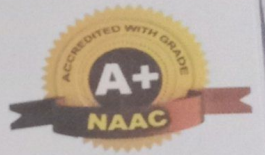




# PAZHASSIRAJA COLLEGE

Pulpally, Wayanad, Kerala, India, 673579  
Government Aided & Affiliated to the University of Calicut  
Reaccredited by NAAC with A+ Grade



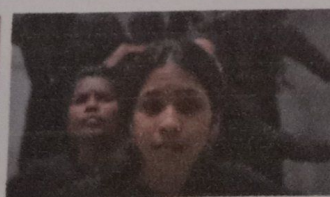
## CRITERION 2 TEACHING, LEARNING AND EVALUATION 2.6.1 Course Outcome

### AQAR

*Submitted to*

*National Assessment and Accreditation Council*

**IQAC 2022-23**







# PAZHASSIRAJA COLLEGE

(Aided College Affiliated to University of Calicut)  
Managed by Malankara Catholic Diocese, Bathery  
NAAC Accredited with 'B' Grade

The Course Outcomes (COs) of all courses under all programmes as per the latest University curriculum is given below. The data is provided as a requisite for supporting the Metric No. 2.6.1

## COURSE OUTCOMES OF COURSES UNDER ALL PROGRAMMES

### M. Sc. BIOCHEMISTRY

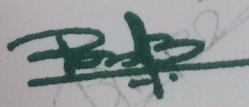
#### BCH 1C01 ANALYTICAL BIOCHEMISTRY & BIO ANALYTICAL TECHNIQUES

1	Explain the principles of hydrodynamic, electro analytical, optical, spectroscopic, microscopic and radioactivity-based techniques.
2	Apply the knowledge in the above techniques in purification, separation and characterization of Biomolecules from their natural sources
3	Design stepwise protocols for the purification, separation and characterization of biomolecules from their natural sources
4	Develop good laboratory practices and minimize hazards in laboratory

#### BCH 1C02 STRUCTURAL BIOLOGY, BIOINFORMATICS AND BIostatISTICS

1	Identify the structure of biological macromolecules at different levels of organization (primary, secondary, tertiary and quaternary) and the nature of key bonds making them.
2	Investigate methods of purification for each type of biological macromolecule.
3	Explain protein folding, its dynamics and diseases caused by protein misfolding.
4	Identify structure-function relationships of biological macro molecules and genome organization.



  
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## BCH 1C02 STRUCTURAL BIOLOGY, BIOINFORMATICS AND BIostatISTICS

1	Identify the structure of biological macromolecules at different levels of organization (primary, secondary, tertiary and quaternary) and the nature of key bonds making them.
2	Investigate methods of purification for each type of biological macromolecule.
3	Explain protein folding, its dynamics and diseases caused by protein misfolding.
4	Identify structure-function relationships of biological macro molecules and genome organization.

## BCH1C03 MICROBIOLOGY AND IMMUNOLOGY

1	Illustrate staining techniques for visualization and identification of microbes, methods of sterilization, disinfection and safe handling of microorganisms.
2	Discuss the preparation and maintenance of microbial cultures, applications of microbes in research and industry and concepts of environmental microbiology
3	Describe immune system and its components, clinical immunology and immunological techniques.
4	Categorize antibodies and explain genetics of Igs, molecular genetic aspects of B cell differentiation, antibody mediated effector functions, monoclonal antibodies and abzymes.
5	Explain immunological reactions, related techniques and immune dysfunctions.

## BCH 2C01 ENZYMOLOGY

1	Interpret and explain significant mechanisms of regulation of enzymatic action and specify importance of enzymes in regulation of metabolism.
2	Apply appropriate methods for determination of catalytic parameters and activity of enzymes and resolve problems considering kinetics and thermodynamics of enzymatic reactions. Determine specific activity of enzymes
3	Draw kinetic plots and calculate kinetic parameters from experimental data. Analyze enzyme inhibition and regulation
4	Design step wise protocols for the extraction, purification and characterization of enzymes from different sources.
5	Identify the clinical and industrial applications of enzymes

## BCH 2C02 PLANT BIOCHEMISTRY

1	Outline the tissue and segment specific accumulation of secondary metabolites and tissue specific control of enzymes in secondary metabolism
2	Highlight the role of secondary metabolites in plant development, specialised cell and storage space differentiation.



### BCH 2C03 CELL AND MOLECULAR BIOLOGY

1	Describe gene expression, mutation, DNA damage and repair.
2	Outline the concepts of genetics and evolutionary biology.
3	Apply these knowledge to solve current problems in molecular biology
4	Explain cell cycle, cellular processes, cellular transport and cell signaling.

### BCH 3C01 METABOLIC REGULATIONS AND BIOENERGETICS

1	Explain biochemical and genetic regulation of various metabolic pathways of carbohydrates, lipids, proteins and nucleic acids.
2	Elaborate mitochondrial metabolism
3	Apply the knowledge of biochemical and genetic regulation of metabolism to interpret findings in research and diagnostic sectors.
4	Metabolic aspects in research.

### BCH3C02 PHYSIOLOGY AND ENDOCRINOLOGY

1	Introduction to physiology & different types of tissues.
2	Various process involved in muscle and cardiovascular physiology
3	Highlight on renal and respiratory physiology
4	Evaluation of endocrine system and different hormones.

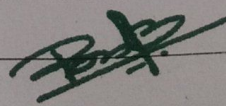
### BCH 3C03 GENETICS, RDNA TECHNOLOGY

1	Aspects of mendelian genetics and genetic inheritance
2	Outcome of basic principles of rdna technology and its principles
3	Mode of tissue culture techniques and its applications
4	Environmental biotechnology and its applications

### BCH 3E01 NEUROBIOCHEMISTRY

1	Explain the basis of learning and memory. Apply the knowledge in neuroscience to study how neurochemicals and drugs influence the operation of neurons, synapses, and neural network.
2	Highlight the features of neurodegenerative diseases.
3	Analyse the biochemistry of vision, muscle contraction and describe the concepts of developmental neurobiology.
4	Analyse its applications

### BCH 3E02 PROTEIN CHEMISTRY

  
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6	Apply the various models on tourist satisfaction level.
7	Comprehend the benefits and impacts of tourism.
8	Analyse the Statistical trends of tourism in India and Kerala.

### MTM1C02 TOURISM PRODUCTS AND RESOURCES

1	Summarize the meaning of tourism product.
2	Describe the various natural and manmade tourism resources in India.
3	Explain various cultural resources of India
4	Recognize various performing art resources of India.
5	Interpret variables influencing tourism product development
6	Evaluate various Kerala tourism resources
7	Interpret the basic knowledge of basic water system and their importance
8	Explain the knowledge about the famous passes and peaks of India

### MTM1C03 EVENTS PLANNING AND PROMOTION

1	Comprehend the basic concept related to event management in tourism
2	Apply financial management in events
3	Evaluate the vent management process
4	Develop the stages in planning and managing an event
5	Create a sample event
6	Explain the significance of event planning
7	Interpret the roles played by promotion, advertising, P R, and sponsorship in marketing international events .
8	Determine the emerging trends in the realm of events

### MTM1C04 TRAVEL AND TRANSPORT OPERATIONS AND MANAGEMENT

1	Describe the evolution of various transportation system in the world.
2	Explain bi-lateral and multi lateral agreements in airline industry.
3	Identify various special tourist trains in India.
4	Comprehend conventions and regulations in airline industry.
5	Determine the features of Cruise ships, ferries, hovercrafts, river and canal boats
6	Identify major cruise routes in the world and their role in tourism promotion.
7	Identify the important rail and border passes

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2. Develop innovative marketing methods in Tourism Development
3. Make use of the promotion methods as part of marketing of tourism products
4. Elucidate the concept of service marketing and the trends within it

#### **TTM6B13: Tourism Planning and Policies**

1. Interpret the concept of Destination in Tourism
2. Analyze the pros and cons of tourism on nature, society and culture.
3. Apply the concept of sustainability in tourism
4. Examine the nature and types of planning in tourism
5. Discuss the scope of policies in tourism
6. Identify tourism policies in the Indian context

