



## **PG DEPARTMENT OF BOTANY**

### **PROGRAMME OUTCOME**

Botany is one of the world's oldest natural sciences. Today, it is such a large and varied area and has many important uses in a wide variety of disciplines, that it has evolved several niches and offshoots. BSc Degree programme in Botany encourage the broad instructional goals and support the growing demands and challenging trends in the educational scenario. The course provides the environment that encourages, promotes and stimulates the intellectual, professional and personal development of the student. The course enhances the different abilities like critical thinking, social interaction, effective citizenship, better ethical approach, scientific temper and conservation of natural resources. The graduates enter a diverse range of fields from plant science community to Agriculture, Soil science, Land scape studies, Horticulture, Genetics, Forestry, Plant pathology, molecular biology, Biotechnology and Environment science. There are prospects for botanists in universities, museums, industries, botanical gardens, private research institutes, conservation organizations, natural reserves, parks etc.

The curriculum is well conceived for science students and it envisages under graduate education as a combination of general and specialized education, simultaneously introducing the concepts of breadth and depth in learning. Present programme helps to prepare the students for lifelong learning by drawing attention to the vast world of knowledge of plants and introducing them to the methodology of systematic academic enquiry.

### **PROGRAMME SPECIFIC OUTCOME**

1. Inculcate interest in nature with its myriad living forms
2. Give better exposure to the diversity of plant kingdom





3. Give awareness about natural resources and their importance in sustainable development
4. Determine the economic and medicinal plants used in agriculture and medicine
5. Provide an awareness about the diseases, agents and symptoms in different plant species
6. Understand the evolutionary relationship between the plant groups
7. Analyze the relationship between plants and microbial organisms
8. Understand the mechanism to produce genetically modified plants
9. Provide opportunities for the application of the acquired knowledge in day to day life

## **COURSE OUTCOME**

### **SEMESTER I**

#### **BOT1B01T: ANGIOSPERM ANATOMY**

- Understand the structure of plant cell and non-living cell inclusions
- Comparative analysis of various types of tissues in plants
- Gain the knowledge of vascular tissues in monocot and dicot plants
- Differentiate the normal, extra-stelar and anomalous secondary growth in plants

### **SEMESTER II**

#### **BOT2B02T: RESEARCH METHODOLOGY AND MICROTECHNIQUE**

- Understand the competence in research approaches
- Impart knowledge about data collection, interpretation and deduction of data, research report writing and data presentation
- Develop the concept about the measures of central tendency, measures of dispersion, probability, test of hypothesis and experiment designing
- Understand different biophysical techniques
- Collect the knowledge about microscopy and micrometry
- Understand the procedure of permanent slide preparation

### **SEMESTER III**

#### **BOT3B03T: MICROBIOLOGY, MYCOLOGY, LICHENOLOGY AND PLANT PATHOLOGY**





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- Understand the various aspects of micro-organisms.
- Familiarize their ecological and economic importance and various culture techniques.
- Study different classification systems in fungi and their major features.
- Develop an idea about various plant diseases, symptoms and managing measures.
- Brief account on common plant diseases.
- Identification of the diseases, pathogen, symptoms and control measures of common plant diseases.

### SEMESTER IV

#### **BOT4B04T: PHYCOLOGY, BRYOLOGY, PTERIDOLOGY**

- Acquire knowledge on general characters, classification systems, phylogenetic patterns and economic importance of algae, bryophytes and pteridophytes.

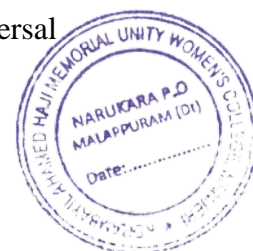
### SEMESTER V

#### **BOT5B05T: GYMNOSPERMS, PALAEOBOTANY, PHYTOGEOGRAPHY & EVOLUTION**

- Study general characters, classification, distribution and other major aspects of gymnosperms.
- Know the evolutionary trends and economic importance of the group.
- Understand the basic and applied aspects of fossil plants.
- Study relation between different plant distribution patterns and topography.
- Understand evolution and various theories.
- Emphasize on evolutionary processes and subsequent changes in flora

#### **BOT5B06T: ANGIOSPERM MORPHOLOGY AND SYSTEMATICS**

- To know about stem, root and leaf modifications
- Identify and describe different inflorescence types in plants
- Understand the concept that 'flower is a modified shoot'
- Know about different types of fruits and seeds along with the adaptations for dispersal
- Familiarize the components and development of plant systematics
- Understand different systems of plant classification
- Study the salient features of different monocot and dicot families
- Know the contributions of eminent taxonomists





- Develop a better knowledge on plant nomenclature and key preparation
- Describe the steps of herbarium preparation and maintenance
- Familiarize different international herbarium types

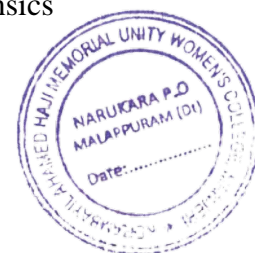
### **BOT5B07T:EMBRYOLOGY, PALYNOLOGY, ECONOMIC BOTANY, ETHNOBOTANY, HORTICULTURE**

- Know about anther and ovule structure, gametogenesis and fertilization
- Study the types of endosperm, embryo and polyembryony
- Describe different types of polyembryony
- Study on pollen morphology and acetolysis procedure
- Describe different aspects of applied palynology
- Familiarize the different types and mechanisms of pollination
- Study the binomial, family and morphology useful part of cereals, pulses, sugar, fruits, vegetables, ornamental plants, timbers, fibres, spices, medicinal plants, oil seeds and latex
- Understand major tribes of South India and ethnobotanic significance of medicinal plants
- Provide better knowledge about the soil components, fertilizers and irrigation methods
- Demonstrate different vegetative propagation methods
- Develop the clear idea about the gardening methods
- Study the different stages of mushroom cultivation

### **BOT5B08T:GENERAL AND BIOINFORMATICS, INTRODUCTORY BIOTECHNOLOGY AND MOLECULAR BIOLOGY**

- Understand the application of information technology in plant biology
- Study the relationship of information technology and society
- Know about the cyber ethics
- Study the genomics, proteomics and genome projects
- Understand the role of IT in phylogenic tree construction and drug design
- Provide the elaborated information about genetic code, DNA and RNA
- Provide the exact knowledge of central dogma of protein synthesis
- Demonstrate the steps of *invitro* micropropagation of desired plants
- Develop the different aspects of tissue culture methods
- Understand the *invitro* secondary metabolic production using bioreactors
- Study the application of biotechnology in medicine, agriculture, industry and forensics

### **BOT5D02: OPEN COURSE – APPLIED BOTANY**





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- Describe different vegetative propagation and micro propagation methods in plants
- Gain knowledge about different steps of growing plants
- Understand the role of botany in everyday life
- Study the binomial, family and morphology of useful part of the cereals, pulses, timbers, spices, fruits, ornamental plants etc.

## SEMESTER VI

### **BOT6B09T: GENETICS AND PLANT BREEDING**

- Develop the idea of Mendelian experiments and ratios
- Understand the modified Mendelian ratios
- Make correct knowledge about quantitative inheritance
- Describe the types of linkage and crossing over
- Understand the sex determination mechanism in plants and animals
- Study the sex linked inheritance and extranuclear inheritance
- Collect the knowledge of population genetics
- Study different breeding techniques in plants
- Know about different modern tools for plant breeding

### **BOT6B10T: PHYSIOLOGY AND METABOLISM**

- Understand the relationship between plant cell and water
- Know about the transpiration mechanism in plants
- Study the different pathways of inorganic nutrient absorption in plants
- Comprehend the knowledge of photosynthesis in higher plants
- Know about biological nitrogen fixation in plants
- Describe mechanisms of translocation and distribution of photo assimilates in plants
- Understand the different phytohormones and their role in plants
- Know about different plant movements by light, gravity, mechanical force etc.
- Describe different biomolecules and its role in metabolism
- Familiarize the intermediary metabolic pathways in plants





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### **BOT6B11T: CELL BIOLOGY AND BIOCHEMISTRY**

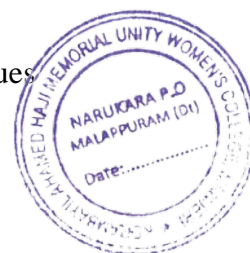
- Know the structure and function of cell organelles
- Understand and identify the different types of chromosomes
- Study the different stages of mitosis and meiosis in plant cells
- Comprehend the knowledge of chromosomal aberrations
- Understand the macromolecules as building block of biomolecules
- Study the structure and function of carbohydrates, lipids, proteins and nucleotides
- Understand the enzyme catalysis mechanisms during metabolism

### **BOT6B12T: ENVIRONMENTAL SCIENCE**

- Understand the ecosystem and different biogeochemical cycles
- Describe the ecological adaptations of plants grown in different environmental conditions
- Acquire the knowledge about biodiversity conservation
- Comprehend different types of pollution and its management
- Understand and explain the major ecosystems of biosphere
- Gain knowledge of patterns of plant distribution
- Identify the phytogeographical zone of India
- Acquire the knowledge of continental drift and theory of land bridges
- Study the origin of earth and evolution of prokaryotic and eukaryotic cells
- Develop the idea of theories of evolution
- Familiarize the knowledge of speciation and origin of species

### **BOT6B13T: ELECTIVE PAPER – GENETIC ENGINEERING**

- Understand the protocol of DNA / RNA isolation and purification from plant tissues
- Study 'how can separate DNA / RNA through gel electrophoresis method



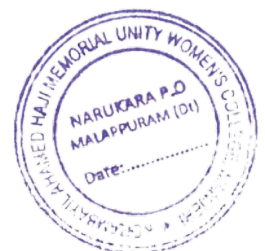


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- Know different blotting techniques in molecular biology
- Familiarize different cloning vectors which are used in recombinant DNA technology
- Develop correct knowledge about steps of rDNA technology
- Understand different genetically modified crop plants and animals





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## **DEPARTMENT OF COMMERCE**

### **PROGRAMME OUTCOMES**

#### **B.Com**

<b>PO1</b>	Face the modern-day challenges in business environment.
<b>PO2</b>	Keep abreast of advanced accounting practices.
<b>PO3</b>	To be part of the work force needed to meet the growing needs of the industry.
<b>PO4</b>	To be socially responsible professionals in the domain of corporate governance.







## DEPARTMENT OF B.COM CO-OPERATION

### PROGRAMME OUTCOMES

#### B.Com Co-operation

PSO1	To inculcate the principles of co-operation among the students and to acquaint the students with the management and working of co-operatives.
PSO2	To familiarize the students with the principles and practice of co-operative management and administration.
PSO3	To enable the students to identify the issues in the process of management and administration of co-operative.
PSO4	To give an insight into the prevailing co-operative legal system.
PSO5	To enable the students to understand the legal framework of co-operation in India and in Kerala.

#### B.Com Computer Application

PSO1	To familiarize the students with modern technological application for fast and better financial management.
PSO2	To encourage and guide the students for developing IT enabled management system.
PSO3	To replace the traditional paper based office system.

### COURSE OUTCOME

#### B.Com

##### BCMIB01 BUSINESS MANAGEMENT

- To understand the process of business management and its functions.
- To familiarize the students with current management practices
- To understand the importance of ethics in business
- To acquire knowledge and capability to develop ethical practices for effective management.





### **BCM2B02 FINANCIAL ACCOUNTING**

- To equip the students with the skills of preparing financial statements for various type of organizations.
- To enable the students to acquire knowledge about financial reporting standards and to understand corporate accounting methods.

### **BCM3B03 BUSINESS REGULATIONS**

- To familiarize the students with certain statutes concerning and affecting business organizations in their operations.

### **BCM3 B04 CORPORATE ACCOUNTING**

- To help the students to acquire conceptual knowledge of the fundamentals of the corporate accounting and the techniques of preparing the financial statements.

