒരു വിദ്യാർത്ഥി തെറ്റില്ലാത്തതും സുന്ദരവുമായ ഭാഷാ വിനിയോഗത്തിൽ പ്രാപ്തരാകേണ്ടതുണ്ട്. മലയാള വ്യാകരണ തത്വങ്ങൾ ചരിത്രപരമായും വിവരണാത്മകമായും പഠനവിധേയമാക്കുന്നതോടൊപ്പം പ്രായോഗിക പാഠങ്ങൾ നിർവ്വഹിക്കാനും വിദ്യാർത്ഥിക്കു സാധിക്കുന്നു. പുത്തൻ വ്യവഹാരരൂപങ്ങളെക്കൂടി പരിഗണിച്ചുകൊണ്ടാണ് വ്യാകരണ പഠനം സാധിക്കുന്നത്.

സെമസ്റ്റർ 2

ML 221 ആധുനിക സാഹിത്യം - ഗദ്യം

പാശ്ചാത്യ സാഹിത്യ സമ്പർക്കത്തിന്റെ ഫലമായി രൂപം കൊള്ളുകയും വികാസം പ്രാപിക്കുകയും ചെയ്ത വിവിധ ഗദ്യസാഹിത്യ രൂപങ്ങളെക്കുറിച്ചുള്ള പഠനമാണ് ഈ പേപ്പർ ലക്ഷ്യമാക്കുന്നത്. കേരളത്തിന്റെ സാസ്കാരിക ജീവിതത്തിൽ സംഭവിച്ച സൂക്ഷ്മ പരിണാമങ്ങളും ആധുനിക ഗദ്യ സാഹിത്യത്തിൽ അവ ചെലുത്തിയ സ്വാധീനവും പഠനവിധേയമാക്കുന്നു. സാഹിത്യകൃതികളുടെ രൂപപരമായ പരിണാമത്തെയും പരിഗണിക്കുന്നു.

ML 222 ആധുനിക സാഹിത്യം - പദ്യം

കവിത ദേശകാലങ്ങളുടെ ഏഴുത്താണ് എന്ന ചരിത്രപരമായ സമീപനമാണ് ഈ കോഴ്സ് ലക്ഷ്യമാക്കുന്നത്. കവിതകളുടെ രൂപപരവും പ്രസ്ഥാനപരവുമായ വിശകലനം വിദ്യാർത്ഥി സാധ്യമാക്കുന്നു.

ML 223 സാഹിത്യമീമാംസ - പൗരസ്ത്യം

ഭാരതീയ സാഹിത്യശാസ്ത്രം ഭരതമുനിമുതൽ അരബിന്ദോവരെയുള്ള പ്രമുഖ കാവ്യശാസ്ത്രകാരൻമാരും പ്രാമാണികഗ്രന്ഥങ്ങളും മുൻനിർത്തിയുള്ള പഠനം. കവി, കാവ്യം, സഹൃദയൻ തുടങ്ങി കാവ്യശാസ്ത്ര സംബന്ധമായ കാര്യങ്ങൾ ഗ്രഹിക്കുന്നു.

ML 223 സാഹിത്യമീമാംസ - പാശ്ചാത്യം

പാശ്ചാത്യ സാഹിത്യസിദ്ധാന്തങ്ങളുടെ വികാസ പരിണാമം വ്യക്തമായി മനസ്സിലാക്കുകയാണ് ലക്ഷ്യം. സാഹിത്യസിദ്ധാന്തങ്ങൾക്ക് കാലാനുസൃതമായി വന്ന മാറ്റവും മനസ്സിലാക്കുന്നു. സിദ്ധാന്തങ്ങളുടെ അടിസ്ഥാനതത്വങ്ങൾക്ക് ഊന്നൽ നൽകുന്നു.

സെമസ്റ്റർ 3

ML 231 സമകാലസാഹിത്യം - ഗദ്യം

രണ്ടാം സെമസ്റ്ററിൽ പഠിച്ച ഗദ്യസാഹിത്യത്തിന്റെ തുടർച്ച. നോവൽ, ചെറുകഥ, നാടകം, അനുഭവാഖ്യാനം തുടങ്ങി വ്യത്യസ്ത സാഹിത്യശാഖകൾക്ക് രൂപപരമായും പ്രമേയപരമായും വന്ന പരിണാമങ്ങൾ ഉദാഹരണ സഹിതം മനസ്സിലാക്കുന്നു.