#### **TTM6B14: Emerging Concepts in Tourism**

1. Identify the emerging concepts in the parlance of tourism in the world
2. Compare the alternative tourism types
3. Evaluate the implementation of responsible tourism in Kerala

#### **TTM6B15: Event Management and MICE Tourism**

1. Comprehend concepts of events and their role in tourism.
2. Distinguish different types of events.
3. Analyze the event cycle managing events
4. Describe the stages in managing an event successfully
5. Identify the entrepreneurial opportunities in event management

#### **TTM6B16: Resort and Recreation Management**

1. Comprehend the concept of resorts
2. Describe planning and development of resorts
3. Analyze the operations in resort properties
4. Apply the idea of relationship management in the context of resorts
5. Interpret the relevance of significance in hospitality

#### **TTM6 B17: Medical and Wellness Tourism**

1. Differentiate between health, medical and wellness tourisms
2. Identify the health tourism practices in India
3. Recognize the classification and accreditations in health tourism in India

## **BVoc FOOD SCIENCE**

CO1

To have a basic idea about manufacturing of sugar and its products

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**BAKERY****AND**

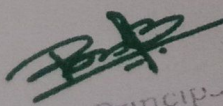
CO2	To understand the concept and meaning about different confectioneries used in food sector
CO3	To analyse the idea about the processing of wheat and its products
CO4	To know about the importance of each ingredient in the bakery and manufacturing of bread
CO5	To familiarize the processing of cake and biscuit

**CONFECTIONERY TECHNOLOGY****BAKERY AND CONFECTIONERY TECHNOLOGY- practical**

CO1	To understand basic idea about the preparation of some basic food products
CO2	To evaluate the import bakery products and how it effects the overall product and its sensory and quality parameters.
CO3	To explain the knowledge about various types of food products made using baking technology
CO4	To understand the basic principle behind baking

**PRINCIPLES OF FOOD PRESERVATION**

CO1	To understand about the different ways in which food spoilage occurs and the techniques to prevent it.
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CO2	To evaluate the different methods of preservation and the principles behind the various methods of food preservation and  to study the method of action of different preservatives.
CO3	To enumerate the idea about high temperature preservation
CO4	To understand the knowledge about low temperature preservation
CO5	Evaluate the knowledge about preservation by the removal of moisture

## FOOD SCIENCE AND NUTRITION

### DAIRY

CO1	To understand the basics about nutrition
CO2	To describe the various types of food and newly developed food products
CO3	To illustrate the idea about the high temperature preservation
CO4	To understand various types of nutrients and their functions in the body
CO5	To explain the importance and functions of various types of nutrients present in food

### TECHNOLOGY

CO1	To understand the basic idea about milk and its grade
CO2	To explain the processing and storage about dairy products
CO3	To understand the idea about special milk
CO4	To evaluate the basic knowledge about different fermented milk products



CO5	To illustrate the cip systems and quality control measures in dairy sectors
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### DAIRY TECHNOLOGY-PRACTICAL

CO1	To understand the knowledge about preaparation of different dairy products
CO2	To analyse the different chemical testing of milk sample
CO3	To explain different processing equipments in dairy industries
CO4	To modify knowledge to develop new dairy products
CO5	To construct various documentation regarding pre processing, production and finished product

### PACKAGING TECHNOLOGY

CO1	To enumerate the basic knowledge about packaging and its functions
CO2	To evaluate different deteriorative reactions and the ways in which they act on food.
CO3	To understand different processing equipments in dairy industries

### TECHNOLOGY OF FISH, MEAT AND EGG PROCESSING

CO1	To understand the structure, composition, nutritional quality of aqua products and different preservation attributes
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CO2	To analyse meat slaughtering methods and concept of meat quality through the processing and preservation methods
CO3	To understand the need and importance of livestock, egg and poultry industry
CO4	To evaluate the technology behind preparation of various animal food products and biproducts utilisation
CO5	To evaluate pre and postmortem physical and chemical changes of meat

### TECHNOLOGY OF SPICES AND PLANTATION CROPS

CO1	To understand about various types of spices and its processing
CO2	To analyse different processing steps involved in spice processing
CO3	To describe major spices and its plantation techniques
CO4	To evaluate the different value added products and its used in food industries
CO5	To illustrate various modern technology and equipments used for spice extractions

### FOOD ADDITIVES AND FLAVOUR TECHNOLOGY

CO1	To understand an insight in to the additives that are relevant to food industry
CO2	To understand the role of food additives in food industries and its classifications functions and importance
CO3	To impart awareness for food additives as toxicants
CO4	To demonstrate derived plant and animal based functional ingredient and its property



CO5	To explain the scope and applications of food additives in different food sectors.
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## TECHNOLOGY OF CEREALS, PULSES AND OIL SEEDS

CO1	To understand the production of different cereal crops
CO2	To understand the importance of different types of dryers in food sectors
CO3	To demonstrate rice milling and different processes involved.
CO4	To demonstrate wheat milling and different processes involved.
CO5	To explain the importance of different pulses and oil seeds and their production techniques.

## TECHNOLOGY OF CEREALS, PULSES AND OIL SEEDS PRACTICALS

CO1	To understand different chemical and physical properties of cereal flours
CO2	To understand the different extraction techniques of oil seeds
CO3	To demonstrate rice milling and different processes involved.
CO4	To demonstrate wheat milling and different processes involved.
CO5	To explain the working of a rice milling station

## TECHNOLOGY OF BEVERAGES

CO1	To understand different types of beverages
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CO2	To describe the manufacturing process of different beverages
CO3	To understand the types of coffee and tea plants
CO4	To explain different types of alcoholic beverages and the product made out of them
CO5	To understand the different parameters of drinking water and its various quality standards.

## PROCESSING OF FRUITS AND VEGETABLES

CO1	To understand the importance of fruits and vegetables
CO2	To describe the manufacturing process of different beverages
CO3	To understand the types of coffee and tea plants
CO4	To explain different types of alcoholic beverages and the product made out of them
CO5	TO UNDERSTAND THE DIFFERENT PARAMETERS OF DRINKING WATER AND ITS VARIOUS QUALITY STANDARDS.

## MA ECONOMICS

### MICROECONOMICS II

1. After the completion of the course, students will be able to address economic issues related to uncertainty and risk in decision-making.
2. The students will learn to understand how in the real-world market contractual settings are characterized by conflict of interests as well as asymmetry of information among the individuals involved.
3. Also, the students will develop an understanding of how negotiations made under asymmetric information conditions and how the sub-optimality problem can be addressed in economics.

### MACROECONOMICS II

1. Understand the role of expectations in macroeconomics.
2. Gain knowledge about the alternative theories of endogenous expectations formation.



1. To acquaint students with important quantitative techniques, which enable sound business decision making
2. To make students learn the process of applying appropriate quantitative techniques for validating findings and interpreting results.

#### **MCM1C04 Management Theory and Organizational Behaviour**

1. To learn the basic concepts of Organizational Behaviour and its applications in contemporary organizations.
2. To understand how individual, groups and structure have impacts on the organizational effectiveness and efficiency.
3. To appreciate the theories and models of organizations in the workplace.
4. To creatively and innovatively engage in solving organizational challenges.
5. To learn and appreciate different cultures and diversity in the workplace.

#### **MCM1C05 Advanced Management Accounting**

1. To enable students to understand and apply tools, techniques, and concepts in managerial decision-making process.
2. To inculcate analytical skills in interpreting and diagnosing business problems

#### **MCM2C06 Advanced Corporate Accounting**

1. To provide knowledge and skills in the theory and practice of corporate financial accounting
2. To provide insight in to some of the important accounting standards of IFRS /Ind AS
3. To enable problem solving abilities among students in matters of various corporate situations such as consolidation of group information, corporate restructuring and liquidation

#### **MCM2C07 Advanced Strategic Management**

1. Understand Basic Concepts of strategy and strategic management
2. Understand Emerging trends in strategic management
3. Understand Strategic Choice
4. Understand Strategy evaluation and control

#### **MCM2C08 Advanced Cost Accounting**

1. To enable the students to know the applications of Cost accounting tools, Techniques and concepts in managerial decision-making process.
2. To provide students adequate knowledge of cost management and control techniques and to enable them to apply these for managing business profitably.

