

# ASSABAH

Arts and Science College

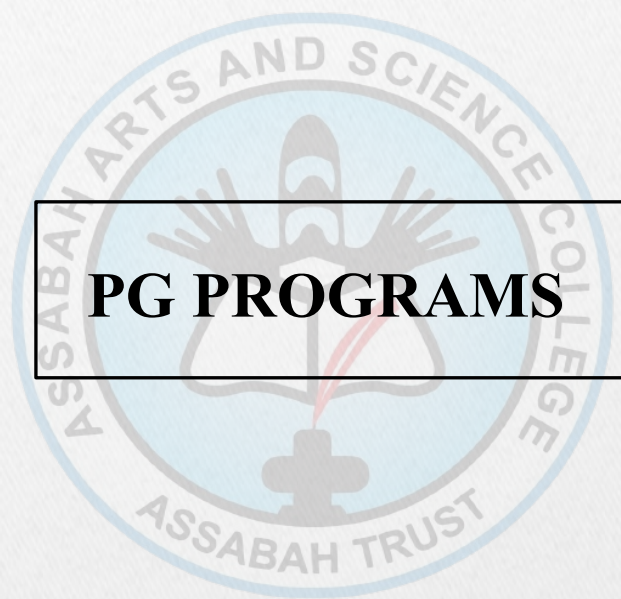


## COURSE OUTCOME OF VARIOUS DEPARTMENTS

# COURSE OUTCOMES OF VARIOUS DEPARTMENTS

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**PG PROGRAMS**



**M.Sc. FOOD SCIENCE AND  
TECHNOLOGY**

## FIRST SEMESTER

Semester	1
Course Code	FST1C01
Course Name	FOOD MICROBIOLOGY

Code	CO Statement
CO1	Knowledge of the historical perspective of Microbiology and ideas on different types of microscopic techniques and their importance.
CO2	Better understanding on the general morphology, cytology, classification of microorganisms and importance of bacteria, fungi, virus and algae.
CO3	Information regarding culture media and different culturing techniques and brief study on food borne viral diseases, their control and preventive measures. .
CO4	Awareness on bacterial genetics, gene transfer mechanisms and genetic recombination in microbiology.
CO5	Knowledge of the growth of microorganisms, quantification, and control with special emphasis on sterilization techniques.
CO6	Study the microbiology of food, water, animal, and plant food products, better understanding of microbes in food spoilage and food preservation techniques. 7. Understanding foodborne illness and also about the beneficial aspect of microorganisms gives special importance to the fermentation process.

## FIRST SEMESTER

Semester	1
Course Code	FST1C02
Course Name	FOOD CHEMISTRY AND ANALYSIS

Code	CO Statement
CO1	Understand and describe the chemical structure & classification of food components.
CO2	Analyze the relationship between the composition of the individual food components and their chemical and physical properties.
CO3	understand food emulsion, Food Pigments & Flavours Information regarding culture media and different culturing techniques, and a brief study on food-borne viral diseases, their control, and preventive measures.
CO4	Illustrate the principle and mechanism of analytical instruments.
CO5	Develop an understanding and methodologies of instrumental techniques in food analysis

## FIRST SEMESTER

Semester	1
Course Code	FST1CO3
Course Name	RESEARCH METHODOLOGY AND STATISTICS

Code	CO Statement
CO1	Desire to get a research degree along with its consequential benefits;
CO2	Desire to face the challenge in solving the unsolved problems, i.e., concern over practical problems initiates research;
CO3	Desire to get the intellectual joy of doing some creative work;
CO4	Desire to be of service to society;
CO5	Desire to get respectability

## FIRST SEMESTER

Semester	1
Course Code	FST1C04
Course Name	BASIC PRINCIPLES OF ENGINEERING

Code	CO Statement
CO1	Describes physical, mechanical, rheological, frictional and aerodynamic properties of solid food materials
CO2	Learn about different modes of heat transfer and extrusion technology
CO3	Explain the principle, method of drying and different drying equipments used in food industries
CO4	Describe the construction and operating principles of refrigeration systems using engineering terminology.
CO5	Determine heat loads and heat losses in heating and cooling food process systems.
CO6	Apply the principles of mass and energy balance to food processing systems
CO7	Describe the construction and operating principles of boilers, pumps and heat exchangers
CO8	Describe the construction and operating principles of mechanical power transmission.
CO9	Design characteristics of food process equipment with sanitary design features



## SECOND SEMESTER

Semester	2
Course Code	FST2C05
Course Name	BIOCHEMISTRY AND NUTRITION

Code	CO Statement
CO1	Understanding the relevance of biochemistry in food science and technology
CO2	Knowledge on enzyme nomenclature, enzyme classification and kinetics, enzyme inhibition, mechanism of enzyme action
CO3	Awareness on biomolecules, in the living system and their functions.
CO4	Information on carbohydrate metabolism, amino acid metabolism, Lipid metabolism, nucleic acids, minerals and vitamins.
CO5	Study of biochemical pathways that sustain life and disorders due to inborn errors of metabolism.
CO6	Brief study on Dietetics and Health foods

## SECOND SEMESTER

Semester	2
Course Code	FST2C06
Course Name	FOOD STORAGE AND INFESTATION CONTROL

Code	CO Statement
CO1	Understand about the food storage infestation, sources, factors affecting food commodities.
CO2	Describe different types infestation control methods.
CO3	Know about types of pest on food commodities and mode of attack on food.
CO4	Explain sanitation and safety measures in food storage.
CO5	Give detailed structure about godown.
CO6	Assess the damage in storage premises
CO7	understand the physical, chemical and biological control of pest
CO8	Acquire the knowledge about sanitation and safety measures in food storage premises
CO9	Know about state ware house corporation, food corporation of India

## SECOND SEMESTER

Semester	2
Course Code	FST2C07
Course Name	INDUSTRIAL MICROBIOLOGY AND BIOCHEMICAL ENGINEERING

Code	CO Statement
CO1	Detailed study on fermentation process, microbial growth kinetics and types of fermentation processes.
CO2	Knowledge on upstream and downstream processes in fermentation.
CO3	Awareness about the microbial production of substances for food application including amino acids, enzymes, organic acids, polysaccharides, vitamins etc.
CO4	Information on carbohydrate metabolism, amino acid metabolism, Lipid metabolism, nucleic acids, minerals and vitamins.
CO5	Study of bioreactors, operations of bioreactors and scale-up of bioprocess and equipment's.
CO6	Knowledge on the application of immobilization technology in fermentation and study of effluent treatment methods.

## SECOND SEMESTER

Semester	2
Course Code	FST2C08
Course Name	FOOD ENGINEERING

Code	CO Statement
CO1	Describes physical, mechanical, rheological, frictional and aerodynamic properties of solid food materials
CO2	Learn about different modes of heat transfer and extrusion technology
CO3	Describes several separation techniques
CO4	demonstrate of mass transfer operations
CO5	Explain the principle, method of drying and different drying equipment's used in food industries
CO6	Demonstrate of milling equipment's, material handling and transportation methods.

### THIRD SEMESTER

Semester	3
Course Code	FST3C12
Course Name	TECHNOLOGY OF FRUITS, VEGETABLES, SPICES & PLANTATION PRODUCTS

Code	CO Statement
CO1	Students with advanced knowledge of processing and preservation of fruits and vegetables.
CO2	Familiarize different aspects of post-harvest technology along with storage practices & Storage disorders
CO3	Understand the preparation and FSSAI specifications of Beverages, Tomato products
CO4	Understand the Technology of Jam Jelly and Marmalade
CO5	Illustrate the production and preservation methods of fruit juices.
CO6	Understand processing of plantation crops.
CO7	understand different water treatment

### THIRD SEMESTER

Semester	3
Course Code	FST3C13
Course Name	PRINCIPLES OF FOOD PROCESSING AND PRESERVATION

Code	CO Statement
CO1	Identify the different causes of food spoilage .
CO2	Understand the basic principles of food preservation
CO3	Describe the different types of preservation methods– thermal , low temperature techniques, dehydration, and chemical preservation and natural fermentation.
CO4	Understand about the process of canning, heat penetration of microorganisms in containers and process time evaluation for canned products.
CO5	Describe the recent trends in food preservation techniques which include high pressure processing, microwave processing, pulsed electric field processing, ohmic heating.
CO6	Familiarize about sensory evaluation of food and new product development

### THIRD SEMESTER

Semester	3
Course Code	FST3C14
Course Name	TECHNOLOGY OF CEREALS, LEGUMES AND OIL SEEDS

Code	CO Statement
CO1	Learn to appreciate the complex nature of flour and the complexity of modern baking technology
CO2	develop competency to critically evaluate quality of product formulation and processing.
CO3	Analyze the processing methods of pulses and legumes, nuts and oilseeds including coconut.

### THIRD SEMESTER

Semester	3
Course Code	FST3C15
Course Name	PACKAGING TECHNOLOGY

Code	CO Statement
CO1	Understand food packaging principles , packaging materials, types related to use with various food systems and packaging permeability.
CO2	understand about Passive and active packaging including modified atmosphere packaging and controlled atmosphere storage of foods, Reuse, disposability and printing of packaging, Labeling techniques and legislative requirements for labeling food and beverage products.
CO3	Familiarize the purpose and principles of food packaging and examine the operations involved in packaging material manufacture.
CO4	Critique environmental issues, regulations and quality control associated with food packaging. .
CO5	Identify and evaluate the suitability of processing and packaging techniques for various foods



## FOURTH SEMESTER

Semester	4
Course Code	FST4E16
Course Name	FOOD PLANT AND QUALITY MANAGEMENT

Code	CO Statement
CO1	Evaluate the recent developments in the control of food safety.
CO2	Have an integrated view of the issues involved.
CO3	conduct risk assessments of food safety problems in food industry
CO4	Demonstrate detailed knowledge of the requirements for compliance with national and international food safety legislation.
CO5	Explore the history and basic ideas underlying quality management and have a detailed knowledge of the role of Quality Management (QM) in modern management.
CO6	Demonstrate knowledge of quality management systems, their implementation and the practical steps needed for implementation.
CO7	Know how to control and maintain a quality management system.
CO8	Have detailed knowledge of certification and accreditation.
CO9	Have knowledge and insight of different quality management systems i.e. product quality management, safety and environmental management

## FOURTH SEMESTER

Semester	4
Course Code	FST4E17
Course Name	TECHNOLOGY OF MEAT, FISH AND POULTRY PRODUCTS

Code	CO Statement
CO1	Understand the importance of safe slaughtering methods and its significance in food safety.
CO2	Demonstrate Innovative ideas on the production of various products
CO3	Describe the methods of preservation of different animal products based on their shelflife
CO4	Demonstrate Quality parameters of egg and the preservation methods from ancient to modern technologies.
CO5	Give a idea about fish processing technology

## FOURTH SEMESTER

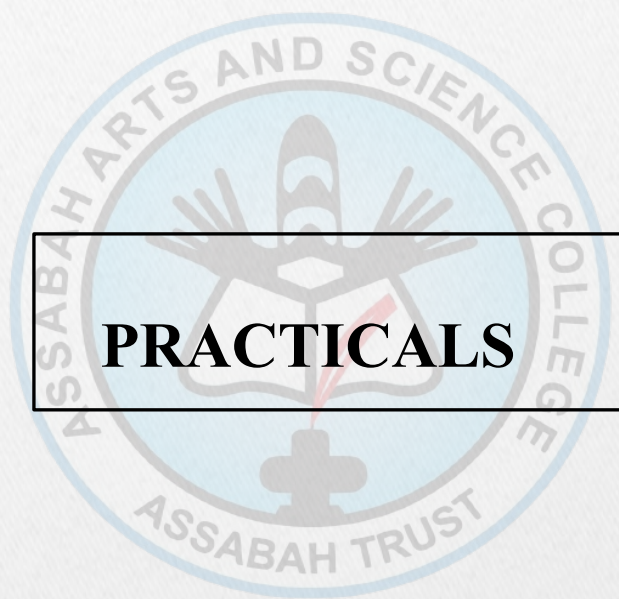
Semester	4
Course Code	FST4E18
Course Name	DAIRY TECHNOLOGY

Code	CO Statement
CO1	Compare different types of milk
CO2	Understand about the platform quality test conducted for milk
CO3	Describe in detail, the dairy plant operations
CO4	Understand in detail about different milk products like cream, butter, ghee, ice cream, butter oil, condensed milk etc.
CO5	Understand the fermented dairy products like yoghurt, acidophilus milk, butter milk etc.
CO6	Demonstrate cheese, its classification and different processing method adopted
CO7	Understanding about dairy plant sanitation and hygiene

## FOURTH SEMESTER

Semester	4
Course Code	FST4E19
Course Name	SUGAR AND CONFECTIONARY TECHNOLOGY

Code	CO Statement
CO1	Get knowledge on the overview of the relevant physical chemical properties of sweeteners.
CO2	Understand the different types of sugar confectionary products and their process
CO3	Expertise in the processing and preparation of various type sugar confectioneries.
CO4	Evaluate the product quality and shelf life of the products
CO5	Acquiring depth knowledge on the manufacturing leads to stable position in the research and development of the versatile confectionery products.