ML 232 വിവർത്തനം തത്ത്വവും പ്രയോഗവും

മലയാളഭാഷ ഐശ്ചികമായി പഠിക്കുന്ന വിദ്യാർത്ഥി ഭാഷയിലെ ആദാനപ്രദാനങ്ങളെപ്പറ്റിയും വിവർത്തനത്തിന്റെ സാങ്കേതിക രീതിയെപ്പറ്റിയും മനസ്സിലാക്കേണ്ടതുണ്ട്. വിവർത്തതത്ത്വങ്ങളും പ്രോയോഗിക പാഠങ്ങളും ഇതിന് അവരെ സഹായിക്കുന്നു.

ML 234 മലയാള വിമർശനം

മലയാളത്തിലെ സാഹിത്യ വിമർശനത്തിൻരെ ഉത്ഭവ സാഹചര്യം, വികാസ പരിണാമങ്ങൽ, കാലഘട്ടങ്ങൾ, പ്രവണതകൾ, ആശയപരമായ സംവാദങ്ങൾ, അഭിരുചി പരിണാമങ്ങൾ, വിവിധ സിദ്ധാന്തങ്ങളുടെ സ്വാധീനം തുടങ്ങിയ സംഗതികൾ ചരിത്രപരമായി പഠിക്കുന്നു. പ്രതിഭാശാലികളായ വിമർശകരെ അടുത്തറിയുന്നു.

ML 233 Sanskrit

ഈ സെമസ്റ്ററിൽ തന്നെ റിസർച്ച് മെത്തഡോളജിയുടെ അടിസ്ഥാനകാര്യങ്ങൾ വിദ്യാർത്ഥികൾ ഗ്രഹിക്കുന്നു. അതിനായി ഗവേഷണം, പ്രബന്ധരചന തുടങ്ങിയ സംഗതികളെ സംബന്ധിച്ച് പ്രായോഗിക പരിശീലനം, മൂല്യനിർണ്ണയം എന്നിവ നടത്തുന്നു.

സെമസ്റ്റർ 4

ML 241 സമകാല സാഹിത്യം പദ്യം

സമകാല മലയാള കവിതയുടെ പൊതുസ്വഭാവം മനസ്സിലാക്കുന്നതോടൊപ്പം വിരുദ്ധങ്ങളും പരസ്പര ബന്ധങ്ങളുമായ പ്രവണതകൾ തിരിച്ചറിയുന്നു. ആധുനിക....കാലം, ആധുനികാനന്തരകാലം, സമകാലികകാലം എന്നിവ പ്രത്യേകം പ്രത്യേകം പഠനവിധേയമാണ്.

ML 243 ആധുനിക ഭാഷാശാസ്ത്രം

ഭാഷയുടെ ശാസ്ത്രീയമായ അപഗ്രഥന രീതികൾ മനസ്സിലാക്കുന്നു. അതിന്റെ പ്രവൃത്തിമണ്ഡലങ്ങൾ നിഷ്കൃഷ്ട പരിശോധനയ്ക്ക് വിധേയമാക്കുന്നു. ലിപി ചരിത്രം, ഉച്ചാരണ ശാസ്ത്രം, ഭാഷാങ്ങ പഠനം, സ്വനം, സ്വനിമം, രൂപിമം, വാക്യം, അർത്ഥം, ഇവയെക്കുറിച്ചൊക്കെ സാമാന്യാവബോധം നേടുന്നു.

ML 242 സംസ്കൃതം

ML 244 - ഐശ്ചികം -തിരക്കഥാപഠനം

തിരക്കഥാപഠനമാണ് വിദ്യാർത്ഥികൾക്ക് ഐശ്ചിക വിഷയമായി നിർണ്ണയിച്ചിട്ടുള്ളത്. സിനിമ എന്ന കലയുടെ സാങ്കേതികമായ പ്രത്യേകതകളും സിനിമയും സാഹിത്യവും തമ്മിലുള്ള ബന്ധവും സിനിമയുടെ ചരിത്രവും പഠിക്കുന്നതോടൊപ്പം തിരക്കഥാരചനയുടെ തത്ത്വങ്ങളും പ്രമുഖമായ തിരക്കഥകളും പഠനവിഷയമാക്കുന്നു.