#### **MCM2C09 International Business**

1. Understand theories of international trade
2. Understand trade barriers - tariff and non-tariff barriers
3. Understand international business environment
4. understand strategy development in international business

#### **MCM2C10 Management Science**



1. To familiarize students with concepts of management science and tools supporting decision making
2. To enable students to apply Management science techniques in appropriate decision situations.

### **MCM3C11 Financial Management**

1. To acquaint the students with the basic analytical techniques and methods of financial management of business organization.
2. To provide the students the exposure to certain advanced analytical techniques that are used for taking financial policy decisions.

### **MCM3C12 Income Tax Law, Practice and Tax Planning I**

1. To enable students to understand computation of income under various heads, taxable income of various entities, tax planning and procedure of assessment.

### **MCM3C13 Research Methodology**

1. To acquaint students with process and methodology of research
2. To enable students to identify research problems, collect and analyse data and present results.

### **MCM3EF01 Investment Management**

1. To establish a conceptual framework for the study of security analysis and portfolio management. This course will provide the students the ability to understand and utilize the skill of optimizing returns.

### **MCM3EF02 Financial Markets & Institutions**

1. To provide the students a sound information and knowledge of broad framework of financial markets and institutions.
2. To impart the students an understanding of the inter-linkages and regulatory framework within which the system operates in India

### **MCM4C14 Financial Derivatives & Risk Management**

1. To make the students efficient in the area of derivatives, by giving them the knowledge of basics in options, futures, swaps etc.

### **MCM4C15 Income Tax Law, Practice and Tax Planning II**

1. To acquaint the students with theoretical and practical knowledge of assessment and tax planning of different assesses.
2. To familiarize the students with major and latest provisions of the India tax laws and related judicial pronouncements pertaining to various assesses with a view to derive maximum possible tax benefits admissible under the law.

### **MCM4EF03 International Finance**

1. To understand the concept and significance of international finance
2. To understand the international financial markets and exchange theories
3. To get an idea about foreign exchange exposure and risk management



theoretical framework for growth and development discourses under different schools of economic thoughts and also into better insights and knowledge on issues and challenges on economic development.

**Research Methodology**

This course is designed to introduce the undergraduate students the importance of research methodology and its basic tools for understanding the social reality. It intends to provide exposure to the fundamentals of techniques and methods in social research. It helps them to equip themselves the ability to understand and participate in the process of economic research. It also helps to familiarize the student with the quantitative and qualitative strategies of research in social science. After completing this course the student should also be able to develop research project and work with a research problem.

**Basic Econometrics**

This course provides a comprehensive introduction to basic econometric concepts and techniques. It covers statistical concepts of hypothesis testing, estimation and diagnostic testing of simple and multiple regression models etc. The aim of this course is to provide a foundation in econometric analysis and develop skills required for empirical research in economics.

**BA ECONOMETRICS AND DATA MANAGEMENT**

**MICROECONOMICS – I**

No.	Course Outcomes
CO 1	Students explain how economists use economic models
CO 2	Students explain how economists use economic models
CO 3	Students understand the scarcity and choice in the economy and the basic Problems of an economy.
CO 4	Students explain and illustrate market equilibrium and disequilibrium.
CO 5	Students analyse how consumers maximize the total utility within a given income using the utility maximizing rule.
CO 6	Students describe how consumer's utility changes when income or price change.
CO 7	Students define the term production and explain what a production function is; define and differentiate between marginal, average and total product; compute and graph marginal, average and total product.
CO 8	Students define and differentiate between different cost concepts and interpret the relation between long run and short run costs.

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## MACROECONOMICS I

No.	Course Outcomes
CO 1	Students appreciate the context in which Macroeconomics emerged as a separate discipline.
CO 2	Students understand the concepts regarding macroeconomic model building.
CO 3	Students understand and evaluate different concepts and measurements of national income
CO 4	Students explain how output and employment are determined in classical and Keynesian systems of economics.
CO 5	Students explain and analyse why actual output will fall short of the productive capacity of the economy.
CO 6	Students evaluate fiscal policies of Governments at different situations.
CO 7	Students understand and generalize the concept of money and money supply in the economy and evaluate monetary policy of different Governments.

## B.A JOURNALISM AND MASS COMMUNICATION

### JOU1B01 Fundamentals of Mass Communication

1. To attain the basic concepts of communication and the evolution of mass communication.
2. The knowledge gained from the course should act as a gateway and navigator to the various branches of mass communication.
3. To gain the capacity to examine the working of the media and to develop better perspectives of media.

### JOU2B02 Media History

1. To demonstrate an understanding of the history of media and role of professionals in Journalism.
2. To understand the development of print and electronic media.

### JOU3B03 Reporting for the Print

1. Make students reporters having news sense.
2. Prepare reporters with the acquaintance of Journalistic Principles.
3. Provide practical experiences to the students.

### JOU3B04 Editing for the Print

1. Produce students with the thorough knowledge in the need for editing.
2. Prepare editors having practical knowledge in all the aspects related to editing.



## **MCJ 1C 04 MEDIA HISTORY**

1. Understand the transition of press in the world.
2. Trace the growth of media in India and its engagement with politics and social change at the different points in history.
3. Recognize the outcomes of different commissions, Acts and amendments regarding media.
4. Critically evaluate the functioning of Indian film industry and film certifications.

## **MCJ 1C 05 COMMUNICATION LAWS & ETHICS**

1. Have a thorough understanding of the constitutional provisions of media and communication.
2. Understand the rules and regulations in relation to media and communication profession.
3. Have discourses on media and communication ethics.

## **MCJ 1L 01 GRAPHIC DESIGN AND PRINT MEDIA PRODUCTION**

1. To type in English and Malayalam and to paginate the content of print media like newspapers and magazines.
2. To do essential graphic design for all types of media.
3. To critically evaluate the aesthetics of content visualization and colour management of various media.

## **MCJ 2C 01 MEDIA, CULTURE AND SOCIETY**

1. Understand and apply key vocabulary, methods and interpretative strategies used in cultural studies and related areas.
2. Have an informed and critical awareness of how media operates in a social system.
3. Apply critical understandings of media cultures and institutions to reflect on their own use of media in professional, creative and personal practices.
4. Develop a non-essentialist understanding of both their and other cultures, societies, regions and beyond.
5. Critically analyze media representation of various segments of the society.

## **MCJ 2C 02 ADVERTISING AND MARKETING COMMUNICATION**

1. Understand the scope of advertising from traditional print, electronic, and outdoor campaigns; to online and social media marketing promotions.
2. Recognize the societal impact of advertising and the need for ethical practitioners.
3. Perform a market segmentation analysis, identify the organization's target market/audience and define the consumer behaviour of each segment.

## **MCJ 2C 03 RADIO AND TELEVISION PRODUCTION**

1. Have through understanding of the key concepts, technology and methods of broadcast media.
2. Script radio and television news programmes.
3. Independently produce radio and television news programmes

## **MCJ 2C 04 DEVELOPMENT COMMUNICATION**

1. Recognize key concepts, approaches and action plans in the field of development communication in the global and national scenario.



2. Identify the potential of various communication methods for social change.
3. Critically evaluate the communication practices implanted by various agencies for development and social change.

### **MCJ 2C 05 GLOBAL COMMUNICATION**

1. Understand key concepts and areas of the discipline global communication to engage in the discourses related to global communication.
2. Recognise the critical themes and issues in globalised communication practices and their impact on the society at large.
3. Critically evaluate the functioning of media conglomerates in the world and its impact on regional media practices and consumption.
4. Analyse the functioning of Indian media in a globalized environment.