### **BCM4B05 COST ACCOUNTING**

- To familiarize the students with the various concepts and elements of cost.
- To create cost consciousness among the students.

### **BCM4B06 CORPORATE REGULATIONS**

- To familiarise the students with corporate law and to make them aware of the importance of corporate governance in the management of organizations.

### **BCM5B07 ACCOUNTING FOR MANAGEMENT**

- To enable the students to understand the concept and relevance of Management Accounting.
- To provide the students an understanding about the use of accounting and costing data for planning, control, and decision making.

### **BCM5B08 BUSINESS RESEARCH METHODS**

- To enable students for acquiring basic knowledge in business research methods and to develop basic skills in them to conduct survey researches and case studies.





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### **BCM5 B09 INCOME TAX LAW AND ACCOUNTS**

- To impart basic knowledge and equip students with application of principles and provisions Income - tax Act, 1961 amended up to date.

### **BCM6 B12 INCOME TAX AND GST**

- To impart basic knowledge and equip students with application of principles and provisions Income - tax Act, 1961 and GST Act 2016

### **BCM6B13 AUDITING AND CORPORATE GOVERNANCE**

- To provide knowledge of auditing principles and techniques and to familiarize the students with the understanding of issues and practices of corporate governance in the global and Indian context.

### **BCM5B10 CO-OPERATIVE THEORY AND PRACTICE**

- To provide conceptual clarity and theoretical base in co-operation.
- To provide an overall idea about important types of co-operatives.

### **BCM5B11 LEGAL ENVIRONMENT FOR CO-OPERATIVES**

- To enable the students to acquire knowledge about co-operative legal frame work in India and Kerala.
- To understand the formalities for registering co-operatives and the administrative set up.

### **BCM6B14 INTERNATIONAL CO-OPERATIVE MOVEMENT**

- To enable the students to acquire knowledge about evolution and development of co-operative movement in the world.

### **BCM6B15 CO-OPERATIVE MANAGEMENT AND ADMINISTRATION**

- To enable the students to acquire knowledge about the co-operative management and administration.
- To familiarize the students with accounting and auditing of co-operatives.

### **BCM5B10 COMPUTER APPLICATIONS IN BUSINESS**

- To help the students to acquire basic knowledge about computer and its applications in various areas of business.





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- To enable the students to understand the modern trends and technologies in computer applications.

### **BCM5B11 BUSINESS INFORMATION SYSTEMS**

- To enable the students to acquire basic knowledge in the information technology and its relevance to the various areas of business.

### **BCM6B14 OFFICE AUTOMATION TOOLS**

- To enable the students to acquire basic knowledge in the various office automation tools and its applications in the various areas of business.

### **BCM6B15 COMPUTERISED ACCOUNTING WITH TALLY**

- To enable the students to acquire basic knowledge in the computerized accounting systems and its applications in the area of business.

### **BCM1C01 MANAGERIAL ECONOMICS**

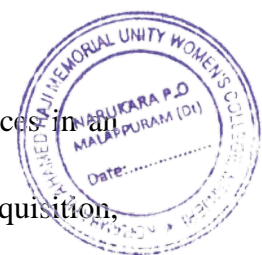
- To enable students to understand micro and macroeconomic concepts relevant for business decisions.
- To help the students to understand the application of economic principles in business management.

### **BCM2C02 MARKETING MANAGEMENT**

- To provide basic knowledge about the concepts, principles, tools and techniques of marketing.
- To impart necessary knowledge which help the student to choose a career in the field of marketing.
- To expose the students to the latest trends in marketing.

### **BCM3C03 HUMAN RESOURCES MANAGEMENT**

- To familiarize the students with the different aspects of managing human resources in an organization.
- To equip the students with basic knowledge and skills required for the acquisition,





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development and retention of human resources.

### **BCM4C04 QUANTITATIVE TECHNIQUES FOR BUSINESS**

- To familiarize student with the use quantitative techniques in managerial decision making.

### **BCM5D03 BASIC ACCOUNTING**

- To enable the students to acquire knowledge of Accounting Principles and Practice

### **BCM3A11 BASIC NUMERICAL METHODS**

- To enable the students to acquire knowledge of mathematics and statistics
- At the end of this course, the students will be able to understand, numerical equations, matrix, progression, financial mathematics, descriptive statistics and their applications.

### **BCM3A12 PROFESSIONAL BUSINESS SKILLS**

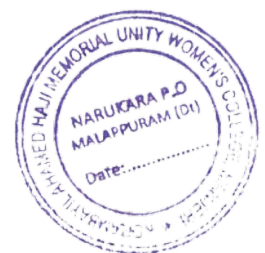
- To update and expand basic Informatics skills of the students
- To equip the students to effectively utilize the digital knowledge resources for their study

### **BCM4A13 ENTREPRENEURSHIP DEVELOPMENT**

- To familiarize the students with the concept of entrepreneurship.
- To identify and develop the entrepreneurial talents of the students.
- To generate innovative business ideas in the emerging industrial scenario.

### **BCM4A14 BANKING AND INSURANCE**

- To enable the students to acquire knowledge about basics of Banking and Insurance.
- To familiarize the students with the modern trends in banking.





## DEPARTMENT OF ENGLISH LANGUAGE AND LITERATURE

### PROGRAMME OUTCOME

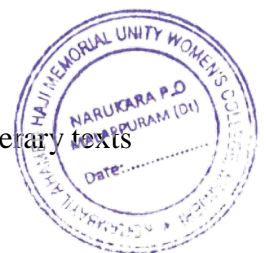
By the study of English Language and Literature, a student will develop her intellectual skills like problem solving, concrete concept, defined concept, discrimination and rule. She will also develop cognitive strategies for learning, analysing, thinking and applying knowledge.

By the end of the programme, the students:

- will understand the history as well as the structure and function of English language and develop language skills for communication and for creative expression.
- will be able to collect, understand, process, evaluate and synthesize information from a variety of sources.
- will learn and differentiate concepts about representative literary and cultural texts of different genres within the historical, geographical, and cultural contexts.
- will be able to understand critical and theoretical approaches to literature and apply them to the reading and analysis of literary and cultural texts.
- will identify, analyse, interpret and describe the wide spectrum of critical ideas, values, and themes that appear in literary and cultural texts and understand how they inform and impact the world they live in.
- will attempt at writing analytically in a variety of formats, including different types of essays, research papers, reflective and critical writing.
- will understand and assimilate the process of communicating and interpreting human experiences through literary representation using historical contexts and disciplinary methodologies

### Programmes Specific Outcomes

- PSO1: Understand and differentiate between different types, canons, movements and contexts of literature
- PSO2: Develop and apply advance language skills both in and outside classroom.
- PSO3: Develop analytical ability and critical thinking
- PSO4: Assimilate literary theory and learn to connect text with its multiple contexts
- PSO 5: Critically examine the wide range of perceptions that exist in society through literary texts and thus imbibe a sense of democratic co-existence





## COURSE OUTCOME

Part I

### **CORE COURSES**

#### **SEMESTER—I**

COURSE CODE—ENG1B01

TITLE OF THE COURSE—**INTRODUCING LITERATURE**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Differentiate between with the different aspects of the language of literature.
- Discover the linguistic structures of poetic texts.
- Distinguish diverse points of view within a single text and locate the rationale of polyphony.
- Determine and interpret the dominant voice/s within the text and its agendas.
- Discriminate marginalized voices and determine themselves to the voices of the child, Dalit, transgender and female.

#### **SEMESTER—II**

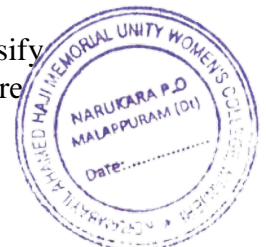
COURSE CODE— ENG2B02

TITLE OF THE COURSE— **APPRECIATING POETRY**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Outline the basic elements of poetry, the stylistic and rhetorical devices and various genres of poetry.
- Analyze and identify the trends in poetry and the linguistic structures of poetic texts.
- Discover various perspectives in reading poetry like gender, race, caste, ethnicity, religion, region, environment and nation.
- Define different forms of poetry in British and American literature and classify different forms and themes of poetry across the globe in the history of literature
- Appreciate poetry as an art form.





## SEMESTER -III

COURSE CODE ENG3B03

TITLE OF THE COURSE-- **APPRECIATING PROSE**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Develop critical thinking.
- Interpret and appreciate different types of prose.
- Identify different styles of prose writing and understand the use of literary devices.
- Identify, analyze, interpret and describe the critical ideas, values, and themes that appear in literary and cultural texts
- Develop creative writing skills.

COURSE CODE ENG3B04

TITLE OF THE COURSE -- **ENGLISH GRAMMAR AND USAGE**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Determine the key concepts of English grammar and to apply them more sensitively in their day-to-day communication needs.
- Manipulate the language in a better way by understanding of the sentence patterns in English.
- Develop a sense of English grammar, idioms, syntax, semantics and their usage
- Develop the logical and analytical skills in the use of language for communication.
- Appraise contemporary English usage.

## SEMESTER –IV

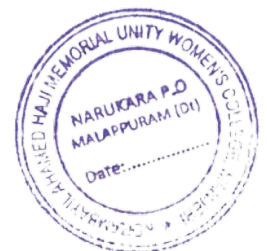
COURSE CODE ENG4B05

TITLE OF THE COURSE -**APPRECIATING FICTION**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Develop critical thinking and imagination through long and short fiction
- Interrelate cultural diversity through different representative samples of fiction.
- Discover the pleasures in reading fiction.
- Critique human condition and the complexities of life.
- Discover different types of fiction and analyze them.







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COURSE CODE ENG4B06

TITLE OF THE COURSE- **LITERARY CRITICISM**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Differentiate between judgment and appreciation.
- Identify various movements and schools of thought
- Critique plays, passages and poems
- Recognize the history and principles of literary criticism since Plato
- Develop the philosophical and critical skills with which literature can be appreciated.
- Appraise important texts and movements in the history of literary criticism.
- Demonstrate how literary criticism shapes literature and culture across centuries.
- Recognize and critique the major arguments underlying critical writings.
- Compare and contrast critical perspectives of Indian Poetics and Western critical concepts.

SEMESTER V

COURSE CODE- ENG5B07

TITLE OF THE COURSE-**APPRECIATING DRAMA AND THEATRE**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Establish and illustrate the basic elements of drama, including the historical progress of drama in different continents.
- appreciate drama as an art form.
- Identify the different genres and masters of drama.
- Assess the theatrical performances and the texts and evaluate them critically from various standpoints.
- Explain the insights, conventions and experimentations associated with English Drama.
- Demonstrate how writers use the resources language as a creativity
- Point out the entire range of human experience through drama as a literary form.





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COURSE CODE -ENG5B08

TITLE OF THE COURSE -**LITERARY THEORY**

COURSE OUTCOME :

After the completion of the course students should be able to:-

- Develop an understanding of important texts and movements in the history of literary theory.
- Critique literature and culture in the context of theory.
- Develop various perspectives of thinking and critique the major arguments presented in theory.
- Construct a pluralistic perspective of culture and literature in a multicultural society.
- Identify, analyze, interpret and describe the critical ideas, values, and themes that appear in literary and cultural texts .
- Identify the origin of critical ideas in literature
- Define the function of criticism.

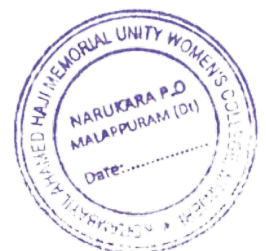
COURSE CODE - ENG5B09

TITLE OF THE COURSE -**LANGUAGE AND LINGUISTICS**

COURSE OUTCOME :

After the completion of the course students should be able to:-

- Recognize key concepts of Linguistics and develop awareness of latest trends in Language Study
- Point out the features of languages, their sounds, their ways of forming words, their sentence structures, and their systems of expressing meaning.
- Examine through an objective study the relation of language with human mind and communicative action
- Operate the features of pronunciation and their general standards in every day conversation and in reading.
- Develop a sense of English syntax and will be able to provide complete syntactic analyses for sentences of English
- Develop a sense of awareness of principles of language that govern the distribution of morphology and how morphology interacts with other components of language.
- Recognize the fundamental topics in semantics and develop a concept of different semantic levels.