SANSKRIT

BA/BSc/B.Com-SANSKRIT (ADDITIONAL LANGUAGE)

The Additional Language course, Sanskrit to BA, BSc and BCom, mainly intents to make the students aware of the poetry, prose, drama and grammar of Sanskrit language. It also helps them to improve their communication skill as well.

This course also concentrates in the structure of the language by which the students can improve their skill in the practical aspects also like letter writing, paragraph writing and even the use of internets as the modern medium of communication. For this purpose, Translation and communication in Sanskrit is also added.

Aim of the course -To develop the student's ability to know Sanskrit Language and Literature in general.

ADDITIONAL LANGUAGE FOR BA/BSc DEGREE EXAM

SEMESTER -1

Drama and Prose SK 1111.1

1. Balaramayana-Balakanda and Ayodhyakanda & Aranyakanda
2. Swapnavasavadhatta of bhasa-Act1

SEMESTER-2

Kavya and Prakarana in Sanskrit SK 1211.1

1. Kumara Sambhava of kalidasa-Canto-1
2. Mrichakatika of sudraka

SEMESTER-3

Kavya Nadaka,Alakara and Vritta SK 1311.1

1. Abhinjanasakunthalam of kalidasa-Act-1
2. Alankaras,Vritha

Semester-4

Influence of Sanskrit on Indian Culture SK 1411.1

1. History of Sanskrit Literature
2. Kerala Arts Forms, Social Reformers of Kerala

ADDITIONAL LANGUAGE FOR B.Com DEGREE EXAM

SEMESTER-1

Kavya and Drama SK 1111.3

1. Reghuvamsa Canto II
2. Karnabhara of bhasa

SEMESTER-2

Prose and Fables SK 1211.3

1. Bharata Samgraha-adiparva
2. Panchathanthra- Kshapanakakadha

Course outcomes-General

CO1. Develop the reading ability of the student

CO2. Familiarise with the script and alphabet of the language

CO3. Aware about the literature of Sanskrit in all branches.

4. Moreover it enables the students to know Sanskrit with various other disciplines like Science, Maths and even Aeronautics etc.

5. This course also creates the awareness about the linguistic peculiarities of Sanskrit Language

MALAYALAM DEGREE PROGRAMME

COMPLEMENTARY-SANSKRIT

The Complementary course for Malayalam BA Sanskrit is mainly intended to make the students aware about the Sanskrit language and literature in general. Moreover it enables the students to know Sanskrit with various other disciplines like Science, Maths and Aeronautics etc. It creates awareness about the Linguistic peculiarities of Sanskrit Language.

THE OUTLINES OF THE COURSE ARE:

1. Literary importance of Sanskrit language and literature
2. Structural peculiarities of the language
3. Relation of Sanskrit language with various other disciplines
4. Relevance of Sanskrit in modern period
5. Develop the communicative skill of the students in Sanskrit

SEMESTER – 1.SK 1131.2.POETRY AND GRAMMAR

1. NALOPAKHYANAM
2. SUBHASHITHAM
3. GRAMMAR

SEMESTER – 2.SK 1231.2.POETRY AND GRAMMAR

1. SREEKRISHNAVILASAM
2. BHAGAVATH GITA CHAPTER - 2

SEMESTER -3.SK 1331.2.DRAMA AND GRAMMAR

1. MADHYAMA VYAYOGA OF BHASA
2. SENTENCE MAKING IN SANSKRIT
3. GRAMMAR

SEMESTER-4.SK 1431.2.LYRIC, POEMS, FABLES AND TRANSLATION

1. PANCHATHANTHRA(Two Stories)
2. REGHUVAMSA – CANTO 2

PG COURSE OUTCOME MALAYALAM -COMPLEMENTARY SANSKRIT

The complementary course for Malayalam PG Sanskrit enables the students to know Sanskrit language and Literature in continuation to the UG level. This course also enables them in various Sanskrit teaching methods with special reference to Sanskrit Prose, Poetry and Grammar. It also makes them aware about the various modern methods in learning Sanskrit Language and Literature.