### **MCJ 2L 01 PHOTOGRAPHY & VIDEOGRAPHY**

1. Develop or improve skills in contemporary videography and photography technology and operation of cameras and production equipment.
2. Achieve critical appreciation skills for the aesthetics of sound and image production.
3. Improve literacy in the visual language and achieve skills in digital media production.
4. Gain a greater understanding of storytelling in narrative and non-narrative visual productions.

### **MCJ 3C 01 COMMUNICATION RESEARCH**

1. Recognise the key concepts and methods in communication research.
2. Design research work scientifically using various methodological frameworks.
3. Apply theories and theoretical framework in their research work.
4. Analyse data and arrive at conclusions independently and scientifically report research findings in the form of research articles and theses.

### **MCJ 3C 02 PUBLIC RELATIONS & CORPORATE COMMUNICATION**

1. Explain the role of the public relations in the corporate environment and describe the strategies, tactics, and techniques of public relations and corporate communications

### **MCJ 3C 03 ONLINE JOURNALISM**

1. Recognise internet related concepts and application of the same in mass communication environment.
2. Develop content for the web and manage it using content management systems.
3. Identify the trends in online journalism and critically evaluate the form and content of online media platforms.

### **MCJ 3C 04 MEDIA MANAGEMENT AND ENTREPRENEURSHIP**

1. Understand the organizational and economic structures and strategies used in media industries and to identify the legal, ethical and other regulatory challenges facing the electronic media.

### **MCJ 3E 01 DOCUMENTARY FILM PRODUCTION**

1. Understand the trajectories in the development of documentary films as a communication form.
2. Recognise concepts, terms, categories and key elements in documentary filmmaking.
3. Understand the process of documentary filmmaking from ideation to final production.
4. Able to critically analyze documentary films.



### **MCJ 3E 02 TECHNICAL WRITING & DOCUMENTATION**

1. Understand the basic components of definitions, descriptions, process explanations, and other common forms of technical writing
2. Practice the unique qualities of professional writing style and know how to follow the stages of the writing process (prewriting/writing/rewriting) and apply them to technical and workplace writing tasks.
3. Will be familiar with basic technical writing concepts and terms, such as audience analysis, jargon, format, visuals, and presentation.

### **MCJ 4P 01 DISSERTATION & VIVA**

1. Do research in the field of mass communication and journalism.
2. Collect quantitative and qualitative data and analyse them critically to contribute innovative output to the domain on knowledge.
3. Report research output in the form of theses and articles and presents them and defend the findings and arguments in academic fashion.

### **MCJ 4C 01 FILM STUDIES**

1. Relate film analysis and interpretation to wider historical, cultural and material processes.
2. Articulate and critically engage with current theories of cinema as text, image and mediated process.
3. Discern and discuss stylistic traits peculiar to different movements and traditions of film in a comparative context.

### **MCJ 4E 01 DATA JOURNALISM**

1. Explore key data journalism concepts and skills and gain insight into how data journalism is practiced in newsrooms.
2. Analyse and evaluate the major ethical and theoretical issues affecting the delivery of data driven journalism.
3. Critically discuss ways in which emerging technologies can be incorporated into your future journalism practice.
4. Know the techniques for sorting, filtering, cleaning and publishing data.

### **MCJ 4E 02 PHOTOJOURNALISM**

1. Understand and explain key concepts of photography theory and explain how photographs communicate visually in a story.
2. Learn to analyze and critique photographs and gain a better understanding of camera techniques
3. Visually tell a news story.

### **MCJ 4E 03 POLITICAL ECONOMY OF INDIAN MEDIA**

1. Understand the political and economic contexts in which mass media in India function.
2. Apply concepts, categories, theories and methods in political economy framework to identify and evaluate micro/macro economic and political structures within which media as an industry function.
3. Understand the nature of relationship between state, politics, economics and media and how they shape, sustain and reproduce each other.



# BA ENGLISH LANGUAGE AND LITERATURE

## ENG1B01 INTRODUCING LITERATURE

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

## ENG2B02 APPRECIATING POETRY

1. Outline the basic elements of poetry, the stylistic and rhetorical devices and various genres of poetry.
2. Analyze and identify the trends in poetry and the linguistic structures of poetic texts.
3. Discover various perspectives in reading poetry like gender, race, caste, ethnicity, religion, region, environment and nation.
4. 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.
5. Appreciate poetry as an art form.

## ENG3B03 APPRECIATING PROSE

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

## ENGLISH GRAMMAR AND USAGE

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

## ENG4B05 APPRECIATING FICTION

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

## ENG4B06 LITERARY CRITICISM

1. Differentiate between judgment and appreciation.



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

### **ENG5B07 APPRECIATING DRAMA AND THEATRE**

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

### **ENG5B08 LITERARY THEORY**

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

### **ENG5B09 LANGUAGE AND LINGUISTICS**

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

### **ENG5B10 INDIAN WRITING IN ENGLISH**



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

### ENG6B11 VOICES OF WOMEN

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

### ENG6B12 CLASSICS OF WORLD LITERATURE

1. Identify the classic literature and thereby composite cultures of the world
2. Develop cross cultural perspectives
3. Classify literary texts in English or English translation in terms of their main stylistic and thematic features.
4. Describe the literary, historical, social and cultural backgrounds of these texts.
5. Identify some of the main theoretical and methodological issues involved in reading World Literature.

### ENG6B13 FILM STUDIES

1. Appraise film as an art form and its aesthetics.
2. Relate and connect film with history, politics, technology, psychology and performance.
3. Appraise the nature of representation on screen and how class, race ethnicity and sexuality are represented.
4. Develop analytical skills so that the student can produce informed and thorough close readings of films.
5. Discover the articulation of a film's content, form and structure.
6. Identify and define the formal and stylistic elements of film.
7. Develop an understanding of film language and terminology, and analyze the ways in which that this language constructs meaning and ideology.
8. Identify and interpret significant film movements and key concepts.
9. 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.

### ENG6B14 NEW LITERATURES IN ENGLISH



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

### **ENG6B20 SHAKESPEARE**

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

### **ENG5D01 ENGLISH FOR COMPETITIVE EXAMINATIONS**

1. Identify the important skills necessary for professional development
2. Develop necessary linguistics skills those are relevant in English
3. Appraise important aspects necessary for language development
4. Recognize the importance of getting prepared for competitive exams

## **B.Sc. MICROBIOLOGY**

### **MBG1B01. GENERAL MICROBIOLOGY**

1. Sketch the historical events in the developments of Microbiology as a discipline emphasizing the contributions of the scientists.
2. Compare the difference between the basic cell types viz, Eukaryote, Prokaryote, Virus, Actinomycetes and Archaeobacteria.
3. Describe the ultra-structure of a bacterial cell helping to study the further biochemical and physiological reactions inside the cell.
4. Discuss various microscopes and compare the different types of light and electron Microscope.
5. Explain the various staining techniques and to distinguish their application in Microbiology.
6. Discuss the sterilization procedures and to implement it to maintain a hygienic environment

### **MBG2B02. MICROBIAL PHYSIOLOGY AND TAXONOMY**

1. Discuss the environmental and nutritional factors affecting the microbial growth and classify them according to these.
2. Describe the mechanism of nutrient transportation across the bacterial membranes.
3. Explain the preparation of various cultural media and to distinguish them for microbial cultivation



4. Differentiate various cultural methods and preservation techniques
5. Illustrate the reproduction systems and the growth phases of bacteria and bacteriophages
6. Examine various methods for estimation of microbial cells.
7. Analyze the taxonomy of microorganisms through the comparative study of various criteria used and classify them into corresponding groups.