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COURSE CODE - ENG5B10

TITLE OF THE COURSE -**INDIAN WRITING IN ENGLISH**

COURSE OUTCOME :

After the completion of the course students should be able to:-

- Correlate the various phases of the evolution of Indian writing in English.
- Delineate the thematic concerns, genres and trends of Indian writing in English .
- Recognize the pluralistic aspects of Indian culture and identity.
- Determine how and why Indian literature emerged as a distinct field of study.
- Identify the development of history of Indian English literature from its beginning to the present day.
- Interpret the works of great writers of Indian writers in English.
- Demonstrate, through discussion and writing, an understanding of significant cultural and societal issues presented in Indian English literature.

**SEMESTER -VI**

COURSE CODE - ENG6B11

TITLE OF THE COURSE -**VOICES OF WOMEN**

COURSE OUTCOME :

After the completion of the course students should be able to:-

- Generalize and infer on what grounds women's writings can be considered as a separate genre.
- Interpret texts written by Women writers across different cultures.
- Differentiate between sex and gender and how the latter is a social construction.
- Identify the issues and concerns of the women writers of the developed, developing and under-developed countries.
- Identify the misconceptions regarding women and to evolve a human perspective about them.
- Develop a keen interest in analysing critically the diversity of women's experiences across the world and to marvel at their creative skills.

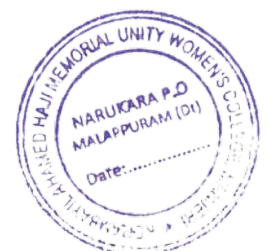
COURSE CODE-- **ENG6B12**

TITLE OF THE COURSE --**CLASSICS OF WORLD LITERATURE**

COURSE OUTCOME :

After the completion of the course students should be able to:-

- Identify the classic literature and thereby composite cultures of the world
- Develop cross cultural perspectives



**SSR Document**



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- Classify literary texts in English or English translation in terms of their main stylistic and thematic features.
- Describe the literary, historical, social and cultural backgrounds of these texts.
- Identify some of the main theoretical and methodological issues involved in reading World Literature.

COURSE CODE ENG6B13

TITLE OF THE COURSE- **FILM STUDIES**

COURSE OUTCOME :

After the completion of the course students should be able to:-

- Appraise film as an art form and its aesthetics.
- Relate and connect film with history, politics, technology, psychology and performance.
- Appraise the nature of representation on screen and how class, race ethnicity and sexuality are represented.
- Develop analytical skills so that the student can produce informed and thorough close readings of films.
- Discover the articulation of a film's content, form and structure.
- Identify and define the formal and stylistic elements of film.
- Develop an understanding of film language and terminology, and analyze the ways in which that this language constructs meaning and ideology.
- Identify and interpret significant film movements and key concepts.
- Point out the diverse forms of the moving image, including, for example, the feature film, experimental and avant-garde cinema, video art and moving image installation, television and digital media.

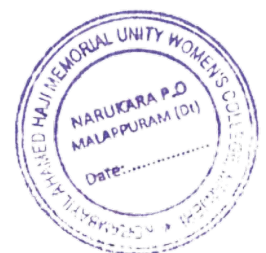
COURSE CODE- ENG6B14

TITLE OF THE COURSE -**NEW LITERATURES IN ENGLISH**

COURSE OUTCOME:

After the completion of the course students should be able to:-

- Distinguish diverse cultures and modes of expression.
- Discuss issues of cultural plurality and hybridity
- Identify literary negotiations of colonization and decolonization, identity, inequality, marginalization and so on.
- Point out the canon of English literature, Commonwealth literature, Post Colonialism and the context of New Literatures





## Part II

### ELECTIVES

#### SEMESTER - VI

COURSE CODE ENG6B15 ( ELECTIVES)

TITLE OF THE COURSE—**LITERATURE OF THE MARGINALIZED**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Identify the various aspects of marginality such as dalit, female, child and sexual minorities.
- Evaluate the subaltern perspectives reflect in literature.
- Identify how the marginality is often a contextual factor related to the socio-cultural reality.
- Critique the process of evolution of marginality and the formation of stereotypes.
- Classify the evolving patterns of generic and other technical possibilities that the marginalize use to represent their predicament.

COURSE CODE ENG6B16

TITLE OF THE COURSE—**DIGITAL LITERATURE AND ENGLISH**

COURSE OUTCOME:

After the completion of the course students should be able to:-

- Illustrate various forms of e-literature.
- Discover the important concepts like digital literature, digital humanities, hypertexts, cyberpunk literature, blogging and vlogging.
- Develop the critical skill with which e- literature can be appreciated.
- Formulate the socio cultural aspects of literature of various nations.

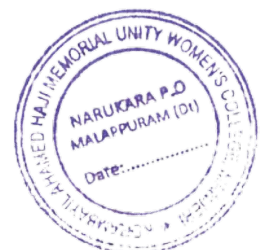
COURSE CODE: ENG6B17

TITLE OF THE COURSE—**WRITING FOR THE MEDIA**

COURSE OUTCOME

After the completion of the course students should be able to:-

- Discuss the specificities and possibilities of the different kinds of media.
- Identify various writing styles in media.
- Develop technical and creative skills to write for the media.
- Assess and critique the latest trends in media.





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COURSE CODE ENG6B18

TITLE OF THE COURSE— **TRANSLATION STUDIES**

COURSE OUTCOME:

After the completion of the course students should be able to:-

- Describe the basic theories of translation studies.
- Develop an in-depth knowledge about the diverse techniques and strategies of translation.
- Develop the skill to translate texts from one language to other.
- Identify the cultural and dialectical nuances of a literary text and translate it to another language without losing its flavour.

COURSE CODE ENG6B19

TITLE OF THE COURSE— **ENGLISH LANGUAGE EDUCATION**

COURSE OUTCOME:

After the completion of the course students should be able to:-

- Outline the origin and evolution of English Language
- Develop an in-depth knowledge about the theories of English language teaching.
- Develop the skill to effectively transact language items to the class
- Identify the strategies and methods that best suit the classrooms for English language teaching.

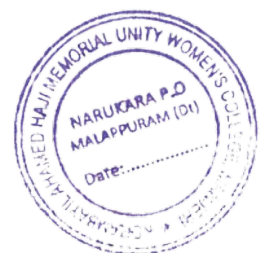
COURSE CODE ENG6B20

TITLE OF THE COURSE— **SHAKESPEARE**

COURSE OUTCOME:

After the completion of the course students should be able to:-

- Read and appreciate the works of Shakespeare
- Develop awareness about the universal appeal and the literary charm of Shakespeare's works
- Develop knowledge about drama, practice of drama performance and the literary sensibility of different ages with regards to the Shakespearean Canon.
- Identify the cultural and political positions of Shakespeare and develop her own sense of critiquing a classical text.





## PartIII Complementary

I Course Code :ENG1(2)C02

**TITLE OF THE COURSE: HISTORY OF ENGLISH LITERATURE – I**

**COURSE OUTCOME:**

After the completion of the course students should be able to:-

- Outline the origin and evolution of English Language
- Identify the various stages in the evolution of language from the early period to the romantic revival.
- Discover the various socio-political forces and contexts that influenced English language and literature at different historical contexts
- Point out the pattern of changes language has undergone at different stages.

II Course Code: ENG 4(3) C02

**TITLE OF THE COURSE: HISTORY OF ENGLISH LITERATURE – II**

**COURSE OUTCOME:**

After the completion of the course students should be able to:-

- Outline the history of English Language from the Victorian age to the present day
- Identify the various forces that worked together to form and shape modern English language
- Indicate the various socio-political forces and contexts that influenced English language and also literature
- Survey the pattern of changes language has undergone at different stages.
- Develop a historical view of English literature

**III. COURSE CODE ENG5B23**

**III. TITLE OF THE COURSE APPRECIATING DRAMA (for Dual Core Programme)**

**COURSE OUTCOME**

After the completion of the course students should be able to:-





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- Establish and illustrate the basic elements of drama.
- Appreciate drama as an art form.
- Identify the different genres and masters of drama.







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- Assess the theatrical performances and the texts and evaluate them critically from various standpoints.
  - Explain the insights, conventions and experimentations associated with English Drama.
  - Demonstrate how writers use the resources language as a creativity
  - Point out the entire range of human experience through drama as a literary form.
- Course Code :ENG1(2) C01

**TITLE OF THE COURSE: English for communication Course I (ASPECTS OF ORAL AND INTERPERSONAL COMMUNICATION)**

**COURSE OUTCOME:**

After the completion of the course students should be able to:-

- Communicate appropriately and effectively in any social context.
- Communicate appropriately and effectively to persons and within groups.
- Demonstrate the ability to analyze a problem and devise a solution in a group.
- Capable of effectively monitoring, analyzing, and adjusting their own communication behavior

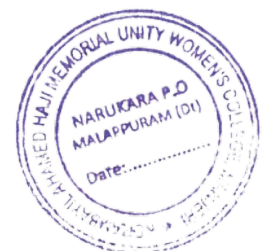
I Course Code :ENG4(3)C01

**TITLE OF THE COURSE: English for communication Course II(ASPECTS OF READING AND WRITING)**

**COURSE OUTCOME:**

After the completion of the course students should be able to:-

- Demonstrate proficiency in the use of written English, including proper spelling, grammar, and punctuation.
- Demonstrate the ability to read to analyze, reason and decipher written discourses to reach an effective conclusion.
- Demonstrate proficiency in formal and academic writing..
- Construct appropriate messages for a variety of contexts/situations.





## **PART IV OPEN COURSES**

### **TITLE OF THE COURSE :ENGLISH FOR COMPETITIVE EXAMINATIONS**

#### **COURSE CODE ENG5D01**

#### **COURSE OUTCOME**

After the completion of the course students should be able to:-

- Identify the important skills necessary for professional development
- Develop necessary linguistics skills that are relevant in English
- Appraise important aspects necessary for language development
- Recognize the importance of getting prepared for competitive exams

### **TITLE OF THE COURSE : CREATIVE WRITING IN**

#### **ENGLISH COURSE CODE ENG5D02**

#### **COURSE OUTCOME**

After the completion of the course students should be able to:-

- Identify different literary forms and genres.
- Develop the ability to appreciate poems and short stories
- Develop the logical and analytical skills required for writing professional articles – blogs, book and film reviews etc.
- Discover the ability to write short literary pieces

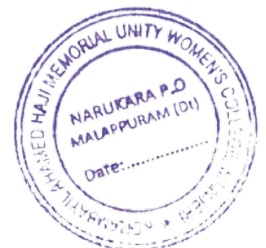
### **TITLE OF THE COURSE :APPRECIATING**

#### **LITERATURE COURSE CODE ENG5D03**

#### **COURSE OUTCOME**

After the completion of the course students should be able to:-

- Identify the different aspects of the language of literature.