This syllabus of Malayalam PG Complementary, Sanskrit is structured accordingly including almost all branches of Sanskrit Language and Literature, with special reference to the structure and grammatical applications of Sanskrit Language.

SEMESTER – 3.POETRY, DRAMA AND GRAMMAR

Paper 1 -CLASSICAL SANSKRIT LITERATURE AND GRAMMAR

SEMESTER – 4.SANSKRIT, COMPOSITIONS AND TRANSLATION

Paper 2.FABLES, DEFINITIONS OF POETIC TYPES IN SANSKRIT

DEPARTMENT OF PHYSICS

FIRST DEGREE PROGRAMME IN PHYSICS

COURSE OUTCOME

AIM AND OBJECTIVES

In this programme, we aim to provide a solid foundation in all aspects of physics with opportunities to develop basic knowledge and understanding of scientific phenomena, facts, laws, definitions, concepts, theories, terminology,

conventions, quantities and their determination, applications as well as their social, economic and environmental implications to real-life problems. This programme also intends to introduce a broad spectrum of modern trends in physics and to develop experimental, computational and mathematical skills of students and enable them to demonstrate competency in their understanding of scientific information. The syllabi are framed in such a way that it bridges the gap between the plus two and post graduate levels of physics by providing a more complete and logical framework in almost all areas of basic physics. The programme also aims

(i) to provide excellent and quality education which will impart student with sufficient basic knowledge to further study and research in physics and for extensive range of opportunities in industry and allied fields.

(ii) To preserve an environment of spirit of enquiry and teachers committed to transact physics as a rational and challenging subject

(iii) To support teaching and learning environment with fully equipped laboratory, library and internet facilities

(iv) To scrutinize, review and augment educational perspectives to ensure that the programme remains intellectually demanding and updated to suit current needs of physics graduates

(v) to maintain the highest academic standards in undergraduate teaching.

(vi) to impart the skills required to gather information from resources and use them.

(vii) to equip the students in methodology related to physics.

(viii) use Information Communication Technology to gather knowledge at will.

(ix) to obtain solutions to physical questions by use of qualitative and quantitative reasoning and by experimental investigation

(x) to understand how a small number of fundamental physical principles underlie a huge variety of interconnected natural phenomena.

(x) to acquire relevant information from a variety of sources and to be able to communicate scientific information in a clear, concise and logical manner.

(xi) to acquaint the students with basic tools of mathematics needed to analyse the language of nature.

(xii) to impart knowledge in chemistry which is required to complement the study of physics.

(xiii) to give necessary knowledge in languages to express what the students have studied sso far and to disseminate the knowledge they have attained to the benefit of the society.

Objectives

By the end of the first semester the students should have

(i) Attained a common level in basic mechanics and properties of matter

(ii) been familiar with mathematics, Chemistry along with languages

By the end of the second semester the students should have

(i) a deep understanding of mechanical systems using basic concepts of classical mechanics.

(ii) basic foundation in mathematics Chemistry and Languages to complement the core courses.

By the end of the third semester, the students should have

(i)been introduced to powerful tools for tackling a wide range of topics in

Thermodynamics, Statistical Mechanics

(ii) attained additional relevant mathematical techniques, Chemistry and Languages to complement their future courses.

By the end of the fourth semester, the students should have

(i) a deep understanding of the theoretical foundations of electrodynamics.

(ii)laid a secure foundation in mathematics Chemistry Languages and other relevant subjects to complement the core for their future courses

(iii) developed their experimental skills through a series of experiments at laboratories.

By the end of the fifth semester, the students should have

(i) covered a range of topics in almost all areas of physics including quantum physics, electronics, atomic and molecular physics etc.

(ii)been introduced the significance of research, different methods of research, design of experiments, data collection, error analysis , thesis writing etc

(iii)developed their experimental and data analysis skills through a wide range of experiments in the practical laboratories.

(iv) got a chance to become familiar with a subject of their own interest through open course.

By the end of the sixth semester, the students should have

(i) developed the fundamental concepts of building up complexity from elementary constituents in the framework of nuclear and sub-nuclear physics.