### **MBG3B03. ENVIRONMENTAL AND SANITATION MICROBIOLOGY**

1. Describe the organisms in air with their sources and distribution
2. Explain the methods of waste water treatment, air sampling, solid waste management, bioremediation and bioleaching
3. Discuss the microbial distribution in aquatic environment with special emphasis on factors affecting them
4. Compare the water purification procedures and the tests for the microbiological examination of water
5. Explain air borne and water borne diseases with their mode of transmission CO6 Discuss the concept of xenobiotics and related environmental problems

### **MBG4B04. SOIL AND AGRICULTURAL MICROBIOLOGY**

1. Recall different types of soils and soil properties
2. Distinguish the different groups of microorganisms present in soil and the factors affecting their growth.
3. Describe the concept of ecosystem and its components and concept of biogeochemical cycles and N, S and P cycles.
4. Differentiate different types of biological interactions such as microbe-microbe, plant-microbe and animal-microbe
5. Explain the symptoms, disease cycle and control measures of different bacterial, viral and fungal diseases of plants
6. Discuss the potential of different microorganisms in agriculture as biofertilizers and biopesticides

### **MBG4B05(P). MICROBIOLOGY PRACTICAL I**

1. Familiarize with parts of a microscope and apply light Microscopy in microbiological studies
2. Apply the skill of the staining for microscopic visualization
3. Acquaint with common methods of sterilization and to apply the sterilization procedures in a microbiology laboratory and similar places where hygiene has to be maintained.
4. Prepare different types of media for the cultivation of microorganisms in a microbiological lab.
5. Determine the effect of various factors influencing the growth of microorganisms



6. Demonstrate techniques for isolation and enumeration of microbes from various samples

#### **MBG5B06. INDUSTRIAL MICROBIOLOGY**

1. Describe basic concepts of a fermentation process with various types
2. Discuss the media formulations and their significance in fermentation process.
3. Explain different methods for screening, isolation, improvement of strain, upstream processing and downstream processing of industrially important microorganisms and products.
4. Compare various techniques used for the recovery of fermentation products: CO<sub>2</sub> Demonstrate industrial production of microbial metabolites.
5. Discuss different intellectual property rights related to microbial products

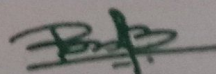
#### **MBG5B07. FOOD AND DAIRY MICROBIOLOGY**

1. Memorize the types and importance of microbes that exist in different food items and understand different parameters affecting their growth in food.
2. Explain major methods to detect microbes in food, with special importance to contaminants
3. Illustrate the physical and chemical properties of milk and types of microorganisms present in milk.
4. Differentiate different methods used for the microbiological examination of milk.
5. Acquire in-depth knowledge about microbial production of fermented dairy and non-dairy food products and understand the health benefits of SCP, probiotics and prebiotics
6. Gain an insight to the microbial spoilage of different kinds of foods.
7. Discuss major food borne diseases caused by different groups of microorganisms
8. Explain preservation of food by various physical and chemical methods
9. Discuss the concept of quality control in food, regulatory practices and policies

#### **MBG5B08. IMMUNOLOGY**

1. Explain the biological functions of various immune cells and organs
2. Recognize the cellular coordination in the generation of immune responses CO<sub>3</sub> Illustrate the types, structure and basic features of antigen and antibody.
3. Demonstrate the significance of MHC, C system and immunological tolerance.
4. Classify antigen-antibody reactions involved in diagnosis of infections.
5. Describe the types and mechanisms of hypersensitivity, autoimmunity and graft rejection reactions  
Discuss the causes, molecular mechanisms, immunological responses and treatment options of tumor development.

#### **MBG5B09. MEDICAL MICROBIOLOGY I**

  
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# BACHELOR OF BUSINESS ADMINISTRATION (BBA)

## BBA1B01: MANAGEMENT THEORY AND PRACTICES

1. Discuss different schools of management thought
2. Understand apply the concepts of planning, organizing, staffing and controlling for effective management
3. Aware and apply the ethically and socially responsible behaviour in Management, and
4. Aware and pursue the modern management practices in business

## BBA1C01 MANAGERIAL ECONOMICS

1. Acquire knowledge regarding relevant economic concepts applicable in managerial decisions
2. Design competition strategies, including costing, pricing, product differentiation and market environment according to the natures of products and the structures of the markets
5. Make optimal business decisions by integrating the concepts of economics

## BBA2B02 FINANCIAL ACCOUNTING

1. Discuss and apply fundamental accounting concepts, principles and conventions
2. Record basic accounting transactions and prepare annual financial statements for a sole proprietorship business
3. Record accounting transactions in respect of hire purchase and instalment system and branches

## BBA2B03 MARKETING MANAGEMENT

1. Understand and develop insights and knowledge base of various concepts that driving marketing strategies.
2. Develop skills in organizing for effective marketing and in implementing the market planning process

## BBA3A11 – BASIC NUMERICAL METHODS

1. On completing the course, the students will be able to understand, numerical equations, matrix, progression, financial mathematics, descriptive statistics and their applications.

## BBA3A12- PROFESSIONAL BUSINESS SKILLS

1. Student will be equipped with basic Informatics skills.
2. Students will effectively utilize the digital knowledge resources for their study

## BBA3B04 - CORPORATE ACCOUNTING

1. Understand and apply fundamental IndASs on inventories, PPE, provisions, income tax, borrowing cost and intangible assets
2. Prepare annual financial statements for companies and compute accounting ratios.
3. Record accounting transactions in respect of redemption of preference shares and debentures

## BBA3B05 FINANCIAL MANAGEMENT



1. Understand and develop insights and knowledge base of various concepts of finance
2. Develop skills for effective Financial, Investment and Dividend decisions making

### **BBA3CO2 - BUSINESS REGULATIONS**

1. Interpret statutory provisions related to business laws
2. Analyze legal issues arising in day-to-day business operations prevalent in India
3. Evaluate the core concepts in the legal structure of business organisations
4. Discuss possible solutions to issues in organisations in the frame work of business laws

### **BBA4A13 - ENTREPRENEURSHIP DEVELOPMENT**

1. Students will identify and develop the entrepreneurial talents
2. Students will generate innovative business ideas in the emerging industrial scenario.

### **BBA4A14 – BANKING AND INSURANCE**

1. Students will acquire knowledge about basics of Banking and Insurance andf modern trends in banking

### **BBA4B06 COST AND MANAGEMENT ACCOUNTING**

1. Understand cost and management accounting concepts and its application for decision making.
2. Aware as to cost consciousness and the various methods and techniques of costing

### **BBA4C03 CORPORATE REGULATIONS**

1. Understand the features and different types of companies
2. Aware as to the formation of companies and also as to different documents of companies
3. Understand the share capital and other relevant provisions of the same
4. Understand the management, corporate governance, corporate social responsibility and some basic aspects of SEBI
5. Understand the provisions of conducting meetings and also the winding up procedure of companies.

### **BBA4C04 QUANTITATIVE TECHNIQUES FOR BUSINESS**

1. Understand and develop insights and knowledge base of various concepts of Quantitative Techniques.
2. Develop skills for effectively analyze and apply Quantitative Techniques in decision making.

### **BBA5B07 HUMAN RESOURCES MANAGEMENT**

1. Understand and develop insights and knowledge base of various concepts and Functions of Human Resource Management
2. Learn the latest trends in Human Resource Management.

### **BBA5 B08 BUSINESS RESEARCH METHODS**



1. Understand and develop insights and knowledge base of various concepts in Research.
2. Develop skills for conducting business research

#### **BBA5B09 OPERATIONS MANAGEMENT**

1. Understand the different concepts of operation Management.
2. Acquire the knowledge to make plans at the operational level of an industry

#### **BBA6B12 ORGANISATIONAL BEHAVIOR**

1. Understand the different concepts of Organisational Behaviour
2. Analyse individual and group behaviour
3. Understand and deal with organisational change, development and stress

#### **BBA6B13 MANAGEMENT SCIENCE**

1. On completion of the course the students will be able to learn different OR techniques useful in managerial decisions.

#### **BBA6B 14 PROJECT MANAGEMENT**

1. Understand the different concepts of managing a project
2. Analyse the viability of a project.

#### **BBA5B10 INCOME TAX**

1. On completing the course the students will be able to understand the latest provisions of Income Tax Act Law and enable to compute different heads of income as well as total income and tax liability.