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- Discover the features of creative texts.
- Distinguish diverse points of view in creative writing
- Determine the genres of literary works.
- Discover the function of literary texts as a reflection of life in its philosophical and social levels

After the completion of the Project work students should be able to:-

- Demonstrate knowledge of and an ability to conduct research work in the several areas related to language and literature.
- identify, define and demonstrate the research problem
- Create original research projects which assess the contributions and/or complexities of a selected writer, literary movement, aspects of language etc.
- Assess, critique, evaluate a project work and construct meaningful tools for it

## RESEARCH

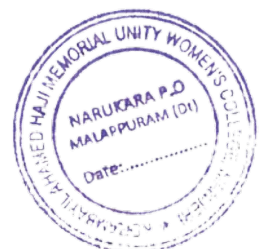
### METHODOLOGY COURSE

### CODE ENG6B22 COURSE

### OUTCOME

After the completion of the course students should be able to:-

- Recognize and identify the fundamentals of research.
- Demonstrate the ability to present a problem and devise a solution as part of a research work.
- Write original research papers
- Assess, critique, evaluate a research paper/work





## **DEPARTMENT OF HISTORY**

### **PROGRAMME OUTCOME**

On the completion of the Bachelor of Arts programmes, the students will be able to,

- PO 1. to acquire knowledge in the field of social sciences, literature and humanities which make them sensitive and sensible enough.
- PO 2. to with the social, economic, historical, geographical, political, ideological and philosophical tradition and thinking.
- PO 3. to appear for various competitive examinations or choose the post graduate programme of their choice.
- PO 4. to improve the ability of logical reasoning and conceptual analysis.
- PO 5. to think and act over for the solution of various issues prevailed in the human life to make this world better than ever.
- PO 6. to be the responsible citizen.

### **PROGRAMME SPECIFIC OUTCOME**

- PSO 1. Development of curiosity about the past
- PSO 2. Acquisition of intellectual skills to make sense of the past.
- PSO 3. Development of the critical faculty of students
- PSO 4. Detailed understanding of the presentness of the past.

### **COURSE OUTCOME (UG)**

#### **1. The Trends In Historiography- HIS1 B01**

##### **Outcome**

- a. To expose the students to the basic understanding regarding the development of history as a discipline.
- b. To understand the major trends in the arena of historical writing and thought.
- c. To illustrate how the methodological and philosophical shifts have contributed for the development of history as a discipline.

#### **2. Trends In Indian Historiography- HIS2 B02**

##### **Outcome**

- a. To expose the students, to the basic understanding regarding the development of historical consciousness in india.
- b. To provide a basic understanding regarding the major trends in the arena of historical writing and thought in india.
- c. To expose the students to the major paradigms associated with the study of indian history

#### **3. World History-1 HIS3 B03**

##### **Outcome**

- a. To know a general line and outline of civilizations including key events and cultural



achievements of different ancient civilizations

- b. To provide an overview of early cultures and meetings between cultures and similar trends across cultures
  - c. Compare and contrast past with current events, issues and problems
  - d. Ability to recognize the multiple spatial and temporal contexts and to look at one's own society and civilization in contrast to other societies and civilizations
  - e. Ability to recognize the influence of global forces and identify their connections to local and national development.
- 4. Indian History- 1 HIS3 B04**  
**Outcome**
- a. To provide a broad historical outline about the process of socio-political formations in the north and south india up to 1300 ce.
- 5. World History- 2 HIS4 B05**  
**Outcome**
- a. To introduce the aspects of medieval state and society.
- 6. Indian History- 2 HIS4 B06**  
**Outcome**
- a. To familiar with the aspects of society and culture of india from early medieval period to the period of mughal rule.
- 7. Kerala Society & Culture : Ancient & Medieval- HIS5B07**  
**Outcome**
- a. To understand the major aspects of the evolution of kerala history and culture in the light of new researches and findings.
- 8. History of Medieval India- HIS5B08**  
**Outcome**
- a. To familiar with the aspects of society and culture of india from early medieval period to the period of mughal rule.
- 9. History Of Modern India- HIS5B09**  
**Outcome**
- a. To understand the major aspects of colonialism, nationalism and the important stages of the struggle for freedom.
  - b. To critically analyze colonialism and nationalism.
  - c. To make the students develop their own ideas on the concepts and realities of the nation that emerged through centuries of western domination and struggles against the same.
- 10. History Of Modern World - HIS5B10**  
**Outcome**
- a. To introduce the major movements in history that proved to be the foundations of modern world.
- 11. Open Course- Historical Tourism - HIS5D02**  
**Outcome**
- a. To inculcate the need for travel and site seeing among the students  
So as to widen their understanding of cultural past and heritage.





## **12. History Of Modern Kerala - HIS6B11**

### **Outcome**

- a. To understand the formation of kerala as a state
- b. To analyze the role of kerala to the indian national movement

## **13. History Of Contemporary India - HIS6B12**

### **Outcome**

- a. To make the students aware of the issues of post independent era and conditions in contemporary india.

## **14. Contemporary Kerala - HIS6B13**

### **Outcome**

- a. To enable the students to understand the issues in contemporary kerala so as to be responsive to the same.

## **15. Gender Studies - HIS6B14**

### **Outcome**

- a. To introduce studies on women in the light of new concepts and researches.

## **16. Course Work- Dissertation - HIS6B15**

### **Outcome**

- a. To see if the student has understood the techniques and methods of writing history.

## **17. Principles And Methods Of Archeology - HIS6E01**

### **Outcome**

- a. To enable the students to understand the basic principles and methods of archaeology, an important source of writing history and means for understanding and preserving heritage.

## **COMPLEMENTARY COURSES ( for BA English Programme)**

### **1. HIS1C02 MODERN WORLD HISTORY- I (First Semester)**

#### **Outcome**

- a. Students will acquire basic understanding regarding the major historical situations which contributed to design the socio- political and economic atmosphere of the modern world.

### **2. HIS1C03 SOCIAL AND CULTURAL HISTORY OF BRITAIN: I (Second Semester)**

#### **Outcome**

- a. Students Will Acquire Basic Understanding Regarding the Major Historical Situations Which Contributed to Design the Socio- Political and Economic atmosphere of The Britain.

### **3. HIS2C03 SOCIAL AND CULTURAL HISTORY OF BRITAIN: II-Third Semester**

#### **Outcome**

- a. The focus of this course is on the social and cultural history of britain, from the age of anglican reformation to the developments associated with brexit.
- b. Students will acquire basic understanding regarding the major historical situations and the major thinkers who contributed to enrich the historical situations which contributed to design the socio- political and economic atmosphere of the colonial and post- colonial britain.

### **4. HIS2C02 MODERN WORLD HISTORY- II- Fourth Semester**



### **Outcome**

- a. The focus of this course is on the modern world history, from the First World War to globalization. Students will acquire basic understanding regarding the major historical situations which contributed to design the socio- political and economic atmosphere of the modern and contemporary world.

## **COMPLEMENTARY COURSES (For BA History Programme)**

### **1. POL1 CO1: Introduction to Political Science and Governmental Structures and Processes (First Semester)**

#### **Outcome**

- a. It helps students to understand the origin, meaning and importance of political science, different approaches in the discipline, meaning and elements of state and sovereignty.
- b. To comprehend the theory of separation of powers, three organs of government, and types of government.
- c. The discussion about the role of political parties, interest groups, pressure groups and proportional representation is another focus of the course.

### **2. HIS1C04 WEST ASIAN STUDIES-1 (Second Semester)**

#### **Outcome**

- a. The focus of this course is on the history of west asia, focusing mainly on the first half 20th century developments in the region.
- b. Students will acquire basic understanding regarding the major historical situations which contributed to design the socio- political and economic atmosphere of the west asia.

### **3. HIS1C04 WEST ASIAN STUDIES-11 (Third Semester)**

#### **Outcome**

- a. The focus of this course is on the history of west asia, focusing mainly on the developments in the region in the second half 20th century and early decades of 21st century.
- b. Students will acquire basic understanding regarding the major historical situations which contributed to design the socio- political and economic atmosphere of the west asia.

### **4. POL 4 CO2: Political Ideas, Concepts And Ideologies (Fourth Semester)**

#### **Outcome**

- a. This course would help students to understand meaning and different dimensions of important ideas and concepts used in political science.
- b. The discussion of political ideologies enables students to comprehend and compare them.





## DEPARTMENT OF HOME SCIENCE

### **PROGRAMME OUTCOME**

Home Science has contributed a great deal towards national development by training students to take up leadership roles in extension and community outreach programs. The students are encouraged to develop a scientific temper. Familiarizing them with the use of newer technologies, methods in family and community linkages, and sustainable use of resources for human development are the hall mark of education in Home Science. As a discipline Home Science integrates the ingredients of the sciences, social sciences and technology to facilitate the study of and enhance the quality of human life. Its approach is therefore inherently interdisciplinary. Traditionally, Home Science has adopted an ecological approach in its curriculum that engages the student through teaching, research and extension. The education process in Home Science underscores the importance of the individual's dynamic relationship with his/her family, community and society as a whole, as well as with the resources in the environment. Higher education learning in Home Science subjects provides students the opportunity to sharpen their capacities with a sense of social responsibility. In contemporary times, Home Scientists promote capacity building of individuals and communities for social and economic empowerment. They train community women and youth from various strata of society for entrepreneurship. Many Home Scientists have done exceptionally well as entrepreneurs themselves. They do not remain job seekers but have also become job creators. They gain and provide employment in research organizations, food and textile industries, dietetic practice, education and child development domains, accreditation of green buildings, strategic planning and communication technologies. Keeping in view the growing aspirations of today's youth and the capacity of Home Science discipline to deliver, the present 3-year Choice Based Credit System (CBCS) curriculum has been drawn. . The curriculum is well conceived for science students and gives them professional edge to develop marketable skills as well as pursue higher education. The curriculum is well conceived for needs of contemporary women.

### **PROGRAMME SPECIFIC OUTCOMES**

- PSO1 Understand and appreciate the role of interdisciplinary sciences in the development and well-being of individuals, families and communities
- PSO2 Understand the sciences and technologies that enhance the quality of life of people
- PSO3 Acquire professional and entrepreneurial skills for economic empowerment of self in particular, and community in general
- PSO4 Develop professional skills in food, nutrition, textiles, housing, product making, communication technologies and human development
- PSO5 Take science from the laboratory to the people







## **COURSE OUTCOMES**

### **SEMESTER I**

#### **FCS1B01 FUNDAMENTALS OF NUTRITION**

CO1 Comprehend relationship between food, nutrition and health.

CO2 Understand the functions of food, various food groups, balanced diet and principles of meal planning.

CO3 Understand functions of various nutrients and their sources & gaining knowledge about clinical manifestations of excess/ deficiency of nutrients

### **SEMESTER II**

#### **FCS2B02 HUMAN DEVELOPMENT**

CO1 Describe how individuals develop and change from womb to tomb

CO2 Gain knowledge to locate relevant examples of development in the cultural context, focusing on situations of childhood development in Indian culture

CO3 Competent in using methods to study development in children, and explore family and community context of Indian children

CO4 Gain knowledge to locate and use relevant cultural examples of development during adolescence and different phases of adulthood.

CO5 Competent in using methods to study development and socio-cultural context of Indian adolescents and adults

CO6 Understand classical and contemporary theoretical perspectives in Human Development.

CO7 Apply theoretical understanding of core concepts in Human development to the everyday context.

### **SEMESTER III**

#### **FCS3B03 - RESEARCH METHODOLOGY AND BIOINFORMATICS**

CO1 Sharpen competence in research approaches.

CO2 Acquire research acumen for any basic and advanced research.

CO3 Comprehend the purpose and procedure of research study

CO4 Introduce the commonly used computational, statistical and analytical approaches to post genomic analysis and make meaningful predictions

CO5 Make competent users of the basic experimental skills of Bioinformatics

### **SEMESTER IV**

#### **FCS4B04 FOOD SCIENCE**

CO1 Understand the functions of food.

CO2 Classify foods into various food groups.

CO3 List the advantages and disadvantages of various methods of preparing food.

CO4 Understand the concept of nutrient losses during cooking and enhancement of nutritional quality of foods.

CO5 Understand the basic concepts of food science and its applications in processing of food.





- CO6 Understand basic principles involved in preservation and spoilage.
- CO7 Impart knowledge about the national and international food laws.
- CO8 Perform basic sensory and objective evaluation of food.