(ii)attained basics of solid state physics which is the backbone of material science research.

(iii)obtained basic skills of computer programming which is essential for their future career.

(iv)deep understanding of the principles behind LED, laser, optical non linearity and their applications in various devices.

(v) the experience of independent work such as projects, seminars and developed competency in experimental design and scientific data collection and analysis.

PY 1141 - Basic Mechanics and properties of matter

After successfully completed course, student will be able to

- apply the concept of moment of inertia in the description of the rotation of the rigid body and apply the laws to predict forces in and motions of machines and structures..
- Apply conservation laws to analyze relatively simple physical mechanisms
- Give basic knowledge of oscillations and wave motion with their applications.
- acquire engineering skills and practical knowledge, which help the students in their everyday life.
- identify the materials suitable for the construction of buildings, houses etc.
- understand the properties of fluids especially knowledge of viscosity and surface tension help the students in their daily life and agriculture.

- do experiments in related areas with a theoretical background.

PY 12 21 Classical Mechanics

Students who have completed this course should

- Have a deep understanding of basic mechanical concepts related to discrete and continuous mechanical systems.
- be able to solve the Newton equations for simple configurations using various Methods.
- Build the capability to demonstrate knowledge and understanding of the following fundamental concepts in:
    - the dynamics of system of particles,
    - planar and spatial motion of rigid body,
    - Lagrangian and Hamiltonian formulation of mechanics
- Develop the skills to represent the equations of motion for complicated mechanical systems using the Lagrangian and Hamiltonian formulation of classical mechanics.

PY 1341 Thermodynamics and Statistical physics

On satisfying the requirements of this course, students will have the knowledge and skills to:

- Identify and describe the statistical nature of concepts and laws in thermodynamics, in particular: entropy, temperature, chemical potential, Free energies, partition functions.
- Use the statistical physics methods, such as Boltzmann distribution, Gibbs distribution, Fermi-Dirac and Bose-Einstein distributions to solve problems in some physical systems.
- Apply the concepts and principles of black-body radiation to analyze radiation phenomena in thermodynamic systems.
- Apply the concepts and laws of thermodynamics to solve problems in thermodynamic systems such as gases, heat engines and refrigerators etc.

- Analyze phase equilibrium condition and identify types of phase transitions of physical systems.
- Make connections between applications of general statistical theory in various branches of physics.
- Design, set up, and carry out experiments; analyse data recognising and accounting for errors; and compare with theoretical predictions.
- use the knowledge of thermal and stastical mechanics to explore various applications related to topics in material science and the physics of condensed matter.

PY 1441 Electrodynamics

Students who completed this course should

- attain knowledge and develop skills in the basic concept of electric forces and calculate electric fields due to various charge distributions.
- gain an understanding of magnetic fields and their relationship to electrical fields
- Have a deep understanding of the theoretical foundations of electromagnetic phenomena.
- gain knowledge and develop skills in the safe use of direct electrical current circuits.
- handle more complicated circuits consisting of multiple emf sources and resistors.
- Be able to solve the Maxwell equations for simple configurations.
- Learn the concepts of electromagnetic waves, its transmission and reception.

PY 1541 Methodology in Physics &Relativistic Mechanics

This course will be an introduction to

- the objectives and motivation in research, the significance of research inthe social , economic and political development of the nation.
- the importance of measurement, measuring instruments, sources of errors and estimation of errors which is central to physics

- conditions under which research in general, fundamental or technical, is conducted.
- Thesis writing to present the outcome of research in the prescribed format.
- The concept of special relativity and its applications to physical sciences**.**
- Significant tests of special theory of relativity.