#### **BBA5B11 FINANCIAL MARKETS AND INSTITUTIONS**

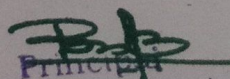
1. The course helps to understand different aspects and components of financial Institutions and financial markets. This will enable the students to take rational decisions on financial market and institutions.

#### **BBA6B15 FINANCIAL SERVICES**

1. On completion of the course students will be able to aware of various financial services available in Indian financial system

#### **BBA6B16 INVESTMENT MANAGEMENT**

1. By completing the course students will be able to aware of various investment opportunities from an investor's perspective

  
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# B.SC. BIOCHEMISTRY

## BCH1B01: INTRODUCTION TO BIOCHEMISTRY & CELL BIOLOGY

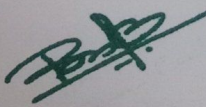
- Provide a general introduction to Biochemistry as a discipline and to highlight its foundations.
- Equip the students with the basic knowledge of good laboratory practices.
- Introduce the types of molecular interactions, concepts on acids, bases and solutions, and the physical aspects of Biochemistry.
- Understand cell as the basic structural and functional unit of life, structure, and functions of each organelle, transport of molecules across the cell, cellular communications, cell cycle, and cell death.

## BCH2B02: BIOMOLECULES I

- Familiarize the students with the molecules that make up the living system, viz. carbohydrates, amino acids, lipids, vitamins and minerals: their classification, general reactions, structure, cellular functions and daily requirement.
- To make the students recognize the sources of each biomolecule among the food materials in their daily life.
- Highlight the students with the ideas of carbohydrates, amino acids, lipids, vitamins and minerals: their classification, general reactions, structure, cellular functions and daily requirement.

## BCH3B03 BIOMOLECULES II

- Introduce the structural features and types of bonds in proteins and nucleic acids, their classification and structural organization.
- Understand how their structure correlates with their cellular function.
- Familiarize with the bioinformatics tools and data analysis. Understand the importance and applications of bioinformatics.

  
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### **BCH3B04 TECHNIQUES IN BIOCHEMISTRY**

- Introduce the various techniques used in biochemical separation and analysis.
- Give exposure to the instruments used and the principle behind each technique.
- Understand the biochemical importance and applications of the techniques.
- Understand the methods of tissue homogenization
- Explain the concept of dialysis, reverse dialysis, ultra filtration and lyophilization
- Describe chromatography techniques and its types; adsorption chromatography, ion exchange chromatography, gel chromatography and affinity chromatography.
- Understand about principle and main types of electrophoresis
- Describe isoelectric focusing, high voltage electrophoresis, pulse field electrophoresis, immunoelectrophoresis and 2D electrophoresis.
- Understand centrifugation technique, its instrumentation, principle, procedure and application .

### **BCH3B05 PRACTICAL I (CARBOHYDRATES, LIPIDS, AMINO ACIDS, NUCLEIC ACIDS, AND TECHNIQUES)**

- Train the students to make different types of solutions and buffers and correlate theoretical knowledge on the preparation of solutions.
- Equip the students to perform analysis using the instruments in a biochemical laboratory.
- Make them analyze biochemical samples qualitatively.

### **BCH4B06 ENZYMOLOGY**

- Introduce enzymes and provide knowledge about their specificity and activity. Understand their classification, nomenclature, catalytic mechanism, kinetics and regulation.
- Give idea on the purification of enzymes from their natural sources, enzymological techniques and applications.
- To acquire fundamental knowledge on enzymes and their importance in biological reactions.
- To understand ability to difference between a chemical catalyst and biocatalyst.
- Exposure to the concept of activation energy and its importance in biological reactions.



- Exposure to the nature of non-protein enzymes such as ribozymes.
- Understanding the role of enzymes in clinical diagnosis and industries.

### **BCH4B07 INTERMEDIARY METABOLISM I**

- Provide the students a detailed understanding of the importance of metabolic pathways in living cells and methods adopted to trace them out.
- Make the students understand the anaerobic phase of carbohydrate metabolism and protein degradation.
- Understand the difference of fatty acid synthesis in plants and animals
- Understand the idea about metabolic pathways and different types of metabolic process
- Explain the metabolic process using intact animal invitro and radioactive isotopes
- Explain beta-oxidation and ketogenesis
- Describe glycolysis, glycolytic pathways and TCA cycle.
- Understand the role and significance of HMP shunt , gluconeogenesis and glycogenolysis
- Describe electron transport chain

### **BCH4B08: PRACTICAL I (CARBOHYDRATES, LIPIDS, AMINO ACIDS, PROTEINS, NUCLEIC ACIDS, AND TECHNIQUES)**

- Provide hands on training in spectroscopic analysis and make them verify the principles involved.
- Impart basic practical skills in quantitative estimation of biomolecules and their separation techniques.

### **BCH5B09 PLANT BIOCHEMISTRY**

- Equip the students with the basic knowledge of plant cell structure, functions, metabolism, growth regulators and secondary metabolites.
- An overview of plant cell and subcellular components of the plant cell
- Analyse the different aspects of mineral, nitrite and sulfite metabolism.
- Brief study of the biochemical aspects associated with plant growth regulators
- A brief account of important classes of secondary metabolites

### **BCH5B10 HUMAN PHYSIOLOGY**

- Provide an understanding of the functions of organ systems and their coordination, specialized tissues and the hormonal control of various physiological functions of the human body
- Exposure with the mechanism of signal transduction by steroid and polypeptide hormones and the role of second messengers in signal transduction.
- Exposure with the process of gaseous exchange in tissues and lungs, respiratory adaption



- to high altitude.
- Understanding the difference between hemoglobin and myoglobin.
  - To gain awareness on muscular dystrophies, the role of steroids in muscle building and the use of hormones in cattle and poultry industry.
  - To gain insight into nitrogen metabolism in aquatic and terrestrial animals and the role of kidney in erythropoiesis.

#### **BCH5B11 IMMUNOLOGY & MICROBIOLOGY**

- Provide a general introduction to immunology, types and components of the immunesystem and diseases associated with immune function.
- Introduce microbiology, microbial culture and sterilization techniques.

#### **BCH5B012 INTERMEDIARY METABOLISM II**

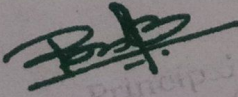
- To study how oxidation is used as a mechanism of energy release from carbohydrates, lipids and amino acids.
- Understand the aerobic phase of carbohydrate metabolism, fatty acid oxidation and amino acid catabolism, the mechanism by which energy released is stored in high energy molecules and the basics of bioenergetics.
- Provide knowledge about how atmospheric carbon is fixed in plant cells by photosynthesis and photophosphorylation.

#### **BCH5B013 PRACTICAL II (CLINICAL BIOCHEMISTRY AND ENZYMOLOGY)**

- Make the students familiarize themselves with the various enzymatic and nonenzymatic assays used for the diagnosis of defects in organ function and metabolic disorders.

#### **BCH6B014 INTERMEDIARY METABOLISM III**

- Explore the biosynthetic pathways of carbohydrates, lipids and amino acids
- Understand nucleic acid biosynthesis and degradation.

  
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### **BCH6B015 MOLECULAR BIOLOGY AND GENETIC ENGINEERING**

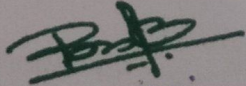
- Provide basic knowledge on genome organization, the concept of the central dogma, and processes involved in gene expression and its regulation.
- Study the mutational changes in genetic material and how the systems repair them.
- Understand the principles and techniques in genetic engineering and the fundamentals of genetics.

### **BCH6B016 CLINICAL & NUTRITIONAL ASPECTS OF BIOCHEMISTRY**

- Furnish knowledge on the basics and principles of clinical laboratory maintenance, clinical samples and their analysis, routine clinical assays, organ function tests and their clinical significance.
- Understand biochemical aspects of certain pathological conditions, especially those due to abnormal metabolism.
- Study the role of diet for healthy living, principles of nutrition and food safety.