**PRACTICALS**

Course Code	FST1CO2(P)
Course Name	FOOD CHEMISTRY AND ANALYSIS PRACTICAL

Code	CO Statement
CO1	Describe bio-chemical analysis of food components
CO2	Developing practical skills of proximate & basic food compositions including carbohydrates, proteins, fats and minerals

Course Code	FST1CO1(P)
Course Name	FOOD MICROBIOLOGY –PRACTICAL

Code	CO Statement
CO1	Expertise in basic techniques of microbiology
CO2	Knowledge on pure culture techniques, microbial growth, culture media, staining techniques, culturing methods and conditions affecting it.
CO3	Understanding on microbial analysis of food and utensils
CO4	Knowledge in relationship between food and microbes, techniques used in food processing

Course Code	FST1CO4(P)
Course Name	BASIC PRINCIPLES OF ENGINEERING PRACTICAL

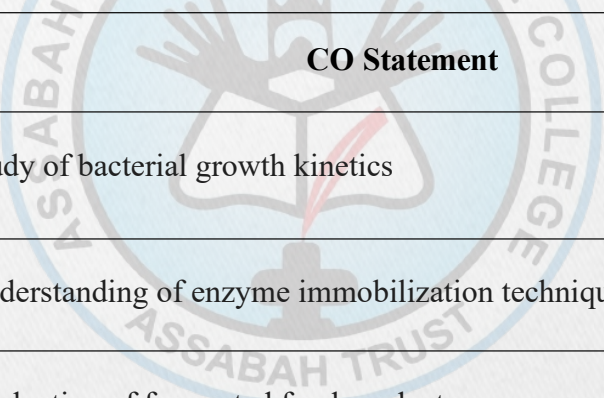
Code	CO Statement
CO1	Familiarize with different drawing equipment, technical standards and procedures for construction of geometric figures
CO2	Develop imagination and ability to represent the shape, size and specifications of physical objects
CO3	Construct and Interpret appropriate drawing scale as per the situation
CO4	Improving technical communication skill in the form of communicative drawings
CO5	Draw simple curves like ellipse, cycloid and spiral and draw Orthographic projections of points, lines and planes
CO6	Draw orthographic projection of solids like cylinders, cones, prisms and pyramids and draw isometric projections of simple objects
CO7	Familiarize with engineering accessories like boiler house, Electrical laboratory and workshop, refrigeration equipment



Course Code	FST2CO5( P )
Course Name	BIOCHEMISTRY AND NUTRITION PRACTICALS

Code	CO Statement
CO1	Knowledge on the quantification and estimation of biological macro and micro molecules in different samples e.g.: blood
CO2	Demonstration and understanding of separation techniques in biochemist

Course Code	FST2CO7(P)
Course Name	INDUSTRIAL MICROBIOLOGY AND BIOCHEMICAL ENGINEERING

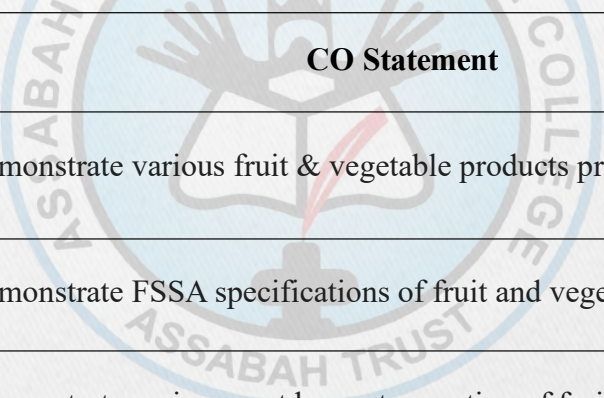


Code	CO Statement
CO1	Study of bacterial growth kinetics
CO2	Understanding of enzyme immobilization technique
CO3	Production of fermented food products
CO4	Knowledge on the testing of BOD and COD.

Course Code	FST2CO8(P)
Course Name	FOOD ENGINEERING PRACTICAL

Code	CO Statement
CO1	Understand various physical properties of solid foods like angle of repose of grains, bulk density, true density, and porosity
CO2	Analysis of drying characteristics of foods and plotting of drying curve
CO3	Determination of average size of the particle in ground food grains by sieve analysis or screen analysis

Course Code	FST3C12( P )
Course Name	TECHNOLOGY OF FRUITS, VEGETABLES AND SPICES PRACTICAL



Code	CO Statement
CO1	Demonstrate various fruit & vegetable products preparation
CO2	Demonstrate FSSA specifications of fruit and vegetable products
CO3	Demonstrate various post harvest operation of fruits & vegetables

Course Code	FST3C13( P )
Course Name	PRINCIPLES OF FOOD PROCESSING AND PRESERVATION PRACTICAL

Code	CO Statement
CO1	Describe the process of can fabrication and seam technology
CO2	Demonstrate primary processing of foods
CO3	Determine the acidity, P H and salt content of food samples
CO4	Carryout water quality analysis
CO5	Conduct sensory evaluation of food

Course Code	FST3C14(P)
Course Name	TECHNOLOGY OF CEREALS LEGUMES AND OIL SEEDS PRACTICAL

Code	CO Statement
CO1	Evaluation of properties of wheat and rice –physical, chemical and rheological
CO2	Processing and evaluation of bread, biscuit and cake.
CO3	Experimental milling of wheat and rice.

Course Code	FST3C15( P )
Course Name	PACKAGING TECHNOLOGY PRACTICAL

Code	CO Statement
CO1	Apply and examine the knowledge of properties for selection of packaging materials for food products.
CO2	Understand various properties of packaging materials and determination of properties like bursting strength, tearing resistance, puncture resistance, impact strength, and tear strength of packaging materials by various packaging testing equipments.
CO3	Identification of packaging materials and knowledge on Chemical and physical tests of packaging materials

Course Code	FST4C17(P)
Course Name	TECHNOLOGY OF MEAT, FISH AND POULTRY PRODUCTS PRACTICAL

Code	CO Statement
CO1	Determine the acidity of milk, curd, butter
CO2	Quality analysis of egg
CO3	Proximate composition of meat and fish



Course Code	FST4C18( P )
Course Name	DAIRY TECHNOLOGY PRACTICAL

Code	CO Statement
CO1	Conduct platform tests for milk
CO2	Evaluate the quality of milk by analysis of fat, SNF, TS, specific gravity and acidity
CO3	Estimate the FFA content in ghee
CO4	Detect adulteration in milk
CO5	Conduct phosphatase test and methylene blue reduction test to check milk quality
CO6	Determine the quality of cream, butter, ghee, condensed milk and dried milk
CO7	Prepare milk products like khoa, paneer, chana and shrikhand
CO8	Analyze khoa for total solids, moisture, fat and acidity
CO9	Examine microbiological quality of milk



**MA.ENGLISH LANGUAGE AND  
LITERATURE**

## FIRST SEMESTER

Semester	1
Course Code	ENG1CO1
Course Name	BRITISH LITERATURE FROM CHAUCER TO 18TH CENTURY

Code	CO Statement
CO1	To understand different types of genres, dialectical differences and the major subject matter of literary works of the specific period.
CO2	To generate analytical skills and critical thinking through reading, discussion, and written assignments of the works of Shakespeare, Bacon and Addison.
CO3	To build a greater appreciation of language as an artistic medium and of the aesthetic principles that shape literary works by reading Chaucer, Donne, etc.
CO4	To analyze the relationship between literature and the historical/ cultural contexts in which it was written.
CO5	To understand literature as an expression of human values within a historical and social context.
CO6	To identify the universal human concerns that are the basis for literary works.

## FIRST SEMESTER

Semester	1
Course Code	ENG1CO2
Course Name	BRITISH LITERATURE 19TH CENTURY

Code	CO Statement
CO1	To illustrate to the learners the background, major themes and literary techniques in the texts chosen for study.
CO2	To analyze the poetry, drama and fiction of those times by critically analyzing the works of Wordsworth, Keats, Shelley, Byron, Browning, Tennyson , Wilde, Lamb, Hazlitt, Dickens, Bronte, Hardy etc.
CO3	To estimate and understand the concepts related to Transition, Romantic and Victorian Era literary texts.
CO4	To focus the students on the initial flowering of Romanticism, followed by the rapid growth of industrialization, scientific thinking and materialism all of which find expression in the texts chosen for study
CO5	To judge the criteria involving Romantic and Victorian studies.
CO6	To determine the subjective and individualistic imagination of the Romantic and Victorians writers.

## FIRST SEMESTER

Semester	1
Course Code	ENG1CO3
Course Name	HISTORY OF ENGLISH LANGUAGE

Code	CO Statement
CO1	To understand the origin and development of English.
CO2	To analyze the role of different conquests, attacks and invasion in shaping English.
CO3	To understand the phonological, morphological, syntactic and semantic changes in the history of English language.
CO4	To analyze the colonial and postcolonial status and spread of English.
CO5	To correlate English language growth and development of English literature.
CO6	To identify diversity in the speakers of the English language and changes that brought about by the advancement of science and technology.

## FIRST SEMESTER

Semester	1
Course Code	ENG1CO4
Course Name	INDIAN LITERATURE IN ENGLISH

Code	CO Statement
CO1	Understand and assimilate the various factors including tradition, experiment, imitation, innovation, convention, and revolt, involved in the evolution of Indian writing in English.
CO2	Take close introspection of the emergence of Indian and Pan- Indian ideologies in colonial and post-colonial India and its role in shaping various literary works.
CO3	Analyze and appreciate the idea of 'Indianness' depicted in the works.
CO4	Extend the vistas of their thinking by amalgamating and comparing the knowledge acquired from this course with that of the other courses.
CO5	Acquire knowledge of major literary movements and figures of Indian writing in English.
CO6	Acquire values and concerns which can help the evolution of humane concerns and perspectives through the works of Indian literature in English.

## FIRST SEMESTER

Semester	1
Course Code	ENG1AO1
Course Name	WRITING SKILLS

Code	CO Statement
CO1	To familiarize the students with the traditions and trends in writing – both academic and professional
CO2	To develop the linguistic, cognitive and logical skills required in writing different types of essays, anecdotes, academic papers and reports.
CO3	To enable the students to have a better professional career

## SECOND SEMESTER

Semester	2
Course Code	ENG2C05
Course Name	TWENTIETH CENTURY BRITISH LITERATURE UP TO 1940

Code	CO Statement
CO1	To make insightful cognition of the major socio-historical incidents of the twentieth century which have influenced life and literature of the time in various dimensions.
CO2	To understand and appreciate the broad spectrum of literary and artistic movements of the Twentieth century, especially British literature, and thereby develop the critical acumen to comprehend and critically analyze the symbiotic relationship of theme and technique in the literary works.
CO3	To analyze and demonstrate the knowledge of the major literary movements of the period.
CO4	To understand and deploy a range of terms, concepts and themes pertaining to the British literary studies.
CO5	To develop competence in analyzing and interpreting texts from different periods in literary history.
CO6	To identify, expound on and compare literary genres and periods.



## SECOND SEMESTER

Semester	2
Course Code	ENG2C06
Course Name	LITERARY CRITICISM AND THEORY – PART 1

Code	CO Statement
CO1	To understand the origin and development of literary criticism.
CO2	To understand how the social, economic, political, religious, and philosophical backgrounds make different readings of literary texts possible.
CO3	To understand the relevance of Plato's Republic, Aristotle's Poetics, Longinus' On the Sublime in the development of literary criticism and theory.
CO4	To understand the significance of critics such as Philip Sydney, William Wordsworth, F. R. Leavis, Cleanth Brooks, T.S. Eliot and Northrop Fry.
CO5	To understand Indian literary theories of Rasa and Dhvani.
CO6	To analyze and interpret literary texts using different critical and literary approaches to literature.