PY 1542 Quantum Mechanics

Students who completed this course should

- pinpoint the historical aspects of development of quantum mechanics.
- understand and explain the differences between classical and quantum mechanics
- understand the idea of wave function
- understand the uncertainty relations
- have a deep understanding of the mathematical foundations of quantum mechanics.
- understanding the basic principles of wave mechanics
- be able to solve the Schrodinger equation for simple configurations.
- understand the effect of symmetries in quantum mechanics.
- develop a knowledge and understanding of the relation between conservation laws and symmetries
- have the ability to solve simple problems exactly
- develop a knowledge and understanding of the concept that quantum states live in a vector space

PY 1543 Electronics

Student who is successfully completing the course will be able to

- acquire knowledge about semiconductor physics for intrinsic and extrinsic materials.
- understand the basic operation and working of different diodes.
- understand and use of the device models to explain and calculate the characteristics of the field effect transistors
- learn the basics of semiconductor diodes, BJTs and their small signal and high frequency analysis

- expose students to the function and application of the diodes, bipolar junction and field effect transistors in electronic circuits.
- identify almost all electronic components and their working principles.
- service or repair basic electronic equipments like radio, television, electronic chokes, lamps etc..
- Understand the terminal characteristics of op-amps and design /analyse fundamental circuits based on op-amps.
- Analyse feedback and its effect on the performance of op-amp.
- Design and analysis of nonlinear circuits

PY 1544 Atomic and Molecular Physics

Upon successful completion of this course it is intended that a student will be able to

- discuss the relativistic corrections for the energy levels of the hydrogen atom and their effect on optical spectra.
- state and explain the key properties of many electron atoms and the importance of the Pauli exclusion principle .
- explain the observed dependence of atomic spectral lines on externally applied electric and magnetic fields
- state and justify the selection rules for various optical spectroscopies in terms of the symmetries of molecular vibrations .
- understand the basic principles of production, properties and applications of X-rays in various fields.
- learn the basic principles and use spectroscopic methods for qualitative and quantitative analysis in materials science research.

PY 1551 Open Course – Energy Physics

After successfully completing the course, student will be able to

- know the energy demand of world, nation and available resources to fulfill the demand
- know about the conventional energy resources and their effective utilization

- acquire the knowledge of modern energy conversion technologies
- identify available nonconventional (renewable) energy resources and techniques to utilize them effectively.
- Knowledge of alternate energy sources
- know OTEC (Ocean Thermal Energy Converter), energy production from wind, working of solar photovoltaic cell etc

PY 1641 Solid State Physics

After this course, the students are expected to be able to:

- classify real solid materials based on basic concepts like atomic arrangement, microstructure and crystal binding.
- have a basic knowledge of crystal systems and spatial symmetries
- apply the theory of X-ray diffraction in reciprocal space to determine the lattice structure of crystalline materials
- understand the concept of reciprocal space and significance of Brillouin zones.
- Understand the band structure of a crystalline material and based on this develop a qualitative understanding of the relation between band structure and the electrical/optical properties of a material.
- know the fundamental principles of semiconducting materials and explain the basic physical principles behind a pn-junction.
- explain the physical principles for different types of electric and magnetic phenomena in solid materials and in relevant cases relate this to macroscopically measured physical quantities.
- outline the importance of solid state physics in the modern society.

PY 1642 Nuclear and Particle Physics

On satisfying the requirements of this course, students will have the knowledge and skills to

- explain central concepts, laws and models in nuclear and particle physics

- find the nuclear radius, mass and abundance of nuclides, nuclear binding energy, nuclear angular momentum and parity, nuclear electromagnetic moment and nuclear excited states
- describe experimental techniques developed for nuclear physics purposes and discuss their influence on development of new technologies
- learn types of nuclear reactions and conservation laws, energetics of nuclear reactions and reactions cross sections.
- expected to know the deuteron, nucleon-nucleon potential, proton-neutron and neutron-neutron interaction
- use basic laws and relations to interpret experimental results
- analyse production and decay reactions for fundamental particles, applying conservation principles to determine the type of reaction taking place and the possible outcomes.

PY 1643 Classical &Modern Optics

After successful completion of this course, students will be able to:

- Comment on basic concepts and principles of geometrical, physical and modern optics and explain everyday *optics* phenomena.
- Understand the physics behind various properties exhibited by light such as interference, diffraction, polarization etc
- Discuss the nature of light, its propagation and interaction with matter.
- Know the principle of propagation of light in *optical* fibers, holography and its applications,
- fabricate modern optical and electro optical devices.

PY 1644 Digital Electronics &Computer Science

On satisfying the requirements of this course, students will acquire

- the knowledge and skills to examine the structure of various number systems and its application in digital design.
- the basic knowledge of digital logic circuits to design logic circuits of their own.