### **BCH6B019 Project**

- To familiarize students with research methodology
- Make them aware of how to collect relevant bibliographic material from different sources, how to organize it into a suitable form (Introduction, Backgrounds, material and methods, results, conclusion, Bibliography etc.) and how to make it into a written project report.
- Familiarize them to present the project work.

  
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# MSc MICROBIOLOGY

## **MBG1C01. General Biochemistry and Microbial Metabolism**

- Summarise the fundamental biochemical properties of biomolecules
- Describe the metabolism of Amino acids, Carbohydrates, Lipids and Nucleic acids
- Demonstrate the mechanism of ATP synthesis at various levels by biological process.
- Interpret the properties, classification and mechanism of action of Enzymes associated with the metabolism of biomolecules

## **MBG 1C02: Biophysics and Instrumentation**

- Discuss the properties of interactions between atoms and molecules.
- Analyse the structure of protein through Ramachandran plot and advanced techniques
- Compare different techniques in microscopy
- Differentiate the working principle, instrumentation and applications of various bio-analytical instruments.
- Demonstrate the interactions of DNA-protein, RNA-protein and DNA-drug.

## **MBG1C03. Environmental and Sanitation Microbiology**

- Discuss the basic concepts of ecological system, pollution and environment
- Compare different types of interaction among microbial communities and their significance
- Explain biogeochemical cycles and their importance in an ecosystem
- Elaborate the role of microbes in soil, water and air
- Summarise the methods of air quantitation, air sanitation, sewage treatment and water purification.
- Discuss the various aspects and the application of microbes in various fields of agriculture and environmental microbiology like bioremediation, biofertilizers and waste treatment methods.

## **MBG1C04. Agricultural Microbiology and Plant Pathology**

- Describe the microbial interactions between microorganisms, plants and animals
- Explain the various applications of microorganisms in agriculture to improve soil fertility as bio fertilizers and bio pesticides.



- Contrast between bio fertilizer and chemical fertilizer.
- Illustrate different plant diseases caused by different microorganisms with emphasis to pathology and epidemiology.
- Discuss the defence mechanisms exerted by the plant in response to an infection


#### **MBG1L01. Practical I (General Biochemistry and Microbial Metabolism)**

- Apply the knowledge in the preparation of solutions and buffers according to the neediness using molar, percentage etc.
- Analyse the Qualitative and Quantitative aspects of different bio active components Proteins, carbohydrates, citric acids etc.
- Demonstrate Enzyme kinetics and its assay using spectrophotometer
- Perform isolation, Quantification, purification and separation of bioactive components using chromatographic techniques.
- Demonstrate various experiments which include basic methods of physical biochemistry, biochemical analysis and separation methods.

#### **MBG1L02. Practical II (Biophysics and Instrumentation, Environmental and sanitation microbiology & Agricultural Microbiology and plant pathology)**

- Isolate bacteria, fungi, actinomycetes and phages from various sources of concern
- Demonstrate various growth patterns, culturing methods and different quantification techniques of microorganisms from air, soil and termite gut
- Demonstrate the Anaerobic cultivation of bacteria
- Evaluate the efficacy of autoclave and bacteria proof filters
- Demonstration of special microorganisms with different unique applications in agriculture and environmental research.
- Assess the quality of water by MPN, DO, BOD and COD.
- Compare efficacy of different bio control agents.
- Assessment of the synthesis of extracellular enzymes by microbes
- Illustrate the role of microorganisms in bioremediation.

#### **MBG2C05. Principles of Genetics**

  
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- Recall the basic concepts of Classical genetics, History of Mendel experiments on pea plants and the laws and importance of Mendelian genetics.
- Explain the mechanism of sex linkage, crossing over and genetic mapping
- Summarize the importance and significance of Chromosomal aberrations.
- Analyse the importance of Pedigree analysis and its usage in genetic disease analysis.
- Discuss the basic concepts of bacterial genetics and mode of gene transfer mechanism in bacteria.
- Justify and correlate the importance of the molecular events in gene expression and in gene regulation.

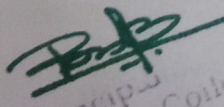
#### **MBG2C06. Food and Dairy Microbiology**

- Classify the type of Microorganisms present in food able to cause contamination and what are the factors influence growths of microbes in foods.
- Explain standards for assessing the quality of milk.
- Summarize spoilage of food, factors causing food spoilage and food preservation methods
- Elaborate different food borne infections
- Explain about food hygiene and regulatory practices
- Discuss the importance of microorganisms in food and factors affecting their growth in foods.

#### **MBG2C07. Industrial Microbiology**

- Describe the methods for screening, isolation, strain improvement, upstream processing and down stream processing in industrial process.
- Apply different isolation and development methods for industrially important microorganisms.
- Explain the mass transfer mechanism in fermentation.
- Compare different types of fermentations
- Explain the effects of different components in fermentation media.
- Discuss various techniques used for the recovery of fermentation product

#### **MBG2C08. Immunology**

  
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- Describe the cells, organs, molecules, mediators, receptors associated with immune responses.
- Illustrate the development of different immune responses in a host.
- Classify the immunoglobulins with a detailed understanding of their diversity generation
- Explain the mechanisms of Hybridoma technology, antigen antibody reactions and Complement system
- Categorize different immune associated disease conditions like hypersensitivity, autoimmunity, graft rejection and tumor development based on mechanism.

### **MB2L03. Practical III (Food and Dairy microbiology & Industrial microbiology)**

- Enumerate the milk microflora and Apply the methods used in Testing the quality of milk.
- Demonstrate preservation of foods
- Enumerate microflora of food spoilage
- Isolation of enzyme producing microorganisms
- Demonstrate the Growth curve of bacteria
- Demonstrate the detection of industrially important microorganisms and its metabolite production
- Demonstrate the production of Mushroom production.

### **MBG3C09. Medical Microbiology**

- Describe the morphology, pathogenicity, epidemiology, laboratory diagnosis and treatment of important human bacterial pathogens.
- Explain the pathogenesis, laboratory diagnosis and prophylaxis of important viral pathogens.
- Illustrate the characteristics of fungi with focus to superficial, sub cutaneous, deep and opportunistic infections.
- Describe the general features and classification of protozoa.
- Demonstrate the morphology, life cycle, pathogenesis and epidemiology of important protozoan diseases.
- Describe the mechanism of action and activity spectrum of antibiotics.
- Discuss the antifungal and antiviral drugs and determination of MIC.



### **MBG3C10- Molecular Biology**

- Explain the mechanisms behind the information flow from DNA to proteins and the multiple levels at which gene expression can be regulated.
- Compare gene expression and regulation in prokaryotes and eukaryotes
- Discuss the molecular mechanisms underlying mutations, DNA damage and repair
- Acquaint knowledge of DNA replication and other mechanisms of gene transfer mechanisms
- Discuss the concept of Oncogenes and tumour suppressor genes.

### **MBG3E01. Diagnostic microbiology**

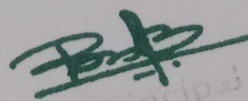
- Describe a wide range of diagnostic technologies and methodologies relevant to the fields of clinical biochemistry, haematology, histopathology, cytopathology, molecular biology and microbiology.
- Differentiate between various Probe-Based Microbial Detection and Identification.
- Compare various molecular diagnostic tools.
- Explain the application of molecular tools in systematics

### **MBG3E02. Cell Biology**

- Explain the structure and functions of cell components in eukaryotic cells
- To distinguish the mechanism of protein sorting and transportation to various targets.
- Describe the mechanisms of cell signaling, cell death and cancer development.
- Correlate the cell communication mechanism with the cell cycle and its regulation.
- Conceptualize the theories and molecular mechanism of cancer development

### **MBG3L04 Practical IV (Immunology and Medical Microbiology)**

- Perform the acid fast staining procedure
- Demonstrate skills in isolation and identification of various pathogenic microorganisms.
- Discuss the viral inoculation routes in embryonated eggs.
- Perform immunological tests for diagnosis of antigen/antibody
- Determine the MIC of an antimicrobial compound



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### **MBG3L05. Practical V (Principles of Genetics & Molecular Biology)**

- Demonstrate the stages of mitosis and meiosis
- Isolate, purify and estimate DNA, RNA and plasmid from bacteria
- Demonstrate the visualization of the isolated nucleic acid by electrophoresis
- Demonstrate the concept of hyperchromism
- Evaluate the gene transfer process in bacteria by performing conjugation and transformation
- Assess the gene transfer by induction of beta gal gene in E coli
- Demonstrate cloning and restriction digestion

### **MBG4C11. Biostatistics and Bioinformatics**

- Discuss the principles and practices of statistical methods in biological research.
- Explain various biological data bases for sequence retrieval, analysis, sequence alignments, phylogeny and other applications.
- Discuss the method of molecular docking and their application
- Discuss the concept behind drug designing with the application of bioinformatics tools.