## SECOND SEMESTER

Semester	2
Course Code	ENG2C07
Course Name	AMERICAN LITERATURE

Code	CO Statement
CO1	To have an overview of American Literature: its central themes, literary periods and key artistic features
CO2	To describe major conventions and themes of major works in American literature.
CO3	To describe major historical, socio-political, economic and cultural events that shaped American literature.
CO4	To analyze texts in American literature using major critical theories
CO5	To describe how ethnic and gender identities play a vital role in the shaping of American literature.
CO6	To write research based critical papers on assigned readings following the principles of academic writing.

## SECOND SEMESTER

Semester	2
Course Code	ENG2C08
Course Name	POSTCOLONIAL WRITINGS

Code	CO Statement
CO1	To exemplify the nature of post-colonial drama as a theatrical, cultural, social, and political concept.
CO2	To determine how the idea of 'empire' is deconstructed by the playwrights; and thereby explore the cultural diversities and pluralities that constitute a post-colonial 'national' drama.
CO3	To identify and examine the paradoxes and hybridities in the forms and styles of post-colonial literature.
CO4	To critique how indigenous folk and /or mythical styles and themes inform post-colonial literary works to constitute a syncretism of cultures.
CO5	To infer the claims of universalism made on behalf of canonical texts in juxtaposition to the elements of hybridity, marginality, plurality and 'otherness', by examining these postcolonial texts.
CO6	To construct and design postcolonial studies as truly cross-disciplinary. To clear the ground from where the student can see how beyond the general discursive constellations, there are regional specifics that 'in a hybrid mode' negotiate issues of sovereignty, language, race, gender, identity and place.

## SECOND SEMESTER

Semester	2
Course Code	ENG2A02
Course Name	TRANSLATION THEORY AND PRACTICE

Code	CO Statement
CO1	To familiarize the students with the core of translation theory and some of the current theoretical positions
CO2	To offer training in translation of literary and non-literary texts and interpreting
CO3	To obtain a general understanding of the current developments in the discipline.

### THIRD SEMESTER

Semester	3
Course Code	ENG3C09
Course Name	TWENTIETH CENTURY BRITISH LITERATURE POST 1940

Code	CO Statement
CO1	To understand various modes of readings of Post1940 British writers and their works.
CO2	To understand major literary movements in British literature of this period.
CO3	To understand major socio - political economic and cultural background of the period.
CO4	To critically analyze the given texts using various literary and cultural tools.
CO5	To explore other major fictional and non-fictional works of the time.

### THIRD SEMESTER

Semester	3
Course Code	ENG3C10
Course Name	LITERARY CRITICISM AND THEORY: PART 2

Code	CO Statement
CO1	Articulate the broader ways in which literary theory applies to their own culture, global culture, and their own lives.
CO2	Express through written work and in-class comments their ability to apply various theories to works of literature.
CO3	Demonstrate their ability to articulate theoretical concepts orally by their class participation and formal presentation of their final paper.
CO4	Reflect on ethical and philosophical issues raised whenever one reads a creative, explanatory, or persuasive text.
CO5	Provide a comparison between various literary schools and ideas.
CO6	Understand a historical overview of Literary theory and Criticism.

### THIRD SEMESTER

Semester	3
Course Code	ENG3E06
Course Name	TEACHING OF ENGLISH

Code	CO Statement
CO1	To understand basic concepts and the current developments in Language Teaching in general and ELT in India combines the principles of ELT with practice to enable students to perceive and perpetuate a model of classroom interaction and effective teaching.
CO2	To understand linguistic, psychological and pedagogical approaches to English language teaching and learning.
CO3	To use various classroom strategies, techniques and teaching aids for English classroom.
CO4	To prepare lesson plans for teaching English literature and general language skills effectively
CO5	To understand the processes and procedures for testing and evaluation of Language items.
CO6	To use ICT in ELT classroom

### THIRD SEMESTER

Semester	3
Course Code	ENG3E07
Course Name	WORLD DRAMA

Code	CO Statement
CO1	To interpret the origin and development of drama in Europe and the rest of the world and thereby to consider the cultural diversities and pluralities that constitute world drama.
CO2	To determine the relevance of theatre movements of the 19th and 20th centuries – naturalism, realism, dadaism, expressionism, surrealism, postmodernism, Theatre of the Absurd, Epic Theatre, Theatre of Cruelty.
CO3	To ascertain the contributions of literary greats like Sophocles, Sudraka, Shakespeare, Ibsen, Chekov, Strindberg, Brecht, Ionesco, Genet, Pirandello.
CO4	To judge the completeness, contradictions and central issues presented in the dramas of a particular age and place.
CO5	To exemplify the paradoxes and hybridities in the forms and styles of world drama and to enable students to experience the joy of drama as a performing art.
CO6	Further, to create a framework for dramatic understanding and appreciation.



## FOURTH SEMESTER

Semester	4
Course Code	ENG4C11
Course Name	ENGLISH LITERATURE IN THE 21 CENTURY

Code	CO Statement
CO1	To understand the contemporary relevance of English literature.
CO2	To compare and contrast the 21st century English literary works with earlier literary works.
CO3	To examine different genres of contemporary literature.
CO4	To analyze various genres such as poetry, drama and fiction using critical tools of appreciation.
CO5	To relocate literature in contemporary social, political and cultural context.
CO6	To analyze and appreciate multiple nuances of contemporary English literature.

## FOURTH SEMESTER

Semester	4
Course Code	ENG4C12
Course Name	DISSERTATION/PROJECT- VIVA

Code	CO Statement
CO1	To articulate a clear research problem and formulate a hypothesis or question.
CO2	To identify and demonstrate appropriate research methodologies and know when to use them.
CO3	To use library resources, academic data bases and other tools to explore relevant researches in language and literature.
CO4	To conduct research in language and literature with academic integrity.
CO5	To present and publish research findings in reputed and highly indexed journals and conference

## FOURTH SEMESTER

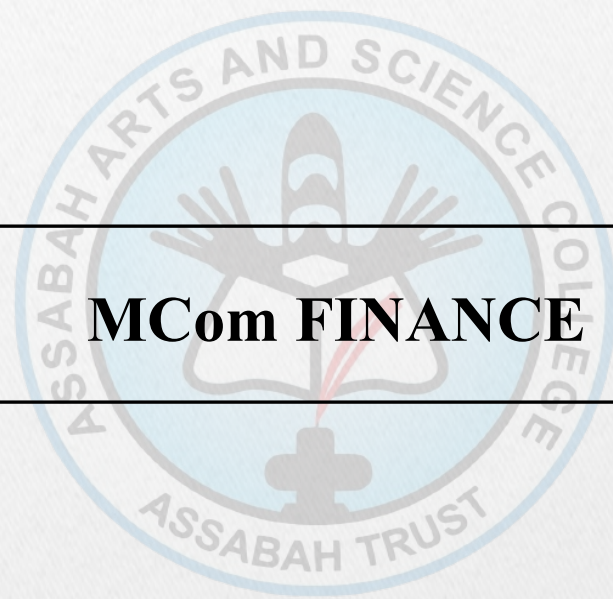
Semester	4
Course Code	ENG4E14
Course Name	INDIAN ENGLISH FICTION

Code	CO Statement
CO1	To trace the trajectory of Indian English Fiction from the first half of the twentieth century to the beginning of the twentieth century.
CO2	To know the thematic and narrative development clearly

## FOURTH SEMESTER

Semester	4
Course Code	ENG4E16
Course Name	DALITSTUDIES

Code	CO Statement
CO1	To get a focused perspective on the issue that have engaged Dalit writing and Dalit aesthetics in the country.
CO2	To offers glimpses of the interface between Dalit writing and conventional writing in a few major literature s in India.



**MCom FINANCE**

## FIRST SEMESTER

Semester	1
Course Code	MCM1C01
Course Name	BUSINESS ENVIRONMENT AND POLICY

Code	CO Statement
CO1	To familiarise students with the concepts of macro-economic in which a Business organization operates
CO2	To give an idea about the policies of the government and assess their impact on business.

## FIRST SEMESTER

Semester	1
Course Code	MCM1C02
Course Name	CORPORATE GOVERNANCE AND BUSINESS ETHICS

Code	CO Statement
CO1	To familiarize the students with the knowledge of corporate ethics
CO2	To enable the students to understand the emerging trends in good governance practices.
CO3	To create corporate financial reports in the global in the global and Indian context.

## FIRST SEMESTER

Semester	1
Course Code	MCM1C03
Course Name	QUANTITATIVE TECHNIQUES FOR BUSINESS DECISIONS

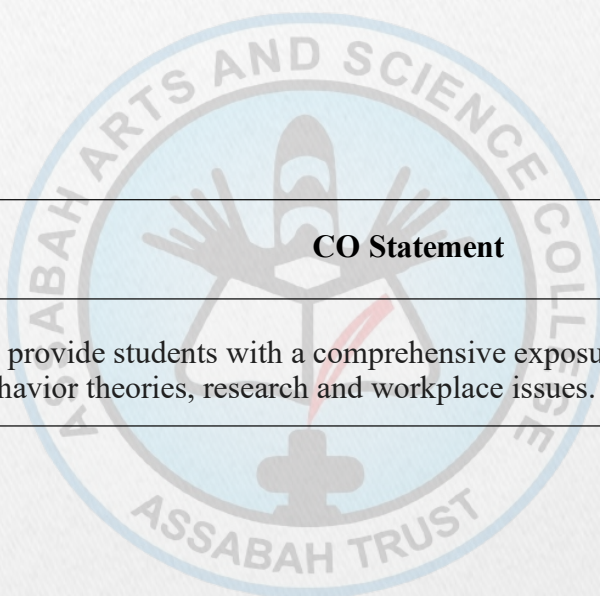
Code	CO Statement
CO1	To acquaint students with important quantitative techniques, which enable sound business decision making.
CO2	To make students learn the process of applying appropriate quantitative techniques for validating findings and interpreting results.



## FIRST SEMESTER

Semester	1
Course Code	MCM1C04
Course Name	MANAGEMENT THEORY AND ORGANISATIONAL BEHAVIOR

Code	CO Statement
CO1	To provide students with a comprehensive exposure to organizational behavior theories, research and workplace issues.



## FIRST SEMESTER

Semester	1
Course Code	MCM1C05
Course Name	ADVANCED MANAGEMENT ACCOUNTING

Code	CO Statement
CO1	To enable students to understand and apply tools, techniques, and concepts in managerial decision-making process.
CO2	To inculcate analytical skills in interpreting and diagnosing business problems

## SECOND SEMESTER

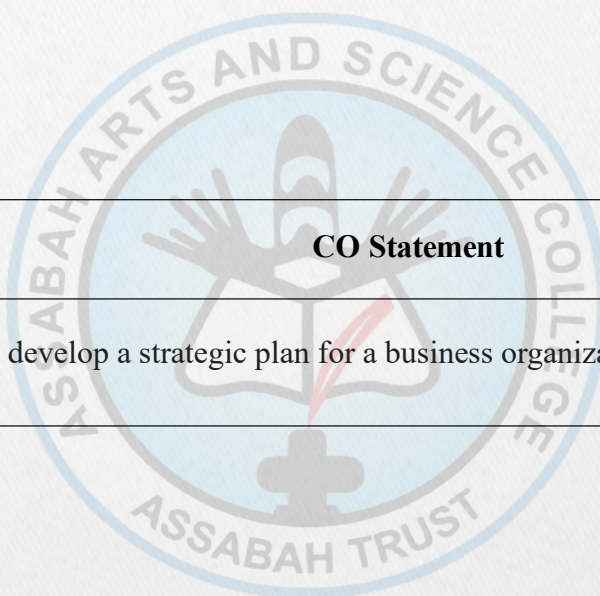
Semester	2
Course Code	MCM2C06
Course Name	ADVANCED CORPORATE ACCOUNTING

Code	CO Statement
CO1	To provide knowledge and skills in the theory and practice of corporate financial accounting
CO2	To provide insight in to some of the important accounting standards of IFRS /Ind AS
CO3	To enable problem solving abilities among students in matters of various corporate situations such as consolidation of group information, corporate restructuring and liquidation.