#### **FCS4B04 (P) PRACTICAL II FOOD SCIENCE**

- CO1 Develop understanding about the methods of preparing food.
- CO2 Explain the chemistry underlying the properties of various food components.
- CO3 Gain coherent and systematic knowledge of basic food chemistry.
- CO4 Capably and confidently demonstrate laboratory skills and competencies in nutritional biochemistry
- CO5 Demonstrate current knowledge of nutritional biochemistry that is required for advanced studies in human nutrition
- CO6 Nutritional biochemistry introduces the structural and functional characteristics of macronutrients (carbohydrates, lipids, proteins) and micronutrients (vitamins) in food consumed by humans.

#### **SEMESTER V**

#### **FCS5B05 HUMAN PHYSIOLOGY AND MICROBIOLOGY**

- CO1 Understand the physiology of all the systems of the human body.
- CO2 Develop a holistic understanding of mental, reproductive and social health.
- CO3 Develop the awareness of major communicable and non-communicable diseases
- CO4 Understand role of micro-organisms in relation to processing and spoilage.
- CO5 Understand the basic microbial structure and function and study the comparative characteristics of prokaryotes and eukaryotes
- CO6 Understand the structural similarities and differences among various physiological groups of bacteria/archaea.

#### **FCS5B06 DIET IN HEALTH**

- CO1 Understand the relationship between food, nutrition and health.
- CO2 Comprehend the principles of planning nutritionally adequate meals.
- CO3 Exercise food choices consonant with good health based on sound knowledge of principles of nutrition
- CO4 Acquire knowledge about the nutritional needs and concerns of an individual through the life cycle.
- CO5 Understand nutrition considerations during special conditions for children and adults.

#### **PRACTICAL III-DIET IN HEALTH**

- CO1 Understand the principles of planning nutritionally adequate meals.
- CO2 Understand the concept of nutrient requirements and methods involved in assessment of nutrient needs.
- CO3 Exercise food choices consonant with good health based on sound knowledge of principles of nutrition.
- CO4 Acquire knowledge about the nutritional needs and concerns of an individual through the life cycle

#### **FCS5B07 FAMILY RESOURCE MANAGEMENT**

- CO1 Comprehend the fundamentals of resource management in changing scenario.
- CO2 Inculcate skills in the identification, creation, selection and judicious use of available resources with emphasis on maximization and conservation.
- CO3 Understand the processes of management in a scientific manner in the use of resources
- CO4 Develop aptitude in identifying product/ space design problems at home and at work. Understand the human element and user perspective in the evolution of product/space design.
- CO5 Identify and describe the functions of Human Resource Development.
- CO6 Sensitized towards challenges of human resource managers
- CO7 Understand the fundamentals of house planning and space articulation.
- CO8 Exhibit efficient resource use potentials at home and work place.





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### **FCS6B07 (P) PRACTICE IV -FAMILY RESOURCE MANAGEMENT**

CO1 Develop sound understanding in the use of resources

CO2 Develop organizational skills

CO3 Ability in problem solving

CO4 Systematic and meticulous work habits.

### **FCS5B08 TEXTILE SCIENCE**

CO1 Describe textile fibres in terms of their production and properties

CO2 Understand various production techniques and properties of yarns

CO3 Understand various dyeing, printing and finishing techniques

CO4 Develop basic knowledge of fashion and design

CO5 Select suitable apparel in relation to fabric and design components for individual

CO6 Identify various types of dyes and auxiliaries for dyeing and printing of fabrics

CO7 Describe methods and styles of printing fabrics

### **PRactical V TEXTILE SCIENCE**

CO1 Identify different types of fabric products keeping in mind fabric properties and characteristics

CO2 Acquire skill necessary for selection and evaluation of clothing

CO3 Understand the use of various materials and finishes to create aesthetically designed interiors

### **FCS6BPR-PROJECT**

CO1 Develop scientific temper

CO2 Ability to think for societal development

CO3 Improve reasoning and analytical skills

CO4 Improve writing skills and produce scientific report of the research work





## DEPARTMENT OF MATHEMATICS

### PROGRAMME OUTCOME

The programme outcome of the B.Sc. Mathematics undergraduate course is the summation of the expected course learning outcomes given below.

**PO1 Disciplinary knowledge:** Capability of demonstrating comprehensive knowledge of mathematics and understanding of one or more disciplines which form a part of an undergraduate programme of study.

**PO2 Communications skills:**

(I) Ability to communicate various concepts of mathematics effectively using examples and their geometrical visualizations.

(ii) Ability to use mathematics as a precise language of communication in other branches of human knowledge.

(iii) Ability to show the importance of mathematics as precursor to various scientific developments since the beginning of the civilization.

**PO3 Critical thinking:** Ability to employ critical thinking in understanding the concepts in every area of mathematics.

**PO4 Analytical reasoning:** Ability to analyse the results and apply them in various problems appearing in different branches of mathematics.

**PO5 Problem solving:**

(I) Capability to solve problems using concepts of linear algebra.

(ii) Capability to solve various models such as growth and decay models, radioactive decay model, LCR circuits and population models using techniques of differential equations.

(iii) Ability to solve linear system of equations, linear programming problems and network flow problems.

(iv) Ability to provide new solutions using the domain knowledge of mathematics acquired during this programme.

**PO6 Research-related skills:**

(i) Capability for inquiring about appropriate questions relating to the concepts in various fields of mathematics.

(ii) To know about the advances in various branches of mathematics.

**PO7 Information/digital literacy:** Capability to use appropriate software to solve system of equations and differential equations.

**PO8 Self-directed learning:** Ability to work independently and do in-depth study of various notions of



mathematics.

**PO9 Lifelong learning:** Ability to think, acquire knowledge and skills through logical reasoning and to inculcate the habit of self-learning.

**PO10 Application skills:** Ability to apply the acquired knowledge in all aspects.

**PO11 Experimental skills:**

**PO12 Moral and ethical awareness/reasoning:** Ability to identify unethical behaviour such as fabrication, falsification or misrepresentation of data and adopting objective, unbiased and truthful actions in all aspects

### COURSE OUTCOME

CORE COURSES													
Programme outcomes	Basic Logic and Number Theory	Calculus of Single Variable – 1	Calculus of Single Variable – 2	Linear Algebra	Abstract Algebra	Basic Analysis	Numerical Analysis	Linear Programming	Introduction to Geometry and Theory of Equations	Real Analysis	Complex Analysis	Calculus of Multi variable	Differential Equations
Disciplinary knowledge	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Communication skills	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Critical thinking	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Analytical thinking	✓	✓	✓			✓				✓	✓	✓	
Problem solving	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Research related skills	✓		✓	✓			✓		✓	✓	✓		✓
Information/ Digital Literacy	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Self-directed learning	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lifelong learning	✓			✓		✓				✓			
Applicational skills	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Experimental learning	✓	✓	✓				✓	✓					✓
Employability options	✓			✓			✓	✓				✓	✓
Ethics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓



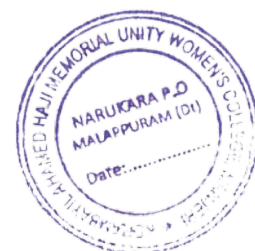
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**COURSE OUTCOME:**

Sl No	Name of the paper	Course Code	Course outcome
1	Basic Logic and Number Theory	MTS1B01	Prove results involving divisibility, greatest common divisor, least common multiple and a few applications <ul style="list-style-type: none"><li>• Understand the theory and method of solutions of LDE.</li><li>• Understand the theory of congruence and a few applications.</li><li>• Solve linear congruent equations.</li><li>• Learn three classical theorems viz. Wilson's theorem, Fermat's little theorem and Euler's theorem and a few important consequences</li></ul>
2	Calculus of Single variable-1	MTS2B02	Lays the foundation of Differential and Integral Calculus
3	Calculus of Single variable-2	MTS3B03	<ul style="list-style-type: none"><li>• Enable the students to handle vectors in dealing with the problems involving geometry of lines, curves, planes and surfaces in space</li><li>• Acquire the ability to sketch curves in plane and space given in vector valued form</li></ul>
4	Linear Algebra	MTS4B04	<ul style="list-style-type: none"><li>• This course gives the students an opportunity to learn the fundamentals of linear algebra by capturing the ideas geometrically, by justifying them algebraically and by preparing them to apply it in several different fields such as data communication, computer graphics, modelling etc.</li></ul>
5	Theory of Equations and Abstract Algebra	MTS5B05	<ul style="list-style-type: none"><li>• Idea about polynomial equations and methods of finding their algebraic solution or solution by radicals.</li></ul> Introduces basic ideas and results of abstract algebra.
6	Basic Analysis	MTS5B06	<ul style="list-style-type: none"><li>• the learning will help them to appreciate the beauty of logical arguments and embolden them to apply it in similar and unknown problems</li><li>• Learns about sequences, their limits, several basic and important theorems involving sequences and their applications.</li><li>• get a rigorous introduction to algebraic, geometric and topological structures of complex number system, functions of complex variable, their limit and continuity</li></ul>





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7	Numerical Analysis	MTS5B07	<ul style="list-style-type: none"><li>• Understand several methods to find out the approximate numerical solutions of algebraic and transcendental equations with desired accuracy.</li><li>• Understand the concept of interpolation and also learn some well-known interpolation techniques.</li><li>• Understand a few techniques for numerical differentiation and integration and also realize their merits and demerits.</li><li>• Find out numerical approximations to solutions of initial value problems and also to understand the efficiency of various methods</li></ul>
8	Linear Programming	MTS5B08	<ul style="list-style-type: none"><li>• Solve linear programming problems geometrically</li><li>• Understand the drawbacks of geometric methods</li><li>• Solve LP problems more effectively</li><li>• Understand duality theory</li><li>• Understand game theory</li></ul>
9	Introduction to Geometry	MTS5B09	<ul style="list-style-type: none"><li>• Recognize and classify conics.</li><li>• Understand Kleinian view of Euclidean geometry</li><li>• Understand affine transformations, the inherent group structure, the idea of parallel projections and the basic properties of parallel projections.</li><li>• Understand the fundamental theorem of affine geometry</li><li>• Understand which conics are affine-congruent to each other</li><li>• Realize the basic difference in identifying two geometric objects in Euclidean and affine geometries.</li><li>• Understand Kleinian view of projective geometry</li></ul>
10	Project		
11	Real Analysis	MTS6B10	<ul style="list-style-type: none"><li>• Understand several deep and fundamental results of continuous functions</li><li>• Realize the difference between continuity and uniform continuity</li><li>• Understand the significance of uniform continuity in continuous extension theorem.</li><li>• Develop the notion of Riemann integrability of a function using the idea of tagged partitions and calculate the integral value of some simple functions using the definition.</li><li>• Understand a few basic and fundamental results of integration theory.</li></ul>
12	Complex Analysis	MTS6B11	<ul style="list-style-type: none"><li>• Understand the difference between differentiability and analyticity of a complex function and construct examples.</li><li>• To know of harmonic functions and their connection with analytic functions</li><li>• To know a few elementary analytic functions of complex analysis and their properties</li></ul>