### **MBG4E04. Microbial Biotechnology**

- Identify the issues related to plant nutrition, quality improvement, environment adaptation, transgenic crops and their use in agriculture.
- Discuss the environmental impact of genetic engineering related to GM food crops and other agro, diary based products.
- Explain the importance of microbes in oil recovery and degradation, leaching, bio-mining and also production of biopolymers, bio-surfactants, antibiotics enzymes etc.
- Describe about genetic engineering for recombinant protein expression and production from various cell systems which has advanced knowledge about factorial experimental set up.

### **MBG4E05. Genetic engineering**

- Discuss the fundamental molecular tools and their applications in DNA modification, manipulation and cloning.



- Compare genomic and cDNA Library
- Describe advanced molecular techniques in genetic engineering-PCR
- Methods, sequencing methods, RFLP, RAPD etc.
- Interpret the importance of molecular marker genes in cloning
- Explain the techniques for DNA introduction to the vectors and host cells.

#### **MBG4E06. Biosafety, Bioethics & IPR**

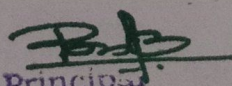
- Discuss the significance of biosafety and bioethics related regulations.
- Appreciate the importance of Intellectual property rights and explain various types of IPR.
- Recognize importance of biosafety practices and guidelines in research
- Comprehend benefits of GM technology and related issues.
- Recognize importance of protection of new knowledge and innovations and its role in business

#### **MBG4L06. Practical VI (Biostatistics and Bioinformatics)**

- Demonstrate proficiency in bioinformatics methods including accessing the major public sequence databases, use of the different computational tools to find sequences, analysis of protein and nucleic acid sequences by various software packages
- Retrieve data from Biological Databases
- Explain the features of National Centre for Biotechnology Information (NCBI)
- Perform sequence comparison using various alignment tools
- Create protein structures with modelling tools.
- Prediction of Gene structure, gene function and ORF position.

#### **MBG4P. Dissertation**

- Perform data mining, literature search, systematic review, research gap finding and development of hypothesis.
- Design and execute experiment/ sampling methods
- Compilation and analysis of data and interpretation of results
- Analyse the results and validate the hypothesis to reach proper conclusions.

  
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- Develop scientific writing skills
- Demonstrate skills in various advanced laboratory techniques

## **BA HISTORY**

### **HIS1B01 TRENDS IN HISTORIOGRAPHY**

- Enable the students to understand history of the discipline of History
- Locate works on history in the background of the varying trends in writing the same and critically evaluate them in the light of new theories and concepts
- The course intends to familiarize the students with the broad contours of social sciences and their methodology
- Articulate the basic terminology and theories prevalent across disciplines

### **HIS2 B02 Trends in Indian Historiography**

- The course requires from the students sustain efforts to accumulate knowledge about the myriad perspectives of the past that emerge in the course of evolution of knowledge relevant to the doing of history
- The student can grasp why History came to be rewritten differently from time to time under conceptual pre-suppositions

### **HIS3B03 WORLD HISTORY -1**

- To know a general time line and outline of ancient civilizations, including key events and cultural achievements of different ancient civilizations
- The course provides an overview of early cultures and meetings between cultures and similar trends across cultures
- Compares and contrasts past with current events, issues and problems

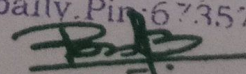
### **HIS3 B04 INDIAN HISTORY-1**

- Examine the aspects of the society during the development of a state in Ancient India and the aspects of early empires in North India
- How the material growth paved the way for the furtherance of political domination
- Understand the emergence of heterodox religions like Jainism and Buddhism

### **HIS4 B05 WORLD HISTORY- 2**

- Provide a critical look at the characterization of medieval age as Dark Age
- Acquire knowledge about Medieval achievements in science and education

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#### **HIS4B06 INDIAN HISTORY-2**

- Equip with the detailed knowledge on Indian Feudalism, impact of Islam on Indian Society and Culture during medieval time
- Familiarize the students the process that made the soci-cultural facilities possible and to made aware of the linkage effect of this period in subsequent centuries.

#### **HIS4 B20 - GENDER STUDIES**

- Explain conventional social norms about male-female dichotomy and can device policies and strategies to foster gender equality and gender justice
- Contribute to creative interventions that may result in a world with less inequality
- Critically interrogate and actively engage in social processes related to the construction of gender
- Analyse social and cultural phenomena through the lens of gender in a way that appreciates a range of disciplinary perspectives

#### **HIS5 B07 WORLD HISTORY- 3**

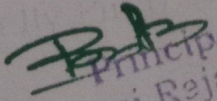
- Students acquaint with 'transition in history' by looking at social, political, economic and technological changes from medieval to modern.
- Develop new perspectives on American War of Independence, English and French Revolution.
- Create a fresh look at Industrial Revolution and consequent development in all walks of modern world. It will peep into the colonialism and anti-colonial movements.
- Appreciate the mass mobilization in Third World countries and appreciate the democratic ideologies tagged along with it.

#### **HIS5 B08 INDIAN HISTORY - 3**

- Realise the impact of colonialism and its presence in contemporary India
- Appreciate the values and ideologies of freedom struggle
- Trace the mass basis of Indian national movement
- Trace the dynamics of Indian economy that have rooted in both colonial
- Understand the process of class formations in Modern India

#### **HIS5 B09- KERALA HISTORY-1**

- New thinking on major aspects of the evolution of Kerala history and culture in the light of new researches and findings.
- Realise the importance of landscape and seascape of Kerala and its climate and engage in the activities related to the balanced use of natural resources

  
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- Realise the evolution of land relations in Kerala and its impact on social life.
- Identify the trade items of Kerala related to Arabian Sea and Indian Ocean
- Realise the changes occurred in the landscape of Kerala especially its flora and fauna with the arrival of foreigners

### HIS5 B10 - METHODOLOGY OF THE WRITING OF HISTORY

- Enable the student to understand the techniques of writing History and the evolution of such a techniques.
- Students will learn the theory and practice of historical research as practiced by professionals in the field including traditional and current research methodologies.
- It enables the student to develop a thesis/argument, evaluate its historical probability, and place that argument in a historiographical context.
- It helps to develop a historian's skills, including reading, writing, speaking, and critical inquiry and would be able to execute and guided independent research projects in accord with the research manuals.
- Distinguish between various forms of presentation of history and the basic elements of research in history.
- Prepare students for writing the local history projects.

### HIS6 B11-INDIAN HISTORY- 4

- Realise the social and economic issues of contemporary India and engage in the socially useful productive works
- Define a pluralistic society and its relationship to our democratic principle
- Realise the importance of the constitution of India and recognize the contribution of leaders and personalities who prepared it.
- Aware of the environmental issues of the country and contributed to the sustainable development activities
- Identifying the cardinal principles of Foreign Policy of India and think highly of national leaders who contributed to the ideology of peaceful

### HIS6 B12- KERALA HISTORY- 2

- Identify the real nature of the colonial intervention in Kerala
- Trace the historical roots of progressive contemporary Kerala.
- Analyse critically the role of leaders and movements in the transformation of modern Kerala
- Familiarise with Kerala Model of Development and engage in the rebuilding process of Kerala economy
- Understand the issues in contemporary Kerala so as to be responsive to the same.