## SECOND SEMESTER

Semester	2
Course Code	MCM2C07
Course Name	ADVANCED STRATEGIC MANAGEMENT

Code	CO Statement
CO1	To develop a strategic plan for a business organization



## SECOND SEMESTER

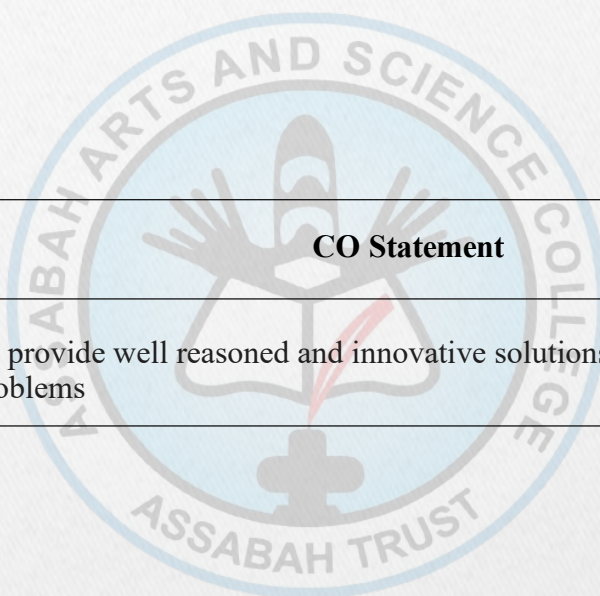
Semester	2
Course Code	MCM2C08
Course Name	STRATEGIC COST ACCOUNTING

Code	CO Statement
CO1	To enable the students to know the applications of Cost accounting tools, Techniques and concepts in managerial decision-making process.
CO2	To provide students adequate knowledge of cost management and control techniques and to enable them to apply these for managing business

## SECOND SEMESTER

Semester	2
Course Code	MCM2C09
Course Name	INTERNATIONAL BUSINESS

Code	CO Statement
CO1	To provide well reasoned and innovative solutions to business problems



## SECOND SEMESTER

Semester	2
Course Code	MCM2C10
Course Name	MANAGEMENT SCIENCE

Code	CO Statement
CO1	To familiarize students with concepts of management science and tools supporting decision making
CO2	To enable students to apply Management science techniques in appropriate decision situations.

### THIRD SEMESTER

Semester	3
Course Code	MCM3C11
Course Name	FINANCIAL MANAGEMENT

Code	CO Statement
CO1	To acquaint the students with the basic analytical techniques and methods of financial management of business organization.
CO2	To provide the students the exposure to certain advanced analytical techniques that are used for taking financial policy decisions.



### THIRD SEMESTER

Semester	3
Course Code	MCM3C12
Course Name	INCOME TAX: LAW, PRACTICE AND TAX PLANNING I

Code	CO Statement
CO1	To enable students to understand computation of income under various heads, taxable income of various entities, tax planning and procedure of assessment

### THIRD SEMESTER

Semester	3
Course Code	MCM3C13
Course Name	RESEARCH METHODOLOGY

Code	CO Statement
CO1	To acquaint students with process and methodology of research
CO2	To enable students to identify research problems, collect and analyse data and present results

### THIRD SEMESTER

Semester	3
Course Code	MCM3EF01
Course Name	INVESTMENT MANAGEMENT

Code	CO Statement
CO1	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.

### THIRD SEMESTER

Semester	3
Course Code	MCM3EF02
Course Name	FINANCIAL MARKETS AND INSTITUTIONS

Code	CO Statement
CO1	To provide the students a sound information and knowledge of broad framework of financial markets and institutions.
CO2	To impart the students an understanding of the inter-linkages and regulatory framework within which the system operates in India.

### FOURTH SEMESTER

Semester	4
Course Code	MCM4C14
Course Name	FINANCIAL DERIVATIVES AND RISK MANAGEMENT

Code	CO Statement
CO1	To make the students efficient in the area of derivatives, by giving them the knowledge of basics in options, futures, swaps etc.

## FOURTH SEMESTER

Semester	4
Course Code	MCM4C15
Course Name	INCOME TAX: LAW, PRACTICE AND TAX PLANNING II

Code	CO Statement
CO1	To acquaint the students with theoretical and practical knowledge of assessment and tax planning of different assesses.
CO2	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.

## FOURTH SEMESTER

Semester	4
Course Code	MCM4EF03/MCM4EFT03
Course Name	INTERNATIONAL FINANCE

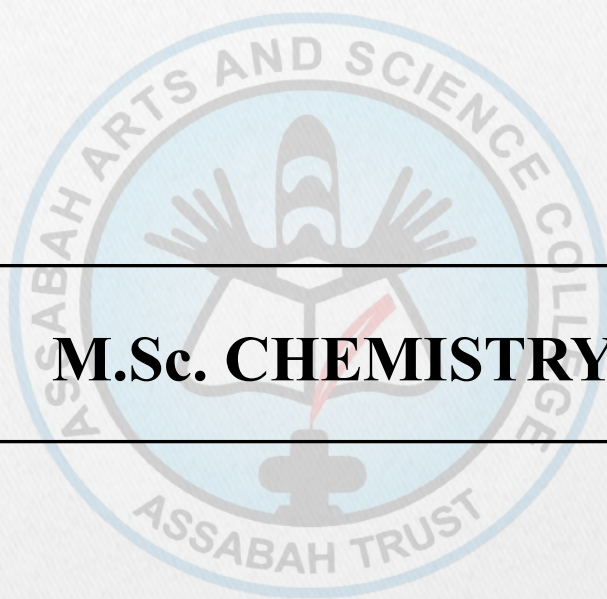
Code	CO Statement
CO1	To understand the concept and significance of international finance
CO2	To understand the international financial markets and exchange theories
CO3	To get an idea about foreign exchange exposure and risk management

## FOURTH SEMESTER

Semester	4
Course Code	MCM4EF04
Course Name	ADVANCED STRATEGIC FINANCIAL MANAGEMENT

Code	CO Statement
CO1	To build an understanding among students about the concepts, vital tools and techniques used for financial decision making by a business firm.





## **M.Sc. CHEMISTRY**

## FIRST SEMESTER

Semester	1
Course Code	CHE1C01
Course Name	QUANTUM MECHANICS AND COMPUTATIONAL CHEMISTRY

Code	CO Statement
CO1	Explain the laws of quantum mechanics necessary for the description of atoms and molecules and their chemical reaction.
CO2	Apply boundary conditions to constraint set of possible states.
CO3	Choose the appropriate method in terms of applicability and accuracy for the calculation of a given chemical problem.
CO4	Recognize the expansion of wave function as the linear combination of basic elements.
CO5	Predict chemical properties at the atomic scale using computational language

## FIRST SEMESTER

Semester	1
Course Code	CHE1C02
Course Name	ELEMENTARY INORGANIC CHEMISTRY

Code	CO Statement
CO1	Describe the concept of Acids and bases on the basis of various theories
CO2	Gain knowledge on the chemistry of main group elements, transition and inner transition elements
CO3	Develop an understanding on the importance, various processes and applications of Nano materials
CO4	Gain an insight into various reactions involved in nuclear chemistry
CO5	Outline the applications of radioactivity and radiolysis.

## FIRST SEMESTER

Semester	1
Course Code	CHE1C03
Course Name	STRUCTURE, AND REACTIVITY OF ORGANIC COMPOUNDS

Code	CO Statement
CO1	Identify and define chemical bonding, reactivity and various effects in organic molecules.
CO2	Compare Acidity and Basicity as well as aromaticity.
CO3	Analyze the concepts of stereochemistry and will be able to analyze stereo chemical aspects in organic chemistry.
CO4	Predict enantio selective product.
CO5	Describe mechanisms in asymmetric reaction.

## FIRST SEMESTER

Semester	1
Course Code	CHE1C04
Course Name	THERMODYNAMICS, KINETICS & CATALYSIS

Code	CO Statement
CO1	Gain a good knowledge on the chemical kinetics, fast reactions, Catalysis and Surface chemical reactions
CO2	Calculate the rate constants of reactions and derive the rate expressions of chain reactions for the formation of hydrogen halides by applying steady-state approximation.
CO3	Describe various concepts on molecular reaction dynamics
CO4	Identify and analyze the chemical systems from thermodynamic point of view
CO5	Gain an insight into various kinds of catalysis and its applications

## SECOND SEMESTER

Semester	2
Course Code	CHE2C05
Course Name	GROUP THEORY AND CHEMICAL BONDING

Code	CO Statement
CO1	Visualize molecule in 3-D, describe the concept of symmetry elements and symmetry operations.
CO2	Recognize the point groups of molecules and apply symmetry considerations for optical activity and dipole moment.
CO3	Describe and demonstrate the group multiplication table, character table and representations of group.
CO4	Apply the projection operator for constructing SALCs
CO5	Correlate application of symmetry to spectroscopy and find IR and Raman mode of vibration.

## SECOND SEMESTER

Semester	2
Course Code	CHE2C06
Course Name	CO-ORDINATION CHEMISTRY

Code	CO Statement
CO1	Analyze the effect of various ligand field strengths on d-metal ions.
CO2	Identify the electronic spectra of complexes with respect to spin and orbital selection rules, various transitions and charge transfer spectra
CO3	Describe the magnetic properties of complexes.
CO4	Outline the methods for distinguishing between outer and inner sphere redox reactions
CO5	Describe the prediction of substitution lability in complex reactions.

## SECOND SEMESTER

Semester	2
Course Code	CHE2C07
Course Name	REACTION MECHANISM IN ORGANIC CHEMISTRY

Code	CO Statement
CO1	Develop an ability to understand addition and elimination reactions with mechanism and stereo chemical aspect
CO2	Identify aliphatic and aromatic, nucleophilic and electrophilic substitution with mechanism and kinetics
CO3	Gain an insight into the theory of pericyclic reactions and to get an idea about the orbital overlap in chemical reaction.
CO4	Analyze photochemical reactions with mechanism
CO5	Describe the classification, structure and synthesis of natural products



## SECOND SEMESTER

Semester	2
Course Code	CHE2C08
Course Name	ELECTROCHEMISTRY, SOLID STATE CHEMISTRY AND STATISTICAL THERMODYNAMICS

Code	CO Statement
CO1	Describe Debye –Huckel equation, limiting and extended forms and its application
CO2	Compare the efficiency of different electro chemical cells
CO3	Identify and analyze symmetry elements, symmetry operations and crystal systems..
CO4	Analyze the stoichiometric and nonstoichiometric defects in crystals.
CO5	Describe the importance and consequences of quantum mechanics for macroscopic particle systems

### THIRD SEMESTER

Semester	3
Course Code	CHE3CO9
Course Name	MOLECULAR SPECTROSCOPY

Code	CO Statement
CO1	Describe basic concepts and theories of microwave spectroscopy, IR, Raman, NMR and electronic spectroscopy
CO2	Analyze the principle and application of NMR Spectroscopy
CO3	Calculate UV $\lambda_{\text{max}}$ value of various compounds
CO4	Analyze the spectrum and find out the correct structure of compounds as an application of spectroscopy

### THIRD SEMESTER

Semester	3
Course Code	CHE3C10
Course Name	ORGANOMETALLIC AND BIOINORGANIC CHEMISTRY

Code	CO Statement
CO1	Describe different properties and structures for organometallic compounds from different parts of the periodic table and their trends.
CO2	Identify synthetic routes to various classes of organometallic compounds.
CO3	Compare ligand classes in organometallic chemistry, their effects on organometallic compounds, and influence on reactivity and catalysis.
CO4	Apply the basic principles in inorganic and general chemistry to interdisciplinary topics in the field of bioinorganic chemistry.
CO5	Describe the main roles of metal ions in biological processes, and identify the chemical properties that are required to each particular function.

### THIRD SEMESTER

Semester	3
Course Code	CHE3C11
Course Name	REAGENTS AND TRANSFORMATIONS IN ORGANIC CHEMISTRY

Code	CO Statement
CO1	Acquire proper knowledge about various methods of oxidation and reduction reagents
CO2	Apply synthetic reagents like DABCO, DMAP, DDQ, oxane etc in organic synthesis
CO3	Describe the classification of polymers, structure and synthesis of biopolymers like proteins, nucleic acids, cellulose, starch etc.
CO4	Gain in depth knowledge about the heterocyclic compounds for different elements containing heterocyclic ring
CO5	Analyze the molecular rearrangements with mechanism.