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			<ul style="list-style-type: none"><li>• To understand definition of complex integral, its properties and evaluation.</li><li>• To know a few fundamental results on contour integration theory such as Cauchy's theorem, Cauchy-Goursat theorem and their applications.</li><li>□ To know a more general type of series expansion analogous to power series expansion viz. Laurent's series expansion for functions having singularity.</li><li>• To see another application of residue theory in locating the region of zeros of an analytic function</li></ul>
13	Calculus of Multi variable	MTS6B12	<ul style="list-style-type: none"><li>• Understand several contexts of appearance of multivariable functions and their representation using graph and contour diagrams.</li><li>• Formulate and work on the idea of limit and continuity for functions of several variables.</li><li>• Understand the notion of partial derivative, their computation and interpretation</li><li>• Get the idea of directional derivative, its evaluation, interpretation, and relationship with partial derivatives</li><li>• Calculate the maximum and minimum values of a multivariable function using second derivative test and Lagrange multiplier method</li><li>• Extend the notion of integral of a function of single variable to integral of functions of two and three variables.</li><li>• Address the practical problem of evaluation of double and triple integral using Fubini's theorem and change of variable formula.</li><li>• Realise the advantage of choosing other coordinate systems such as polar, spherical, cylindrical etc. in the evaluation of double and triple integrals.</li><li>• See a few applications of double and triple integral in the problem of finding out surface area, mass of lamina, volume, centre of mass and so on</li><li>• Learn three major results viz. Green's theorem, Gauss's theorem and Stokes' theorem of multivariable calculus and their use in several areas and directions</li></ul>
14	Differential Equations	MTS6B13	<ul style="list-style-type: none"><li>• Students could identify a number of areas where the modelling process results in a differential equation</li><li>• They will learn to solve DEs that are in linear, separable and in exact forms and also to analyse the solution</li><li>• They will learn a method to approximate the solution successively of a first order IVP.</li><li>• They will become familiar with the theory and method of solving a second order linear homogeneous and nonhomogeneous equation with constant coefficients.</li></ul>



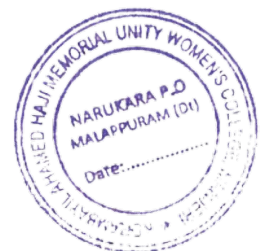


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			<ul style="list-style-type: none"><li>•They will learn to find out a series solution for homogeneous equations with variable coefficients near ordinary points.</li><li>•Students acquire the knowledge of solving a differential equation using Laplace method which is especially suitable to deal with problems arising in engineering field.</li><li>•Students learn the technique of solving partial differential equations using the method of separation of variables</li></ul>
15.	Graph theory	MTS6B14 (E01) (Elective)	<ul style="list-style-type: none"><li>•They will learn basics of Graph theory</li><li>•Bridges Spanning Trees, Euler Tour, Hamiltonian Graphs Plane and Planar graphs Euler's Formula</li></ul>
16.	Project Viva	MTS6P15(PR)	To Promote independent study and research in new areas





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**MATHEMATICS (COMPLEMENTARY COURSE FOR B.Sc CHEMISTRY & CS) OUTCOME**

Sl.No	Name of the paper	Course Code	Course outcome
1	Mathematics-1	MTS1 C01	Lays the foundation of limits and continuity, derivatives, application of derivatives, integration Gives an idea of Fractional Power & Implicit Differentiation-rational power of a function rule, implicit differentiation Gives an idea of Anti derivatives, anti-differentiation and indefinite integrals, Definite and Indefinite integral-indefinite integral test, properties of definite integral, fundamental theorem of calculus: alternative version
2	Mathematics-2	MTS2 C02	Lays foundation of Polar coordinates and Trigonometry, Inverse functions, inverse function test, inverse function rule, Hyperbolic functions, Inverse hyperbolic functions, Arc length and surface area-Length of curves, Area of surface of revolution about $x$ and $y$ axes Improper integrals, Numerical Integration, Power series, Taylor's formula Vector spaces systems of Linear Algebraic Equations, Vector spaces systems of Linear Algebraic Equations ,Diagonalization-LU Factorization



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3	Mathematics-3	MTS2 C02	Lays foundation of Vector Functions ,Motion on a Curve, Curvature and components of Acceleration, Partial Derivatives, Directional Derivative Understand Line Integrals, independence of Path ,double Integral Line Integralsindependence of path, Double Integrals in Polar Coordinate, Green's Theorem, Surface Integral-Stokes's Theorem Understand Triple Integral, Divergence Theorem, Change of Variable in Multiple Integral, Complex Numbers, Powers and roots, Functions of a Complex Variable, Exponential and Logarithmic function Understand Contour integral, Cauchy - Goursat Theorem, dependence of Path, Cauchy's Integral Formula
4	Mathematics - 4	MTS4C04	Lays foundation of Ordinary Differential Equations Higher Order Differential Equations Laplace Transforms Lays foundation of Orthogonal Functions, Fourier Series -Fourier Cosine and Sine Series - Separable Partial Differential Equations, Classical PDE's and BVP's Heat Equation



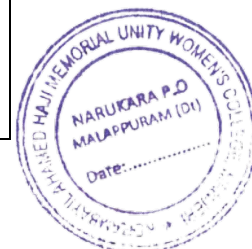


### OPEN COURSE OUTCOME

Sl No	Name of the paper	Course Code	Course outcome
1	Mathematics For Decision Making	MTS5D04	<ul style="list-style-type: none"> <li>•The student could understand the classifications of data. Student is also introduced to various data collection techniques.</li> <li>• Student will learn to visualize various types of data with the use of frequency charts and appropriate graphs.</li> <li>• Student understands concepts like measures of central tendency, measures of variation and measures of position</li> <li>• Student gets a clear understanding of basic probability concepts. Student learns conditional probability, addition rule and other basic theories in probability.</li> <li>• Student will learn various probability distributions of discrete and continuous variables.</li> <li>• Student learns about the normal distribution, which is an important continuous probability distribution in inferential statistics.</li> <li>• Student understands the standard normal distribution and learns the conversion of normal variable to standard normal variable.</li> </ul>

#### Complementary Course-Statistics (For Mathematics)

COURSE TITLE	Course outcome
Introductory Statistics	Acquire knowledge in Statistical system in India Create awareness of uses of Statistics, various descriptive measures and Correlation and regression techniques etc. Acquire Basic knowledge in applied areas such as Time series and Index number
Probability Theory	Acquire Knowledge in the basic principles of probability, random variables and the fundamentals of mathematical statistics.
Probability Distributions and Sampling Theory	Introduces different theoretical distributions and Sampling Distributions for statistical modelling. Inculcates skills for doing sample Survey





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Statistical Inference and Quality Control

Acquire Skills for Estimation and Testing of Hypothesis for Statistical Analysis. Create an awareness of Basic concepts in Statistical Quality Control





## DEPARTMENT OF ZOOLOGY

Theory Course- I

### ANIMAL DIVERSITY AND WILDLIFE CONSERVATION

Code: ZOL1C01T

[36 hrs] [2 hours/week] [3 credits]

#### COURSE OUTCOMES [COs]

#### COs Course Outcome Statements

CO1 Describe the general characters of protists and salient features of phylum – Rhizopoda, Ciliophora, Dinoflagellata and Apicomplexa (2 hrs)

CO2 Enumerate the salient features and examples of Phylum – Porifera, Coelenterata, Platyhelminthes, Aschelminthes, Annelida, Arthropoda, Onychophora, Mollusca and Echinodermata, and the structural organization of *Peneaus* sp. (14 hrs)

CO3 Describe the characteristic features and classification of phylum Chordata with examples and, structural organization of *Oryctolagus cuniculus* (14 hrs)

CO4 Explain levels of biodiversity, threats to biodiversity, biodiversity hotspots, importance and strategies for conservation of wildlife and sustainable development (6 hrs)

#### Question paper pattern for external examination

[Module: 1 Short answer 2x2=4marks

Module: 2 Short answer 3x2 = 6marks, Paragraph 3x5=15 marks; Essay1x10=10 marks

Module: 3 Short answer 3x2= 6 marks; Paragraph 3x5=15 marks; Essay1x10=10 marks

Module: 4 Short answer 4x2=8 marks, Paragraph 1x5=5marks]

#### Section A: PROTISTA

##### MODULE 1. Kingdom Protista (2 hrs)

General characters.

Salient features of protozoans.

Phylum Dinoflagellata: e.g. Noctiluca

Phylum Ciliophora: e.g. Vorticella

Phylum Rhizopoda: e. g. Amoeba

Phylum Apicomplexa: e.g. Plasmodium (exclude life cycle)

[Short answers]

#### Section B: Animal Diversity

##### MODULE 2: Animal diversity-Part I Nonchordata (14 hrs)

Salient features of phyla, classification down to classes (8 hrs)

Phylum Porifera: e.g. *Leucosolenia*

Phylum Coelenterata: e.g. *Obelia*, *Aurelia*, *Sea anemone*

Phylum Platyhelminthes: e.g. *Fasciola*, *Schistosoma*

Phylum Aschelminthes: e.g. *Ascaris*, *Enterobius*

Phylum Annelida: e.g. *Arenicola*, *Hirudinaria*, *Megascolex*

Phylum Arthropoda: e.g. *Limulus*, *Sacculina*, *Eupagurus*,

Phylum Onychophora: e.g. *Peripatus*

Phylum Mollusca: e.g. *Perna*, *Teredo*, *Sepia*, *Pinctada*

Phylum Echinodermata: e.g. *Asterias*, *Holothuria*, *Sea urchin*

Type: *Peneaus* sp. (Exclude details of larval stages) (6 hrs)

[Short answers/Paragraphs/Essays]

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**SECOND SEMESTER B.Sc. ZOOLOGY COMPLEMENTARY COURSE**

Theory Course- II

### **ECONOMIC ZOOLOGY**

Code: ZOL2C02T

[36 hrs] [2 hours/week] [3 credits]

### **COURSE OUTCOMES [COs]**

#### **COs Course Outcome Statements**

CO1 Explain parasitism and the major protist, cestode, trematode and nematode parasites of man and major insect vectors of human diseases and their control (11 hrs)

CO2 Understand major beneficial and harmful insects, damages caused to host plants and their control measures (14 hrs)

CO3 Understand pisciculture, prawn, mussel and pearl culture (11 hrs)

#### **Question paper pattern for external examination**

[Module 1 Short answer 4x2=8 marks, Paragraph 3x5=15 marks]

Module 2 Short answer 5x2 = 10 marks, Paragraph 2x5=10 marks; Essay1x10=10 marks

Module 3 Short answer 3x2=6 marks; Paragraph 2x5=10 marks; Essay1x10=10 marks]

#### **MODULE 1: Parasitism in relation to man (11 hrs)**

##### **Introduction, classification of parasites and hosts (2 hrs)**

Obligatory, facultative, external, internal, hyperparasites. Definitive, intermediate, carrier and reserve hosts. Infection and infestation - Mention Hyper infection and Auto infection. Modes of infection - Inoculative, contaminative, direct and retroinfection, zoonotic diseases

##### **Human Parasites (5 hrs)**

Parasitic Protists – *Plasmodium vivax*, *Entamoeba histolytica*

Cestodes – *Taenia solium*, mention *T. saginata* and *Echinococcus granulosus*

Trematodes (Flukes) – *Schistosoma haematobium*

Nematodes – *Ancylostoma duodenale*, *Wuchereria bancrofti* and *Enterobius vermicularis*

##### **Vectors of human diseases (4 hrs)**

Insect vectors of human diseases and their control. *Anophales*, *Culex*, *Aedes*, *Xenopsylla*, *Cimex*, *Pediculus* and *Pthirus* (Diseases like malaria, filariasis, yellow fever, typhus fever, dengue, plague, chikungunya, kala azar).

[Short answers/Paragraphs]

#### **MODULE 2. Useful Insects, Insect Pests and their control (14 hrs)**

##### **Insect Pests (9 hrs)**

Definition of Pests, Kinds of Pests, Causes of pest outbreak.

Nature of damage to host plants and control measures of the following pests.  
(Exclude structure and Life history of Pests).