- ability to identify basic requirements for a design application and propose a cost effective solution.
- an understanding of the basics of *computer science* with the introduction of programming in C.
- the skills to object-oriented programming, algorithm design, and problem-solving with the introduction of computer science.
- knowledge that helps to prepares for positions as *computer scientists* in business, industry and government etc

PY 1661 – Elective Course – Photonics

This course provides students with

- an opportunity to develop knowledge and understanding of the key principles and applications of applied optics.
- understanding of electromagnetic optics, photon sources, optical principles and effects which form the basis for photonic systems.
- deep knowledge of optical communication devices and the related technological issues, including: bistable optical devices, optical interconnectors, optical amplifiers, semiconductor lasers etc.
- the physics governing laser, its interaction with matter and properties of various lasers and the propagation of laser beams.
- Knowledge of the properties of modern non linear optics and its applications.

MSc DEGREE PROGRAMME IN PHYSICS

PH 211: CLASSICAL MECHANICS

- Demonstrate the ability to analyze and solve introductory problems in Physics.

- Demonstrate an advanced level knowledge and understanding of the laws of classical mechanics to include representing these laws in mathematical expressions with appropriate units for physical quantities.

PH 212: MATHEMATICAL PHYSICS

- Show quantitative and analytical skills necessary to solving physics/engineering problems.
- Demonstrate the ability to communicate analysis of problems in a professional manner

PH213: BASIC ELECTRONICS

- Student understand the basic signals and systems.
- Student can design bandpass, lowpass, and highpass filter.
- Learn basic electronic instrumentation.
- Basic formulation of optical fibres.
- Basic principles of digital electronics and logic systems.
- solve introductory DC and AC circuits.
- Design, construct, and analyze DC and AC circuits.

PH221: MODERN OPTICS AND ELECTROMAGNETIC THEORY

- Able to acquire the knowledge of Electromagnetic field theory that allows the student to have a solid theoretical foundation to be able in the future to design emission , propagation and reception of electro- magnetic wave systems
- Able to identify , formulate and solve fields and electromagnetic waves propagation problems in a multi-disciplinary frame individually or as a member of a group.
- Able to acquire the knowledge of Non-linear optics and linear optics.

PH222: THERMODYNAMICS, STATISTICAL PHYSICS AND BASIC QUANTUM MECHANICS

- Describe the Laws of Thermodynamics.

- Solve mechanics and thermodynamics problems using conservation principles.
- pinpoint the historical aspects of development of quantum mechanics

1. understand and explain the differences between classical and quantum mechanics
2. understand the idea of wave function
3. understand the uncertainty relations
4. solve Schroedinger equation for simple potentials
5. spot, identify and relate the eigenvalue problems for energy, momentum, angular momentum and central potentials explain the idea of spin.

PH223: COMPUTER SCIENCE AND NUMERICAL TECHNIQUES

- Demonstrate understanding of common numerical methods and how they are used to obtain approximate solutions to otherwise intractable mathematical problems.
- Analyse and evaluate the accuracy of common numerical methods.
- Implement numerical methods in C++.
- Demonstrate the basic working of 8085 μ p.
- Master an understanding of scripting and the contributions of scripting languages.

Master an understanding of Python especially the object-oriented concepts

PH231: ADVANCED QUANTUM MECHANICS

To acquire working knowledge of the Quantum Mechanics postulate on the physical systems.

To acquire working knowledge of the Quantum Mechanics postulate on the evolution of physical systems.

) Understand the path integral representation of quantum mechanics;
(3) Understand the operator formulation of quantum mechanics;
(4) Understand time dependent perturbation theory in quantum mechanics;

(5) Understand how to apply perturbation theory to describe scattering;
(6) Understand the form and construction of relativistic wave equations;
(7) Appreciate the need for quantum field theory.