### THIRD SEMESTER

Semester	3
Course Code	CHE3E01
Course Name	SYNTHETIC ORGANIC CHEMISTRY

Code	CO Statement
CO1	Describe various oxidation and reduction methods
CO2	Apply organometallic and metallic reagents for synthesis of organic compounds
CO3	Synthesize an organic compound by retrosynthetic methods by C-C and C-X bond disconnection
CO4	Identify nucleophilic condensation reactions of carbonyl compounds and apply it on the retrosynthetic analysis.
CO5	Synthesize stereo and regioselective compounds by own planning, target selection reagents and solvents

## FOURTH SEMESTER

Semester	4
Course Code	CHE4C12
Course Name	INSTRUMENTAL METHODS OF ANALYSIS

Code	CO Statement
CO1	Describe absolute and relative errors, mean and standard deviation, variance, confidence limits, student t and f tests
CO2	Analyze organic precipitating agents, acid base redox and precipitation titrations, and complexometric titrations
CO3	Gain an in depth knowledge in electroanalytical methods like potentiometry, polarography their applications biomembrane, biological and biocatalytic electrodes.
CO4	Differentiate between atomic fluorescence spectrometry, X ray absorption and X-ray diffraction methods
CO5	Recognize different chromatographic methods, detectors and CHN analysis by GC.

### FOURTH SEMESTER

Semester	4
Course Code	CHE406
Course Name	NATURAL PRODUCTS AND POLYMER CHEMISTRY

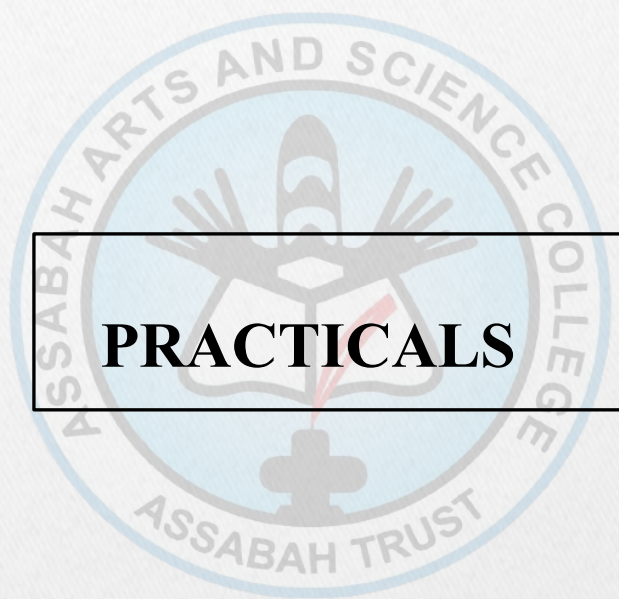
Code	CO Statement
CO1	Elaborate general methods of structural elucidation of compounds of natural origin.
CO2	Learn advanced methods of structural elucidation of compounds of natural origin.
CO3	Identify isolation, purification and characterization of chemical constituents from the natural source
CO4	Recognize different polymerization process with respect to synthesis mechanisms and kinetics
CO5	Communicate challenges, analysis, and conclusions related to polymer chemistry.

## FOURTH SEMESTER

Semester	4
Course Code	CHE408
Course Name	ORGANOMETALLIC CHEMISTRY

Code	CO Statement
CO1	Have a good overview of the fundamental principles of organ transition-metal chemistry and know how chemical properties are affected by metals and ligands
CO2	Use knowledge about structure and bonding issues to understand the stability and reactivity of simple organometallic complexes
CO3	Use of modern methods to characterize organometallic compounds
CO4	Recognize fundamental reaction types and mechanisms and how to combine these to understand efficient catalytic processes
CO5	Identify the applications of organometallic homogeneous catalysis in production of compounds.





**PRACTICALS**

## SECOND SEMESTER

Course Code	CHE1LO1 & CHE2LO4
Course Name	INORGANIC CHEMISTRY PRACTICALS- I & I

Code	CO Statement
CO1	Analyze the cation mixture
CO2	Estimate the ions by complexometric titrations
CO3	Find out intensity of colour using colorimetric methods

## SECOND SEMESTER

Course Code	CHE1LO2 & CHE2LO5
Course Name	ORGANIC CHEMISTRY PRACTICALS– I & II

Code	CO Statement
CO1	Separate the mixture of organic compounds
CO2	Analyze the compounds separated from the mixture by chemical analysis
CO3	Find out the melting and boiling points of the compounds
CO4	Prepare organic compounds by two or three steps

## SECOND SEMESTER

Course Code	CHE1LO3 & CHE2LO6
Course Name	PHYSICAL CHEMISTRY – I & II

Code	CO Statement
CO1	Describe the working and application of Potentiometer, conductivity meter, viscometer and refractometer.
CO2	Identify the relation of solubility with molar heat of solution
CO3	Recognize the distribution law
CO4	Realize the principles behind the experiment performed in the laboratory

### FOURTH SEMESTER

Course Code	CHE3LO7 & CHE4L10
Course Name	INORGANIC CHEMISTRY PRACTICALS– III & IV

Code	CO Statement
CO1	Quantitatively separate binary mixtures of ions in solution and estimation by volumetric, colorimetric or gravimetric methods
CO2	Separate binary mixtures by ionexchange method
CO3	Prepare inorganic complexes

### FOURTH SEMESTER

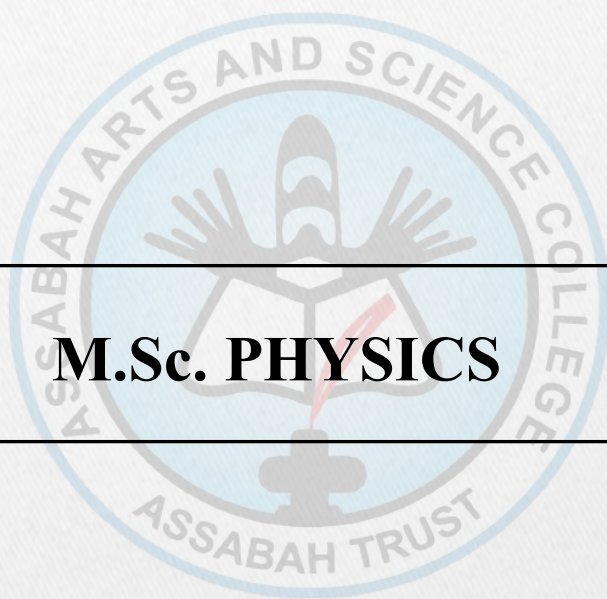
Course Code	CHE3LO8 & CHE4L11
Course Name	ORGANIC CHEMISTRY PRACTICALS– III & IV

Code	CO Statement
CO1	Expertise the estimation of reducing sugar, amino group, phenolic group and esters volumetrically
CO2	Expertise the estimation of vitamin A, drugs and anti-biotics colorimetric ally
CO3	Expertise the extraction of natural products and purification by column and TLC
CO4	Expertise the preparation of TLC plate activation and identification of compounds dyes, food additives, food colors, amino acids, sugars, pesticides and herbicides

### FOURTH SEMESTER

Course Code	CHE3LO9 & CHE4L12
Course Name	PHYSICAL CHEMISTRY PRACTICALS– III & IV

Code	CO Statement
CO1	Describe specific conductance and calculate Arrhenius parameter and order of a reaction CO2 Differentiate the rate of adsorption on various system
CO3	Deep insight into phase equilibria experiments.
CO4	Expertise in handling polarimeter, spectrophotometer and chemistry softwares



**M.Sc. PHYSICS**



## FIRST SEMESTER

Semester	1
Course Code	PHY1C01
Course Name	CLASSICAL MECHANICS

Code	CO Statement
CO1	Explain the fundamental concepts in Lagrangian and Hamiltonian formulation in mechanics.
CO2	Apply the concepts of Lagrangian, Hamiltonian, Action, Poisson brackets, canonical transformations and their subsequent development to Heisenberg's matrix mechanics and Schrodinger's wave mechanics, to carry out numerical problems.
CO3	Develop the analytical and mathematical skills for describing the dynamics of rigid bodies. It could be applied to practical situations. This can be applied to spectroscopic analysis of samples.
CO4	Explain the theory of small oscillations. Small oscillations are part and parcel of all bound physical systems.
CO5	Elucidate the concepts in nonlinear dynamics and chaos. These techniques can be directly applied in nonlinear physics and also to verify various experimental results.

## FIRST SEMESTER

Semester	1
Course Code	PHY1C02
Course Name	MATHEMATICAL PHYSICS

Code	CO Statement
CO1	Describe coordinate systems appropriate for different physical problems. Applies it to solve Laplace's equation in different coordinate systems.
CO2	Perform transformation operations and get the corresponding transformation matrices. Learn procedures for matrix diagonalisation.
CO3	Distinguish the class of objects called tensors, their classifications and use. Understand differential equations of special nature and the ways to solve them.
CO4	identify differential equations of special nature and the ways to solve them.
CO5	Illustrate special functions as solutions to problems in atomic, molecular nuclear, and solid state physics etc. and will put them in use.
CO6	Distinguish Fourier series and integral transforms of different types and their properties. This will enable him/her to analyze or solve different mathematical problems in physical sciences.

## FIRST SEMESTER

Semester	1
Course Code	PHY1C03
Course Name	ELECTRODYNAMICS & PLASMA PHYSICS

Code	CO Statement
CO1	Explain the significance of displacement current and Maxwell's equations and general electromagnetic wave equations, their solutions in terms of potentials and fields. Another basic concept of physics called gauge transformation will be understood. Multipole expansion of the potentials, fields and multipole moments of different orders will be learned..
CO2	Describe the propagation of electromagnetic waves through free space and the consequences of reflection from different types of boundaries. These have important consequences in wave propagation.
CO3	Discusses propagation of electromagnetic waves through confined media like waveguides and cavity resonators.
CO4	Enables to appreciate the magnificent results of the blending of relativity and electrodynamics and motivates to take up a course on quantum field theory, the study of fields, interactions and symmetries.
CO5	Understand the criteria for a medium to be called plasma and the various properties of it.

## FIRST SEMESTER

Semester	1
Course Code	PHY1C04
Course Name	ELECTRONICS

Code	CO Statement
CO1	Analyze characteristics of JFET and MOSFET and their specific applications.
CO2	Distinguish the basic characteristics of light emitting and light sensing devices and illustrate the basic concepts behind integrating electronic and photonic devices suitably for microwave communication.
CO3	Classifies characteristics of op-amps and their implementation in various elementary level applications.
CO4	Identify the basics of logic gates, flip flops and registers and the designing of counters, satisfying specific conditions. Understands RAM and D/A converter.

## SECOND SEMESTER

Semester	2
Course Code	PHY2C05
Course Name	QUANTUM MECHANICS-I

Code	CO Statement
CO1	Appreciate the importance and implication of vector spaces. Will be able to use Dirac ket and bra notations. Use operators and will be able to solve eigenvalue problems. Understand generalized uncertainty principle in quantum mechanics and the need for quantum mechanical formalism and its basic principles.
CO2	Explain time evolution of quantum mechanical systems and learn different time evolution approaches -Schrodinger picture and Heisenberg picture. Apply different approaches in quantum dynamics to various fundamental problems.
CO3	Develop a better understanding of the mathematical foundations of spin and angular momentum. Make use of spherical harmonics to compute Clebsch - Gordon coefficients.
CO4	Apply Schrodinger's equation to central potential problems, to solve various quantum mechanical problems.
CO5	Understand invariance principles based on symmetry of the system and establish the associated conservation laws. These quantum mechanical concepts will be applied to analyze the ground state of the Helium atom. Here it will be understood that all symmetry elements possess the mathematical property of groups.

## SECOND SEMESTER

Semester	2
Course Code	PHY2C06
Course Name	MATHEMATICAL PHYSICS II

Code	CO Statement
CO1	In general, physical phenomena are expressed in equations involving complex quantities. Sometimes we get complex solutions to equations. Solving such problems requires special procedures. On completing this module he/she will gain the skill for solving and interpreting such problems.
CO2	Acquire preliminary training in group theory. All symmetry elements possess the mathematical property of groups. Concepts of group theory will help to solve problems in quantum mechanics. It is quantum mechanics that gives more stress on symmetry than classical mechanics.
CO3	Apply the techniques of calculus of variation to diverse problems in physics.
CO4	Apply the Green's function technique to solve problems showing causality relationships.