- Spodoptera* sp. (rice swarming caterpillar)
- Leptocorisa* sp. (rice bug)
- Rhynchophorus* sp. (red palm weevil)
- Opisina* sp. (Black headed caterpillar, mention biological control)
- Aceria* sp. (Coconut mite)
- Helopeltis* sp. (tea bug)
- Cosmopolites* sp. (Banana rhizome weevil)
- Bactrocera* sp. (Fruit fly)

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**THIRD SEMESTER B.Sc. ZOOLOGY COMPLEMENTARY COURSE**

Theory Course- III

**PHYSIOLOGY AND ETHOLOGY**

Code: ZOL3C03T

[54 hrs] [3 hours/week] [2 credits]

**COURSE OUTCOMES [COs]**

**COs Course Outcome Statements**

CO1 Describe the structure of plasma membrane and the various trans-membrane transport mechanisms (3 hrs)

CO2 Enumerate the constituents of normal diet and the mechanism of digestion and absorption of carbohydrates, proteins and lipids and the regulation of gastrointestinal function (4 hrs)

CO3 Explain the mechanism of transport of respiratory gases, control of respiration, respiratory problems and artificial ventilation (6 hrs)

CO4 Explain the structure and working of human heart and mechanism of regulation of heart beat; constituents of human blood and blood transfusion and cardiovascular problems (7 hrs)

CO5 Illustrate the structure of human kidney, the mechanism of urine formation, hormonal control of kidney function and kidney disorders; osmoregulation and urea cycle (6 hrs)

CO6 Enumerate the structure of myofibrils and myofilaments; muscle contractile and regulatory proteins and mechanism of muscle contraction (7 hrs)

CO7 Explain different types of nerve cells and glial cells, maintenance of resting membrane potential, generation and propagation of action potential and synaptic transmission (7 hrs)

CO8 Describe innate behavior, learned behavior, patterns of behavior and factors that affect behavior (8 hrs)

CO9 Enumerate biological rhythms, communication in animals and social organization in mammals (6 hrs)

**Question paper pattern for external examination**

[Module 1-7 Short answer 9x2=18 marks, Paragraph 6x5=30 marks, Essay 1x10=10 marks]

Module 8-9 Short answer 3x2 = 6 marks, Paragraph 1x5=5 marks; Essay 1x10=10 marks]

**Section A. PHYSIOLOGY (40 hrs)**

**MODULE 1. Trans-membrane transport mechanisms (3 hrs)**

Structure of Plasma membrane. Fluid mosaic model. Trans-membrane transport - passive & active mechanisms, vesicular transport

[Short answers/Paragraphs]

**MODULE 2. Nutrition (4 hrs)**

Constituents of normal diet. Digestion of carbohydrates, proteins and lipids.

Absorption of nutrients (brief account). Brief account on the neural and hormonal control of gastrointestinal function. BMR and obesity

[Short answers/Paragraphs]

**MODULE 3. Respiration (6 hrs)**

Gas exchange and transport. Respiratory pigment – haemoglobin – properties.

Control of respiration – neural & chemical (brief account). Respiratory problems - hypoxia, asphyxia, CO poisoning. Respiratory problem of high altitudes.

Physiological adaptive mechanisms of diving mammals. Artificial ventilation; heart lung machine.

[Short answers/Paragraphs/Essays]







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## **FOURTH SEMESTER B.Sc. ZOOLOGY COMPLEMENTARY COURSE**

Theory Course- IV

### **GENETICS AND IMMUNOLOGY**

Code: ZOL4C04T

[54 hrs] [3 hours/week] [2 credits]

#### **COURSE OUTCOMES [COs]**

#### **COs Course Outcome statements**

CO1 Describe human karyotype, chromosomal anomalies and polygenic inheritance (6 hrs)

CO2 Explain the mechanisms of sex determination (4 hrs)

CO3 Enumerate the concept of genes, gene expression, genetic code, transcription and translation (8 hrs)

CO4 Illustrate the mechanism of recombinant DNA technology and its practical applications (13 hrs)

CO5 Explain the types of cancer, causes of transformation and characteristics of transformed cells (5 hrs)

CO6 Identify the cells and organs of immune system, antigens and antibodies (7 hrs)

CO7 Enumerate antigen-antibody interaction, generation of B-cell and T-cell response and major immunotechniques (7 hrs)

CO8 Explain primary and secondary immunodeficiency diseases, autoimmune diseases, vaccination and vaccines (4 hrs)

#### **Question paper pattern for external examination**

[Module 1-5 Short answer 8x2=16 marks, Paragraph 5x5=25 marks, Essay 1x10=10 marks]

[Module 6-8 Short answer 4x4=16 marks, Paragraph 2x5=10 marks; Essay 1x10=10 marks]

#### **Section A: GENETICS (36 hrs)**

##### **MODULE 1. Human Genetics (6 hrs)**

Normal human karyotype: Classification and grouping of human chromosomes (Patau's & Denver schemes). Chromosomal anomalies and disorders (short note only). Autosomal anomalies: Phenyl ketonuria & Sickle cell anemia. X-linked – Haemophilia and Colour blindness. Y-linked – Y-Chromosome infertility. Polygenic inheritance - Cleft palate or Cleft lip and diabetes mellitus. Prenatal diagnosis. Genetic counselling. Eugenics, Euthenics and Euphenics.

[Short answers/Paragraphs/Essays]

##### **MODULE 2. Genetic Control of Sex (4 hrs)**

Autosomes and sex chromosomes: Mention Barr body and its significance.

Chromosomal mechanism of sex determination: genic balance theory. Control of sex; hormonal influence of sex determination; sex mosaics; gynandromorphism

[Short answers/Paragraphs]

##### **MODULE 3. Genes and gene expression (8 hrs)**

Modern concept of genes, split genes, pseudogenes, overlapping genes and transposons. Gene expression. Genetic code, transcription and translation (brief account)

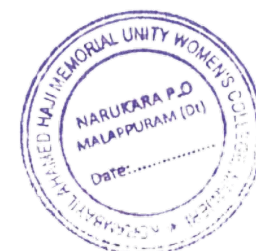
[Short answers/Paragraphs/Essays]

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Syllabus of B.Sc. Zoology Programme: 2019 onwards University of Calicut

## **B.Sc. ZOOLOGY COMPLEMENTARY COURSE**





## PRACTICAL

Code: ZOL4C05P

[Practical I\*A+I\*B+I\*C+I\*D] [4 Credits]

### COURSE OUTCOMES [COs]

#### COs Course Outcome statement

CO1 Identify the salient features of the phylum; taxonomic position, habit, habitat, adaptations/importance of selected protists, non-chordates and chordates (36 hrs)

CO2 Describe major human parasites and economically important insects, molluscs and fishes (36 hrs)

CO3 Perform detection of human blood groups and prepare human blood smear as per laboratory standards; mounting of specialized organs of selected nonchordates and chordates, and demonstrate the presence of biomolecules in samples by standard laboratory protocols (36 hrs)

CO4 Illustrate the normal and selected abnormal human karyotypes and mode of inheritance of selected human genetic disorders and perform the dissection of earthworm and sardine to demonstrate the alimentary canal and *Penaeus* to demonstrate the nervous system (36 hrs)

### FIRST SEMESTER COMPLEMENTARY COURSE [PRACTICAL I \*A]

[36 hrs] [2 hrs/week]

#### A. Animal Diversity

Phylum Dinoflagellata : *Noctiluca*

Ciliophora : *Vorticella*

Porifera : *Leucosolenia*

Coelenterata : *Obelia, Physalia, Rhizostoma* (Any 2).

Platyhelminthes : *Fasciola*

Aschelminthes : *Ascaris*

Annelida : *Chaetopterus / Arenicola, Hirudinaria.*

Arthropoda : *Eupagarus, Belostoma, Limulus, Sacculina* (Any 3).

Onychophora : *Peripatus*

Mollusca : *Chiton, Sepia/ Loligo, Octopus* (Any 2)

Echinodermata : *Asterias, Holothuria.*

Chordata

Prochordates : *Ascidia/ Branchiostoma.*

Cyclostomata : *Petromyzon.*

Superclass: Pisces : *Narcine, Echeneis, Hippocampus, Heteropneustes, Anguilla, Pomfret* (Any 3)

Class Amphibia : *Ichthyophis, Axolotl larva, Rhacophorus* (Any 2)

Class Reptilia : *Chamaeleo, Daboia, Bungarus*

Class Aves : *Columba*

Class Mammalia : *Pteropus* or any other Bat.

**B. Histology:** Study of the T.S. of *Hydra, Ascaris*, Earth worm (through typhlosolic region).

**C. Osteology:** Dentition (Rabbit), Pectoral and Pelvic girdles, typical vertebra





## **DEPARTMENT OF PSYCHOLOGY**

### **PROGRAMME OUTCOME**

- Demonstrate knowledge of psychological science
- Think critically and solve problems
- Conduct research and analyse data
- Communicate effectively
- Demonstrate information literacy
- Understand and implement ethical principles
- Apply psychological knowledge & skills

### ● **SPECIFIC PROGRAMME OUTCOMES**

- Understand and apply basic research methods, including research design, data analysis, and interpretation.
- Understand and apply psychological principles to personal, social, and organizational issues.
- Weigh evidence, tolerate ambiguity, act ethically, and reflect other values underpinning psychology.
- Demonstrate information competence and the ability to use computers and other technology for many purposes.
- Communicate effectively in both oral and written formats.
- Recognize, understand, and respect the complexity of sociocultural and international diversity.
- Show insight into one's own and others' behaviour and mental processes and apply effective strategies for self-management and self-improvement.
- Emerge from the major with realistic ideas about how to use psychological knowledge, skills, and values in various occupations and in graduate or professional school

### **COURSE OUTCOMES**





### **PSY1B01- BASIC THEMES IN PSYCHOLOGY-1 PSYCHOLOGY:**

- To generate interest in psychology
- To make familiar the basic concept of the field of psychology with an emphasize on the application of psychology in everyday life
- To understand the basics of various theories in psychology
- To provide basic knowledge about systems & processes likes cognition , memory ,motivation &emotion

### **PSY1C01- HUMAN PHYSIOLOGY:**

- Have an enhanced knowledge and appreciation of mammalian physiology
- Understand the functions of important physiological systems including the cardio-respiratory, renal , reproductive and metabolic systems
- Understand how these separate systems interact to yield integrated physiological responses to challenges such as exercise , fasting and ascend to high attitude , and how they can sometimes failed
- Be able to perform, analyse and report on experiments and observation in physiology
- Be able to recognize and identify principle tissue structures

### **PSY1D01 -PSYCHOLOGICAL STATISTICS:**

- Define and identify basic concepts in inferential and descriptive statistics
- Explain and apply the concepts and procedures of descriptive statistics
- Describe and utilize principles of probability and hypothesis testing
- Provide a discussion of the results and of the statistical analysis
- Provide a derivation for mathematical statistics problems
- Apply and interpret common inferential statistical tests and correlational methods

### **PSY3B01 PSYCHOLOGICAL MEASUREMENT AND TESTING**

- To offer foundation on psychological measurement and testing
- To provide the basis of test construction and to build up skills on developing psychometric test



- To familiarize the uses of psychological tests
- To make aware of ethical principals in testing

### **EXPERIMENTAL PSYCHOLOGY PRACTICAL I**

- To nurture the ability in students to understand himself/herself and other persons.
- To develop the skills of testing and scientific reporting in psychology.
- To familiarize the students to various psychological tests and assessment tools.
- To generate an interest in working of the community with a psychological outlook

### **PSY4B01 INDIVIDUAL DIFFERENCES**

- To provide theoretical knowledge about systems and processes like intelligence and personality
- To understand the history of intelligence and Personality Testing
- To familiarize the student with various types of tests in Psychology

### **PSY5B01 ABNORMAL PSYCHOLOGY**

- To enable students to understand the concepts of abnormal behaviour
- To develop awareness about different types of anxiety and stress disorders
- To encourage the students to know different therapeutic techniques in management of anxiety and stress disorders.