PH232: ADVANCED SPECTROSCOPY

Use spectroscopic terminology and concepts to

- Explain how various regions of the electromagnetic spectrum can be used to measure different aspects of molecules structure
- Analyse real experimental data to retrieve information about chemical and biological systems
- Explain how Raman and IR techniques work and what information can be retrieved
- Explain how spectroscopy can be used to measure photochemical reactions
- Choose an appropriate spectroscopic technique for a given task

PH233: ELECTRONICS

- To introduce the various optical fiber modes, configurations and various signal degradation factors associated with optical fiber.
- To study about various optical sources and optical detectors and their use in the optical communication system. Finally to discuss about digital transmission and its associated parameters on system performance.

- Student understand the basic knowledge necessary for transmitting and receiving information
- Student understand different types of modulation and demodulation
- Student can solve analog and digital modulation problems.
- Student understand the fundamentals of mobile and wireless communications.

PH241: CONDENSED MATTER PHYSICS

- relate crystal structure and degree of ordering to atom binding and packing,

- classify condensed matter upon its degree of order, with emphasis on scattering experiments,
- explain the thermal properties in solids in particular heat capacity,
- classify condensed matter upon its electrical and transport properties,
- apply the obtained concepts to challenges in condensed matter physics.

PH242: NUCLEAR AND PARTICLE PHYSICS

POLITICAL SCIENCE

Semester I (complementary course)

PS (1131) Principles of Political Science (Credits-2)

CO1. The course intends to familiarise the students with the fundamental principles of Political Science.

CO2. Familiarise the students the major principles of Political science and its major concepts

Semester II (complementary course)

PS (1231) Indian Government and Politics (Credits-3)

CO1. The course intends to make students aware of basic principles of Indian Constitution and politics

CO2. To make students familiarise the structure and functions of Indian political system

CO3. To make aware about the different institutions in India adhered to democracy

Semester III (complementary course)

PS (1331) Public Administration (Credits-3)

CO1. The course is intended to create an understanding of the basic elements of Public Administration

CO2. The course equips the students with the theoretical understanding about Public Administration

Semester IV (complementary course)

PS (1431) International Politics (Credits-3)

CO1. The course seeks to equip the students with the basic concepts, theories, ideologies, and approaches in the study of International Politics

CO2. Create awareness about major issues in global politics.

DEPARTMENT OF PHYSICAL EDUCATION

Health and Wellness Promotion - Add on Course

Course Outcome

1. Conduct assessments of physical fitness and well-being of individuals and effectively communicate assessment results.
2. Prescribe appropriate physical activity, fitness, active living, and lifestyle programs to enhance health, physical fitness, and well-being.
3. Utilize appropriate interviewing and counselling skills to promote or enhance health, fitness, active living, and well-being.
4. Develop, implement, and evaluate activities, programs, and events which respond to identified needs and interests of pupils and maximize the benefits of health, fitness, and well-being.
5. Train individuals and instruct groups in exercise and physical activities.
6. Contribute to community health promotion strategies.
7. Assist in the development of business plans for health and fitness programs, activities, and facilities.
8. Develop and implement risk management strategies for health and fitness programs, activities, and facilities.
9. Interact effectively with students, staff, and volunteers in health and fitness programs, activities, and facilities.

HEALTH & FITNESS EDUCATION - OPEN COURSE

Course Outcome

1. Students will be able to explain and identify the theoretical and scientific principles that can be used to address sport performance and health & fitness assessment.
2. Learners will understand the basic principles of health, fitness and wellness to develop an informed, personal approach to physical, mental and social health.
3. Understand the principles of health and fitness and will incorporate fitness activities into a healthy and active lifestyle in their personal life.
4. Students will value knowledge of psychological and sociological concepts, principles, and strategies that apply to physical activity and sport.
5. Students will acquire knowledge and skills to safely engage in physical activity.
6. Understand the components of physical fitness in relation to exercise physiology and apply the knowledge to movement activity.
7. Acquire knowledge regarding health and nutrition
8. Provides hands-on experience on first aid measures and manage common injuries.
9. To create awareness regarding hypo-kinetic diseases.
10. Utilize physical activity as a tool to manage stress.
11. Understand and utilize various training methods.
12. Create a safe, progressive, methodical and efficient activity based plan to enhance health and fitness levels of individuals.
13. Develop an appreciation of physical activity as a lifetime pursuit and a means to better health.
14. Aspirants to become health and fitness professionals will get a platform to proceed with their plan.