## SECOND SEMESTER

Semester	2
Course Code	PHY1C07
Course Name	STATISTICAL MECHANICS

Code	CO Statement
CO1	Understand macroscopic and the microscopic states, thermodynamic potentials, basic concepts of entropy, Liouville's theorem and its consequences. Also the students will have an understanding of the connection between statistics and thermodynamics.
CO2	Have detailed understanding of different canonical ensembles.
CO3	Develop an understanding of the statistical behavior of Bose-Einstein and Fermi Dirac systems.

## SECOND SEMESTER

Semester	2
Course Code	PHY1C08
Course Name	COMPUTATIONAL PHYSICS

Code	CO Statement
CO1	Write computer programs using core python.
CO2	Use advanced mathematical modules like NumPy and Pylab in python programs for solving mathematical and physical problems and also to present the result visually using graphs and charts.
CO3	Solve numerically mathematical problems like interpolation, curve fitting, integration etc. and to write python programs for these.
CO4	Solve numerically mathematical problems like differential equations, Fourier transforms etc. and also to write python programs for these.
CO5	Analyze by simulating simple physical problems in physics like one-dimensional and two-dimensional motion, harmonic oscillator, radioactive disintegration, chaos, solution of Schrodinger equation etc., using python programs by applying the knowledge acquired for the course.



### THIRD SEMESTER

Semester	3
Course Code	PHY3C09
Course Name	QUANTUM MECHANICS I

Code	CO Statement
CO1	Understand time independent perturbation theory and to apply it to harmonic and anharmonic oscillators, and learn the fine structure and hyperfine splitting of Hydrogen atoms in the presence of external magnetic and electric fields. Understanding
CO2	Apply methods like Ritz variational technique and WKB approximation to quantum mechanical systems.
CO3	Interpret time dependent perturbation theory and apply it to describe radiative transitions in atoms. Understand Fermi's Golden rule and learn Born approximation.
CO4	Explain the theory of scattering and apply the method of partial waves to scattering by central potential and square well potential.
CO5	Identify the principles of relativistic quantum mechanics and apply to Dirac particles, Klein-Gordon equation. Also understand the concept of spinors and the non-relativistic limit and Hole theory.

### THIRD SEMESTER

Semester	3
Course Code	PHY3C10
Course Name	NUCLEAR & PARTICLE PHYSICS

Code	CO Statement
CO1	Interpret the properties of nucleus, binding energy, angular momentum, two nucleon scattering, spin dependence, tensor force, partial wave concept and the theory of deuteron structure.
CO2	Elucidate the theory of various types of nuclear decay, selection rules of transition, concept of parity and multipole moments.
CO3	Compare various nuclear models and nuclear processes like fission and fusion. Will be able to apply it to various nuclear systems in the chart of nuclides.
CO4	Demonstrate the working of one or two nuclear radiation detectors of different types and the signal processing and analyzing units.
CO5	Compare basic interactions and classify the elementary particles. Interactions are linked with the concept of symmetry and conservation laws. Understand Sakata model, Gellman-Okubo mass formula, Quark mode and their significance.

### THIRD SEMESTER

Semester	3
Course Code	PHY3C11
Course Name	SOLID STATE PHYSICS

Code	CO Statement
CO1	Analyze the structure of materials based on X-ray diffraction and interpret it on the basis of the theory understood.
CO2	Distinguish different excitations in crystals. Properties of quasiparticles could be explained. Arrive at proper explanation of specific heat.
CO3	Explain free electron model and interpret the properties of metals. Gain a deeper understanding of the energy bands based on the properties of carriers.
CO4	Interpret properly the thermal, electrical and magnetic properties of materials. Will enable the student to understand the current research going on in the related areas.
CO5	Illustrate using phase diagrams, phase transitions in materials leading to superconductivity and different types of superconductors.

### THIRD SEMESTER

Semester	3
Course Code	PHY3E05
Course Name	EXPERIMENTAL TECHNIQUES

Code	CO Statement
CO1	Explain vacuum, Gauges to measure vacuum, types of pumps and their utility, cryogenics etc.
CO2	Explain and demonstrate different thin film fabrication techniques, thickness measurement and application of thin films.
CO3	Explain different types of particle accelerators, their working and specific applications
CO4	Explain methods of materials analysis by different nuclear techniques.
CO5	Be trained on defining X-ray techniques to characterize materials.

## FOURTH SEMESTER

Semester	4
Course Code	PHY4C12
Course Name	ATOMIC AND MOLECULAR SPECTROSCOPY

Code	CO Statement
CO1	Understand the behavior of atoms and molecules and their interactions with electromagnetic waves.
CO2	Apply the behavior of nonrigid rotor and understand the microwave spectroscopy
CO3	Distinguish between Raman and IR spectroscopy and elucidate on the features of Raman spectrum.
CO4	Explain electronic spectroscopy and applications
CO5	Identify the structure of the sample from spin resonance and Mossbauer spectra

## FOUR SEMESTER

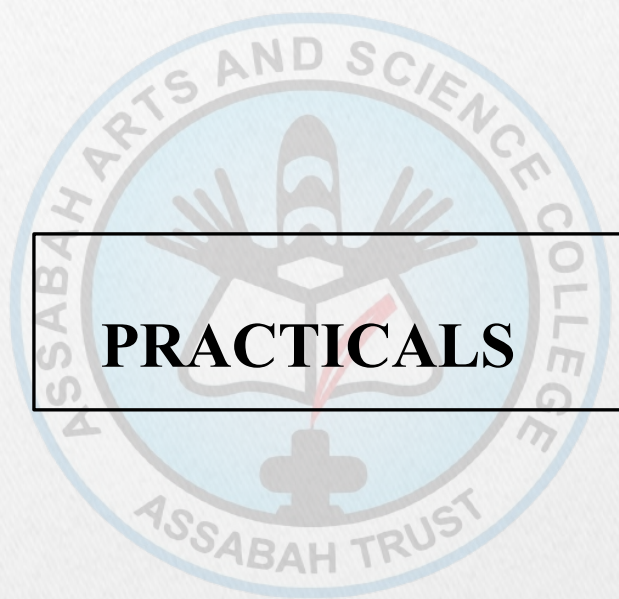
Semester	4
Course Code	PHY4E12
Course Name	MATERIAL SCIENCE

Code	CO Statement
CO1	Acquire a basic understanding of the concept of formation of lattice defects in solids
CO2	Analyze the phase diagrams of single component, binary and ternary systems and diffusion in solids.
CO3	Identify the cause of plastic deformation in crystals.
CO4	Distinguish polymers and ceramics in terms of , their classifications, structure and properties.
CO5	Apply the ideas of synthetic approaches of nanomaterials and their characterization methods. Apply Understand the structure of buckminster fullerene, carbon nanotube, its classification and its applications.

## FOURTH SEMESTER

Semester	4
Course Code	PHY4E23
Course Name	MICROPROCESSORS, MICROCONTROLLERS & APPLICATIONS

Code	CO Statement
CO1	to be equipped with essential knowledge on design and programming of simple microprocessor based systems.
CO2	develop basic skills in design of simple AVR microcontroller based embedded systems



**PRACTICALS**



## SECOND SEMESTER

Course Code	PHY1L01 & PHY2L03
Course Name	GENERAL PHYSICS

Code	CO Statement
CO1	Develop a deep understanding of fundamental physics concepts through practical experiments. This includes the application of classical mechanics, thermodynamics, and electromagnetism in real-world scenarios.
CO2	Gain hands-on experience in setting up, conducting, and analyzing experiments. This will enhance your ability to handle scientific instruments, accurately record data, and troubleshoot experimental setups.
CO3	Learn to analyze experimental data using appropriate statistical methods. Develop skills in interpreting results, understanding error analysis, and drawing valid conclusions from experimental outcomes

## SECOND SEMESTER

Course Code	PHY1L02 & PHY2L04
Course Name	ELECTRONICS

Code	CO Statement
CO1	Develop a deep understanding of core physics principles, including mechanics, thermodynamics, and electromagnetism, by conducting experiments that illustrate these concepts in practice
CO2	Acquire practical skills in setting up and conducting physics experiments, enhancing your ability to operate scientific instruments, measure physical quantities accurately, and record observations systematically
CO3	Learn to analyze experimental data using appropriate statistical and computational tools. Develop the ability to interpret results, identify sources of error, and draw meaningful conclusions from experimental findings

## FOURTH SEMESTER

Course Code	PHY3L05 & PHY4L06
Course Name	MODERN PHYSICS

Code	CO Statement
CO1	Gain hands-on experience with advanced experimental techniques used in modern physics, including precise measurement and data analysis, enhancing laboratory skills crucial for research and industry applications
CO2	Develop a deep understanding of quantum mechanical principles through practical experiments, allowing students to observe and analyze quantum phenomena such as the photoelectric effect, electron diffraction, and atomic spectra
CO3	Apply theoretical knowledge of modern physics to real-world experiments, bridging the gap between theory and practice, and demonstrating the relevance of quantum mechanics, nuclear physics, and relativity in experimental settings.

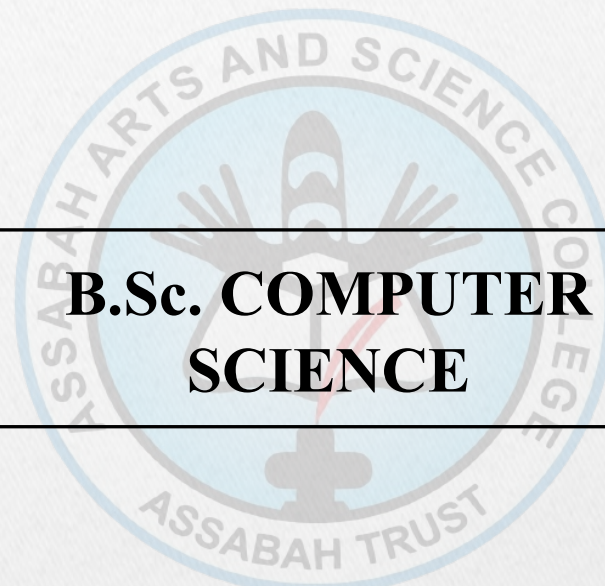
## FOURTH SEMESTER

Course Code	PHY4L07
Course Name	COMPUTATIONAL PHYSICS PRACTICAL

Code	CO Statement
CO1	Develop proficiency in applying numerical methods to solve complex physical problems, including differential equations, matrix operations, and statistical analysis
CO2	Gain expertise in using computational tools such as Python, MATLAB, or other relevant software for simulating physical systems and analyzing data
CO3	Acquire the ability to design and implement algorithms for solving physics problems, with a focus on efficiency, accuracy, and reliability.



# **UG PROGRAMMES**



**B.Sc. COMPUTER  
SCIENCE**

## FIRST SEMESTER

Semester	1
Course Code	BCS1B01
Course Name	COMPUTER FUNDAMENTALS AND HTML

Code	CO Statement
CO1	Familiar with fundamental concepts of computer hardware and software
CO2	have a knowledge of different number system,digital codes and boolean algebra
CO3	Understand the problem solving aspect
CO4	Demonstrate the algorithm and flowchart for the given problem
CO5	Design a web page with CSS

## SECOND SEMESTER

Semester	2
Course Code	BCS2B02
Course Name	PROBLEM SOLVING USING C

Code	CO Statement
CO1	Interpret the basic principles of C programming
CO2	Acquire decision making and looping concepts
CO3	Design and develop modular programming.
CO4	Explore usage of Arrays, strings, structures, union and files.
CO5	Effective utilisation of pointers and dynamic memory allocation



### THIRD SEMESTER

Semester	3
Course Code	BCS3B04
Course Name	DATA STRUCTURES USING C

Code	CO Statement
CO1	To be familiar with fundamental data structures and with the manner in which these data structures can best be implemented; become accustomed to the description of algorithms in both functional and procedural styles
CO2	To have a knowledge of the complexity of basic operations like insert, delete, search on these data structures.
CO3	Ability to choose a data structure to suitably model any data used in computer applications.
CO4	Design programs using various data structures including hash tables, Binary and general search trees, graphs etc.
CO5	Implement and know the applications of algorithms for sorting, pattern matching

## FOURTH SEMESTER

Semester	4
Course Code	BCS4B05
Course Name	DATABASE MANAGEMENT SYSTEM AND RDBMS

Code	CO Statement
CO1	Gain knowledge of database systems and database management system software
CO2	Ability to model data in applications using conceptual modelling tools such as ER Diagrams and design database schemas based on the model.
CO3	Formulate, using SQL, solutions to a broad range of query and data update problems.
CO4	Demonstrate an understanding of normalisation theory and apply such knowledge to the normalisation of a database.
CO5	Be acquainted with the basics of transaction processing and concurrency control.