### **PSY5B02 SOCIAL PSYCHOLOGY**

- To enable the student to ,
- Understand and explain behaviour in social settings
- Explain the psychological aspects of various social phenomena
- To create awareness about the management of human behaviour in group settings

### **PSY5B03 DEVELOPMENTAL PSYCHOLOGY**





- To study human development in Psychological Perspectives
- To create awareness about major Psychological changes along with physical and cognitive development

### **PSY5B04 PSYCHOLOGICAL COUNSELLING**

- To acquire theoretical knowledge in the areas of psychological counselling
- To understand the applications of counselling in various settings
- To practice counselling techniques through role plays

### **PSY5B05 HEALTH PSYCHOLOGY**

- To understand the psychological, behavioural and cultural factors contributing to physical and mental health
- To study the management of different illnesses

### **OPEN COURSE**

#### **PSY5D02 LIFE SKILL APPLICATIONS**

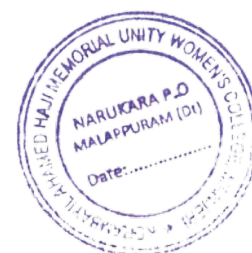
- To promote life skill education
- To develop abilities for adaptive and positive behaviour To enhance self-confidence and self-esteem

### **EXPERIMENTAL PSYCHOLOGY PRACTICAL I I**

- To nurture the ability in students to understand himself/herself and other persons.
- To develop the skills of testing and scientific reporting in psychology.
- To familiarize the students to various psychological tests and assessment tools.
- To generate an interest in working of the community with a psychological outlook

### **EXPERIMENTAL PSYCHOLOGY PRACTICAL I I**

- To nurture the ability in students to understand himself/herself and other persons.
- To develop the skills of testing and scientific reporting in psychology.





- To familiarize the students to various psychological tests and assessment tools.
- To generate an interest in working of the community with a psychological outlook

### **PSY6B01 ABNORMAL PSYCHOLOGY-II**

- To develop awareness about major psychological disorders
- To acquaint the students with causes of major psychological disorders

### **PSY6B02 APPLIED SOCIAL PSYCHOLOGY**

- To familiarize the theoretical concept and research methods in applied psychology
- To give knowledge about application of social psychology in different areas like clinical, Educational, health and media
- To understand the major social issues in India.

### **PSY6B03 DEVELOPMENTAL PSYCHOLOGY –II**

- To study emotional and social development of life span periods
- To study the vocational development and adjustments in adulthood
- To understand the period of late adulthood

### **PSY6B04 LIFE SKILL EDUCATION: APPLICATIONS AND TRAINING**

- To promote life skill education
- To develop abilities for adaptive and positive behaviour To enhance self-confidence and self-esteem

### **ELECTIVE COURSE**

#### **PSY6B05-01 ORGANIZATIONAL BEHAVIOUR**

- To familiarize the concept of human Behaviour in Organizations
- To give knowledge about work-motivation, group, leadership and organizational culture





## DEPARTMENT OF MALAYALAM

### COURSE OUTCOMES

#### Semester I: (BA/BSc)

##### MAL1A01 COMMON COURSE MALAYALA SAHITYAM 1

- Introducing various phases of the growth of Malayalam literature.
- General awareness of the stylistic features of Malayalam writers.
- Developing acquaintance with the selected writes.

#### Semester II:

##### MAL2A02 COMMON COURSE MALAYALA SAHITYAM 2

- Understanding the different phases of Malayalam poetry, movements and innovative imaginaries and the evolution of prose and literary criticism in the language.

#### Semester III:

##### MAL3A03 COMMON COURSE MALAYALA SAHITYAM 3

- Developing a sense of appreciation towards the genres of drama, screen play, autobiography, travelogues etc among students studying Malayalam as a second language.

#### Semester IV:

##### MAL4A04 COMMON COURSE MALAYALA SAHITYAM 4

- Along with creative writing, communication and cultural studies, the literary form of the novel has also been included to develop creative and analytical skills towards personal and professional awareness in a complex inter connected world.

#### Semester I: (B.Com)

##### MAL1A01 (1) COMMON COURSE MALAYALA SAHITYAPADANAM 1

- To engage commerce and BBA students in critical approach with Malayalam literature using various genres and different literary movements.
- Enhancing business communication skills and understanding the importance of translation.

#### Semester II:

#### Semester II:

##### MAL2A02 (1) COMMON COURSE MALAYALA SAHITYAPADANAM 2

- Introducing different literary forms to develop general awareness.

#### Semester I: (CS)

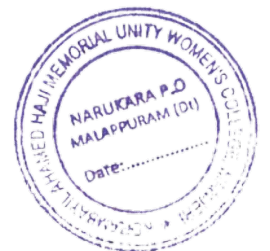
##### MAL1A01 (2) COMMON COURSE MALAYALAM BHASHAYUM SATHIYAVUM 1

- To approach varying realms of science and culture through mother tongue.
- Enhancing creative communication through the study of poetry.
- Comprehending the prospects and challenges in translation.

#### Semester II:

##### MAL2A02(2) COMMON COURSE MALAYALAM SAHITYAPADANAM 2

- Introducing different literary forms to develop general awareness.







## **DEPARTMENT OF ARABIC**

### **Course Outcomes**

- Learner will be able to communicate effectively in the Arabic language in a variety of speaking Situations.
- Learner will be able to express themselves competently in a variety of oral situations.
- Learner will be able to Read and comprehend texts of an intermediate high level in both traditional and simplified characters.
- Learner will be able to understand most native speakers when they speak clearly on familiar topics.
- Students will demonstrate knowledge and understanding of other cultures and their products.
- They will be able to recognize and describe the historical, social, economic, and political forces that shape society in the target culture.
- Learner will be able to introduce and to strengthen the cultural values of the students.





## DEPARTMENT OF PHYSICS

### Course Outcome

#### PHY1C01: Properties of Matter and Thermodynamics

	Course Outcome
CO1	Understand the basic principles of elasticity
CO2	Understand the concepts of surface tension
CO3	Understand the aspects of viscosity
CO4	Understand the basic principles of thermodynamics

#### PHY2C02: Optics, Laser and Electronics

	Course Outcome
CO1	Understand the basic concepts of interference and diffraction
CO2	Understand the concepts of polarization
CO3	Understand the fundamentals of electronics
CO4	Understand the important principles of laser physics

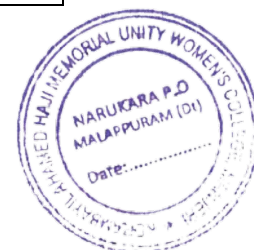
#### PHY3C03: Mechanics, Relativity, Waves and Oscillations

	Course Outcome
CO1	Understand the basic ideas of frames of reference and the principles of conservation of energy and momentum
CO2	Understand the concepts of relativity
CO3	Understand the basic ideas of oscillations and waves
CO4	Understand the basic ideas of modern physics

#### PHY4C04: Electricity, Magnetism and Nuclear Physics

	Course Outcome
CO1	Understand the basic ideas of static and current electricity
CO2	Understand the concepts of magnetism
CO3	Describe the fundamental concepts of nuclear physics
CO4	Understand the basic ideas of cosmic rays and elementary particles

#### PHY4C04(P): Complementary Physics Practical





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	Course Outcome
CO1	Apply and illustrate the concepts of properties of matter through experiments
CO2	Apply and illustrate the concepts of electricity and magnetism through experiments
CO3	Apply and illustrate the concepts of optics through experiments
CO4	Apply and illustrate the principles of electronics through experiments





## DEPARTMENT OF CHEMISTRY

### PROGRAMME OUTCOME

Familiarizes the emerging areas of chemistry and their applications in various spheres of chemical sciences and to apprise the students of its relevance in future studies.

#### PROGRAMME SPECIFIC OUTCOMES AND COURSE OUTCOMES

##### Under Graduate Programme In Chemistry

- To understand basic facts and concepts in Chemistry while retaining the exciting aspects of Chemistry so as to develop interest in the study of chemistry as a discipline.
- To develop the ability to apply the principles of Chemistry.
- To appreciate the achievements in Chemistry and to know the role of Chemistry in nature and in society.
- To develop problem solving skills.

##### Semester - I

##### CHE1B01. Theoretical and Inorganic Chemistry -1

To develop interest among students in various branches of inorganic chemistry. To impart essential theoretical knowledge on atomic structure, periodic properties, chemical bonding, and nuclear chemistry.

##### Semester - II

##### CHE2B02. Theoretical and Inorganic Chemistry –II

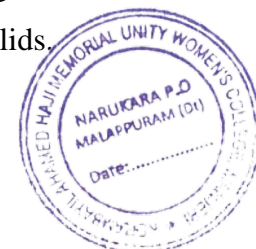
To familiarise with the basic principles of quantum chemistry and to impart the students concepts of the fundamentals of quantum mechanics and its applications in the study of structure of atoms. To develop a broad idea about chemical bonding and molecular structure.

##### Semester – III

##### CHE3B03. Physical Chemistry -1

To understand the general characteristics of different states of matter. To impart knowledge to the students about the intermolecular forces in gases and liquids, the structure of solids and defects in solids.

##### Semester - IV





### **CHE4B04. Organic Chemistry -1**

To impart the students a thorough knowledge about the chemistry of some selected functional groups with a view to develop proper aptitude towards the study of organic compounds and their reactions. To enable the students to understand and study organic reaction mechanism.

### **CHE4B05 (P). Inorganic Chemistry Practical-I**

To develop skills for quantitative estimation using the different branches of volumetric analysis .

### **Semester - V**

### **CHE5B06. Inorganic Chemistry - III**

To give basics of analytical chemistry and to study the characteristics and properties of S and P block elements. Basic idea about environmental pollution and solid waste management.

### **CHE5B07. Organic Chemistry -I**

To impart the students a thorough knowledge about the mechanisms of reactions of some selected functional groups in organic compounds and also to give an outline of applied organic chemistry and the applications of organic chemistry in various spheres of chemical sciences.

### **CHE5B08. Physical Chemistry - II**

To provide an insight into the kinetic aspects of chemical reactions and phase equilibria. To derive some thermochemical equations and kinetic equations. To study phase diagrams and elementary idea of catalysis and chromatography. To impart a thorough knowledge of the fundamentals of microwave, infrared, Raman, electronic and magnetic resonance spectroscopy, mass spectrometry.

### **CHE5D01.Environmental Chemistry (Open Course)**

To acquire knowledge about the environmental issues of the present world, types of pollution and methods to reduce pollutant. It makes awareness about waste management.

### **Semester – VI**

### **CHE6B09. Inorganic Chemistry -1V**

To understand the general characteristics of the d and f block elements. To give the students a thorough knowledge of the different theories to explain the bonding in coordination compounds. To improve the level



of understanding of the chemistry of organometallic compounds, metal carbonyls and metal clusters.

### **CHE6B10. Organic Chemistry - III**

To impart the students thorough Idea In in the chemistry of carbohydrates, heterocyclic compounds, amino acids, proteins and nucleic acids. To study the fundamentals of terpenoids, alkaloids, vitamins, lipids and steroids. To have an elementary idea of supramolecular chemistry and Green Fluorescent Proteins.

### **CHEGB11. Physical Chemistry - III**

To provide an insight into the characteristics of different types of solutions and electrochemical phenomena. To learn ionic equilibria and electrical properties of ions in solution. To learn the concepts of acids and bases, pH and buffer solutions,

### **CHE6B12. Advanced and Applied Chemistry - III**

To provide elementary ideas of advanced topics in chemistry like nano chemistry, computational, green chemistry, supramolecular and combinatorial chemistry.

### **CHE6B13. Polymer Chemistry - III (Elective)**

To provide an insight into the types of polymerization and their properties and reactions.

### **CHE6B14(P). Physical chemistry practical**

To develop skills in doing experiments in kinetics, conductometry, viscosity, potentiometry and phase rule.

### **CHE6B15(P). Organic chemistry practical**

To develop skills required for the qualitative analysis of organic compounds, determination of physical constants.

### **CHE6B16(P). Inorganic chemistry practical**

To impart the students a thorough knowledge of systematic qualitative analysis of inorganic mixtures by semi-micro method. The students will get training in the quantitative analysis of metal ions and anions using gravimetric method. To develop skills in the proper handling of apparatus and chemicals. To be exposed to the different processes used in industries and their applications.