## FIFTH SEMESTER

Semester	5
Course Code	BCS5B07
Course Name	COMPUTER ORGANIZATION

Code	CO Statement
CO1	To make students understand the basic structure, operation and characteristics of a digital computer
CO2	To familiarise with Computer Instruction and Interrupt Design
CO3	To make students know the different types of control unit and Addressing Modes
CO4	To familiarise with the Memory organisation including cache memories and virtual memory
CO5	To understand the I/O devices and standard I/O interfaces

## FIFTH SEMESTER

Semester	5
Course Code	BCS5B08
Course Name	JAVA PROGRAMMING

Code	CO Statement
CO1	Knowledge of the structure and model of the Java programming language
CO2	Use the Java programming language for various programming technologies
CO3	Develop software in the Java programming language
CO4	Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements

## FIVE SEMESTER

Semester	5
Course Code	BCS1B09
Course Name	WEB PROGRAMMING USING PHP

Code	CO Statement
CO1	To understand basics of the Internet and World Wide Web
CO2	To learn basic skill to develop responsive web applications
CO3	To acquire the knowledge of HTML and CSS
CO4	To understand basic concept of client side scripting language - JavaScript
CO5	To understand the server side scripting language -PHP
CO6	To learn about the integration of PHP and PostgreSQL

## FIFTH SEMESTER

Semester	5
Course Code	BCS5B10
Course Name	PRINCIPLES OF SOFTWARE ENGINEERING

Code	CO Statement
CO1	Ability to apply software engineering principles and techniques.
CO2	To produce efficient, reliable, robust and cost-effective software solutions
CO3	Familiarise with Unified Modeling Language
CO4	Acquire the basics of software testing and maintenance phase

## SIX SEMESTER

Semester	6
Course Code	BCS1B11
Course Name	ANDROID PROGRAMMING

Code	CO Statement
CO1	To gain knowledge of developing end user application using Android SDK
CO2	To familiarize with Android Resources
CO3	To acquaint with user interfaces development in Android
CO4	To acquire knowledge about creating menus and operating files in Android

## SIXTH SEMESTER

Semester	6
Course Code	BCS6B12
Course Name	OPERATING SYSTEMS

Code	CO Statement
CO1	To Familiarise with the Objectives functions and types of Operating System
CO2	To have a basic knowledge about process Threads,Deadlock
CO3	To understand the knowledge of Linux shell programming
CO4	To learn about CPU scheduling and memory management



## SIX SEMESTER

Semester	6
Course Code	BCS6B13
Course Name	Computer Networks

Code	CO Statement
CO1	To understand about different network terminologies
CO2	To familiarize with different layers of network
CO3	To understand the functions of data link layer and network layer
CO4	To familiarize with the functions of Transport layer
CO5	To understand the concept of network security and Cryptography



**COMPUTER SCIENCE  
COMMON COURSE**

### THIRD SEMESTER

Semester	3
Course Code	A11
Course Name	PYTHON PROGRAMMING

Code	CO Statement
CO1	Explain basic principles of Python programming language
CO2	Implement decision making and loop statements in Python
CO3	Implement GUI applications using Python
CO4	Explain modular programming concepts using Python
CO5	Familiarise with List,Tuple,Dictionary concepts in Python

### THIRD SEMESTER

Semester	3
Course Code	A12
Course Name	SENSORS AND TRANSDUCERS

Code	CO Statement
CO1	Explain resistance, inductance and capacitance transducers.
CO2	Perceive the concepts of temperature transducers.
CO3	Perceive the concepts level transducers and pressure
CO4	Explain flow transducers, electromagnetic transducers, radiation sensors and sound transducers

## FOURTH SEMESTER

Semester	4
Course Code	A13
Course Name	DATA COMMUNICATION AND OPTICAL FIBRES

Code	CO Statement
CO1	To Acquaint w i t h the structure of Data Communications System and its components.
CO2	To Familiarise with different network terminologies and transmission media
CO3	To gain knowledge of the different multiplexing techniques ,Telephone system, Mobile System-GSM
CO4	To become familiar with the functions of a Data Link layer and Switching
CO5	To acquire the knowledge of Optical Fibre Cable and its working

## FOURTH SEMESTER

Semester	4
Course Code	A14
Course Name	MICROPROCESSORS-ARCHITECTURE AND PROGRAMMING

Code	CO Statement
CO1	To study general architecture of microprocessor
CO2	To write assembly language programs both simple programs and interfacing programs
CO3	To know how to interface peripheral devices with 8085
CO4	To study the architecture of 8086 microprocessor



**COMPUTER SCIENCE  
OPEN COURSE**

## FIVE SEMESTER

Semester	5
Course Code	BCS5D01
Course Name	INTRODUCTION TO COMPUTERS AND OFFICE AUTOMATION

Code	CO Statement
CO1	Understand different types of computers
CO2	Learn documentation using Word processing software such as MS word and Open Office Writer
CO3	Learn calculations using spreadsheet MS Excel and Open Office Writer
CO4	Learn presentations using Open Office Impress/MS-PowerPoint):



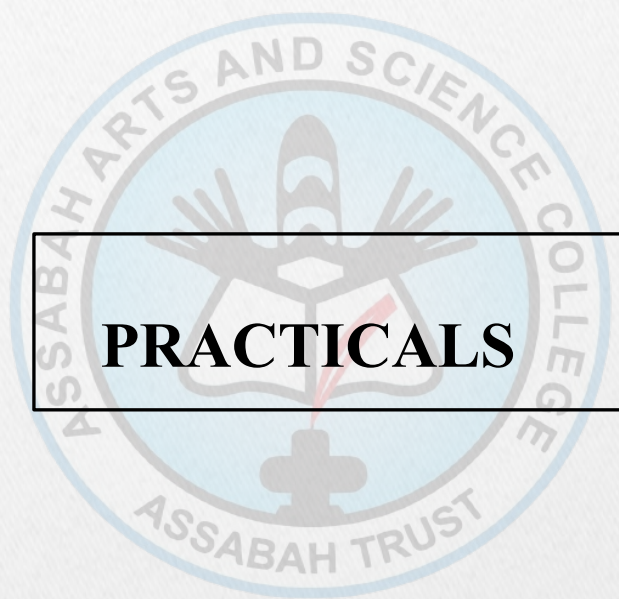


**COMPUTER SCIENCE  
ELECTIVE COURSE**

## SIX SEMESTER

Semester	6
Course Code	BCS6B16A
Course Name	SYSTEM SOFTWARE

Code	CO Statement
CO1	To learn about the concept of system software
CO2	To understand the knowledge of Macros and macro processors
CO3	To Familiarize with Loader and Linkers



**PRACTICALS**

## SECOND SEMESTER

Course Code	LAB1-BCS2B03
Course Name	HTML AND PROGRAMMING IN C

Code	CO Statement
CO1	Analyse a web page and identify its elements and attributes. .
CO2	Create web pages using HTML5 and Cascading Style Sheets.
CO3	Design and develop a web page with Hyperlinks
CO4	Enhance their analysing and problem solving skills and use the same for writing programs in C.
CO5	To write diversified programs using C language

## FOURTH SEMESTER

Course Code	LAB2-BCS4B06
Course Name	DATA STRUCTURES AND RDBMS

Code	CO Statement
CO1	Make use of typical data definitions and manipulation commands
CO2	Test the implementation of nested and join queries
CO3	Develop simple application using views, sequences and synonyms
CO4	Inspect and implement applications that require front-end tools
CO5	Familiarizing with different data structures tools like searching, sorting, Linked List etc

## SIXTH SEMESTER

Course Code	LAB3-BCS6B14
Course Name	JAVA AND PHP PROGRAMMING

Code	CO Statement
CO1	To learn about the Object Oriented Concepts in Java Programming
CO2	To understand the practical knowledge of Web Programming using PHP

## SIXTH SEMESTER

Course Code	LAB 4-BCS6B15
Course Name	ANDROID AND LINUX SHELL PROGRAMMING

Code	CO Statement
CO1	To learn the practical knowledge of Android Programming
CO2	To familiarise with the practical knowledge of shell programming

## SIXTH SEMESTER

Course Code	LAB5-BCS6B17
Course Name	(PROJECT WORK OR RESEARCH METHODOLOGY PAPER) AND INDUSTRIAL VISIT

Code	CO Statement
CO1	To acquire the implementation level knowledge and interaction with industry





**BACHELOR OF COMPUTER  
APPLICATION**

## FIRST SEMESTER

Semester	1
Course Code	BCA1B01
Course Name	COMPUTER FUNDAMENTALS AND HTML

Code	CO Statement
CO1	Familiar with fundamental concepts of computer hardware and software
CO2	have a knowledge of different number system, digital codes and Boolean algebra
CO3	Understand the problem solving aspect
CO4	Demonstrate the algorithm and flowchart for the given problem
CO5	Design a web page with CSS

## SECOND SEMESTER

Semester	2
Course Code	BCA2B02
Course Name	PROBLEM SOLVING USING C

Code	CO Statement
CO1	Interpret the basic principles of C programming
CO2	Acquire decision making and looping concepts
CO3	Design and develop modular programming.
CO4	Explore usage of Arrays, strings, structures, union and files.
CO5	Effective utilisation of pointers and dynamic memory allocation

### THIRD SEMESTER

Semester	3
Course Code	BCA3B04
Course Name	DATA STRUCTURES USING C

Code	CO Statement
CO1	To be familiar with fundamental data structures and with the manner in which these data structures can best be implemented; become accustomed to the description of algorithms in both functional and procedural styles
CO2	To have a knowledge of the complexity of basic operations like insert, delete, search on these data structures.
CO3	Ability to choose a data structure to suitably model any data used in computer applications.
CO4	Design programs using various data structures including hash tables, Binary and general search trees, graphs etc.
CO5	Implement and know the applications of algorithms for sorting, pattern matching

## FOURTH SEMESTER

Semester	4
Course Code	BCA4B05
Course Name	DATABASE MANAGEMENT SYSTEM AND RDBMS

Code	CO Statement
CO1	Gain knowledge of database systems and database management system software
CO2	Ability to model data in applications using conceptual modelling tools such as ER Diagrams and design database schemas based on the model.
CO3	Formulate, using SQL, solutions to a broad range of query and data update problems.
CO4	Demonstrate an understanding of normalisation theory and apply such knowledge to the normalisation of a database.
CO5	Be acquainted with the basics of transaction processing and concurrency control.

## FIFTH SEMESTER

Semester	5
Course Code	BCA5B07
Course Name	COMPUTER ORGANIZATION

Code	CO Statement
CO1	To make students understand the basic structure, operation and characteristics of a digital computer
CO2	To familiarise with Computer Instruction and Interrupt Design
CO3	To make students know the different types of control unit and Addressing Modes
CO4	To familiarise with the Memory organisation including cache memories and virtual memory
CO5	To understand the I/O devices and standard I/O interfaces

## FIFTH SEMESTER

Semester	5
Course Code	BCA5B08
Course Name	JAVA PROGRAMMING

Code	CO Statement
CO1	Knowledge of the structure and model of the Java programming language
CO2	Use the Java programming language for various programming technologies
CO3	Develop software in the Java programming language
CO4	Evaluate user requirements for software functionality required to decide whether the Java programming language can meet user requirements

## FIFTH SEMESTER

Semester	5
Course Code	BCA5B09
Course Name	WEB PROGRAMMING USING PHP

Code	CO Statement
CO1	To understand basics of the Internet and World Wide Web
CO2	To learn basic skill to develop responsive web applications
CO3	To acquire the knowledge of HTML and CSS
CO4	To understand basic concept of client side scripting language - JavaScript
CO5	To understand the server side scripting language -PHP
CO6	To learn about the integration of PHP and PostgreSQL



## FIFTH SEMESTER

Semester	5
Course Code	BCA5B10
Course Name	PRINCIPLES OF SOFTWARE ENGINEERING

Code	CO Statement
CO1	Ability to apply software engineering principles and techniques.
CO2	To produce efficient, reliable, robust and cost-effective software solutions
CO3	Familiarise with Unified Modeling Language
CO4	Acquire the basics of software testing and maintenance phase

## SIXTH SEMESTER

Semester	6
Course Code	BCA6B11
Course Name	ANDROID PROGRAMMING

Code	CO Statement
CO1	To gain knowledge of developing end user application using Android SDK
CO2	To familiarise with Android Resources
CO3	To acquaint with user interfaces development in Android
CO4	To acquire knowledge about creating menus and operating files in Android

## SIXTH SEMESTER

Semester	6
Course Code	BCA6B12
Course Name	OPERATING SYSTEMS

Code	CO Statement
CO1	To Familiarise with the Objectives, functions and types of Operating System
CO2	To have a basic knowledge about process Threads ,Deadlock
CO3	To understand the knowledge of Linux shell programming
CO4	To learn about CPU scheduling and memory management

## SIXTH SEMESTER

Semester	6
Course Code	BCA6B13
Course Name	COMPUTER NETWORKS

Code	CO Statement
CO1	To understand about different network terminologies
CO2	To familiarise with different layers of network
CO3	To understand the functions of data link layer and network layer
CO4	To familiarise with the functions of Transport layer
CO5	To understand the concept of network security and Cryptography



**COMPUTER APPLICATION  
COMMON COURSE**

### THIRD SEMESTER

Semester	3
Course Code	A11
Course Name	PYTHON PROGRAMMING

Code	CO Statement
CO1	Explain basic principles of Python programming language
CO2	Implement decision making and loop statements in Python
CO3	Implement GUI applications using Python
CO4	Explain modular programming concepts using Python
CO5	Familiarise with List,Tuple,Dictionary concepts in Python

### THIRD SEMESTER

Semester	3
Course Code	A12
Course Name	SENSORS AND TRANSDUCERS

Code	CO Statement
CO1	Explain resistance, inductance and capacitance transducers.
CO2	Perceive the concepts of temperature transducers.
CO3	Perceive the concepts level transducers and pressure
CO4	Explain flow transducers, electromagnetic transducers, radiation sensors and sound transducers

## FOURTH SEMESTER

Semester	4
Course Code	A13
Course Name	DATA COMMUNICATION AND OPTICAL FIBRES

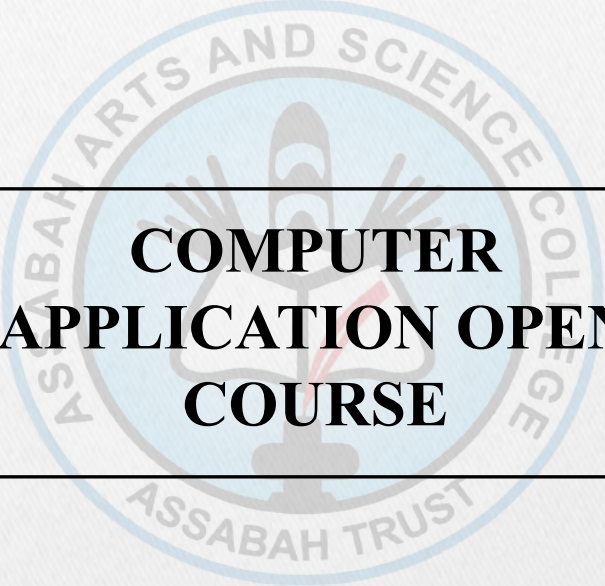
Code	CO Statement
CO1	To Acquaint w i t h the structure of Data Communications System and its components.
CO2	To Familiarise with different network terminologies and transmission media
CO3	To gain knowledge of the different multiplexing techniques ,Telephone system ,Mobile System-GSM
CO4	To become familiar with the functions of a Data Link layer and Switching
CO5	To acquire the knowledge of Optical Fibre Cable and its working



## FOURTH SEMESTER

Semester	4
Course Code	A14
Course Name	MICROPROCESSORS-ARCHITECTURE AND PROGRAMMING

Code	CO Statement
CO1	To study general architecture of microprocessor
CO2	To write assembly language programs ,both simple programs and interfacing programs
CO3	To know how to interface peripheral devices with 8085
CO4	To study the architecture of 8086 microprocessor

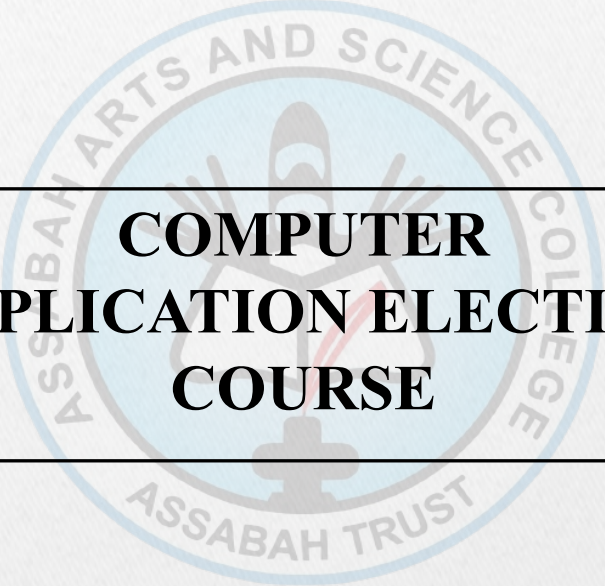


**COMPUTER  
APPLICATION OPEN  
COURSE**

## FIFTH SEMESTER

Semester	5
Course Code	BCS5D01
Course Name	INTRODUCTION TO COMPUTERS AND OFFICE AUTOMATION

Code	CO Statement
CO1	Understand different types of computers
CO2	Learn documentation using Word processing software such as MS word and Open Office Writer
CO3	Learn calculations using spreadsheet MS Excel and Open Office Writer
CO4	Learn presentations using Open Office Impress/MS-PowerPoint):



**COMPUTER  
APPLICATION ELECTIVE  
COURSE**

## SIXTH SEMESTER

Semester	6
Course Code	BCA6B16A
Course Name	SYSTEM SOFTWARE

Code	CO Statement
CO1	To learn about the concept of system software
CO2	To understand the knowledge of Macros and macro processors
CO3	To Familiarise with Loader and Linkers



**COMPUTER APPLICATION  
COMPLEMENTARY  
COURSE**

### THIRD SEMESTER

Semester	3
Course Code	BCA3C06
Course Name	THEORY OF COMPUTATION

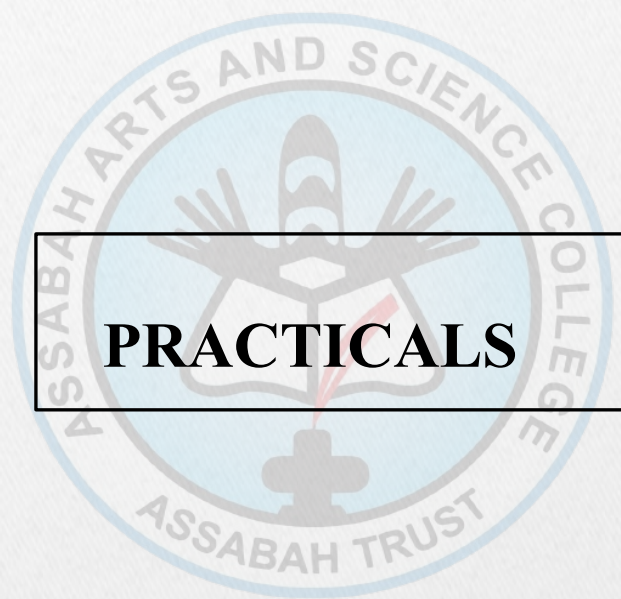
Code	CO Statement
CO1	Remember mathematical preliminaries for sets, languages and proof techniques
CO2	Understand model of computation formal languages and automata
CO3	Apply regular grammars and their automata for applications
CO4	Apply context free grammars and their automata for real applications
CO5	Understand different Turing machine automata

## FOURTH SEMESTER

Semester	4
Course Code	BCA4C08
Course Name	COMPUTER GRAPHICS

Code	CO Statement
CO1	Understand core concepts of computer graphics, including display and input.
CO2	Interpret the mathematical foundation of the concepts of computer graphics.
CO3	Implement various algorithms to scan, convert the basic geometrical primitives, Transformations.
CO4	Define the fundamentals of clipping and algorithms used for clipping.
CO5	Analyze image manipulation using GIMP





**PRACTICALS**

## SECOND SEMESTER

Course Code	LAB1-BCS2B03
Course Name	HTML AND PROGRAMMING IN C

Code	CO Statement
CO1	Analyse a web page and identify its elements and attributes. .
CO2	Create web pages using HTML5 and Cascading Style Sheets.
CO3	Design and develop a web page with Hyperlinks
CO4	Enhance their analysing and problem solving skills and use the same for writing programs in C.
CO5	To write diversified programs using C language

## FOURTH SEMESTER

Course Code	LAB2-BCS4B06
Course Name	DATA STRUCTURES AND RDBMS

Code	CO Statement
CO1	Make use of typical data definitions and manipulation commands
CO2	Test the implementation of nested and join queries
CO3	Develop simple application using views, sequences and synonyms
CO4	Inspect and implement applications that require front-end tools
CO5	Familiarizing with different data structures tools like searching, sorting, Linked List etc

## SIXTH SEMESTER

Course Code	LAB3-BCS6B14
Course Name	JAVA AND PHP PROGRAMMING

Code	CO Statement
CO1	To learn about the Object Oriented Concepts in Java Programming
CO2	To understand the practical knowledge of Web Programming using PHP

## SIXTH SEMESTER

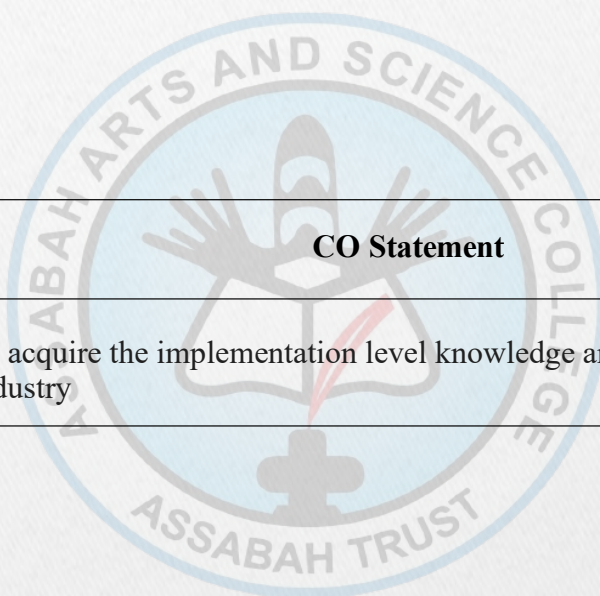
Course Code	LAB 4-BCS6B15
Course Name	ANDROID AND LINUX SHELL PROGRAMMING

Code	CO Statement
CO1	To learn the practical knowledge of Android Programming
CO2	To familiarise with the practical knowledge of shell programming

## SIXTH SEMESTER

Course Code	LAB5-BCS6B17
Course Name	(PROJECT WORK OR RESEARCH METHODOLOGY PAPER) AND INDUSTRIAL VISIT

Code	CO Statement
CO1	To acquire the implementation level knowledge and interaction with industry





**B.Sc. FOOD SCIENCE &  
TECHNOLOGY**

## FIRST SEMESTER

Semester	1
Course Code	FTL1B01
Course Name	PERSPECTIVES OF FOOD SCIENCE & TECHNOLOGY

Code	CO Statement
CO1	Structure and composition of different types of foods.
CO2	Basics of quality assessment, nutritional factors and health foods.
CO3	Knowledge in Food additives (Preservatives, colours, improvers etc).
CO4	An idea about journals, research centers and leading industries.



## SECOND SEMESTER

Semester	2
Course Code	FTL2B03
Course Name	FOOD MICROBIOLOGY

Code	CO Statement
CO1	Understand concept of growth and reproduction of bacteria, relevance of microscopy.
CO2	Understand the basic microbial structure, function and study the comparative characteristics of prokaryotes and eukaryotes and understand the structural similarities and differences among them.

### THIRD SEMESTER

Semester	3
Course Code	FTL3B05
Course Name	FOOD ENGINEERING

Code	CO Statement
CO1	Identify the mechanisms by which various unit operations in food processing optimize food quality and extend shelf life of foods
CO2	Understand principles of heat and mass transfer phenomena
CO3	Describe the theories of refrigeration and freezing
CO4	Understand rheological characteristics of foods
CO5	Understand the working principle of heat exchangers, evaporators, driers and boilers

## FOURTH SEMESTER

Semester	4
Course Code	FTL4B07
Course Name	FOOD CHEMISTRY & ANALYTICAL INSTRUMENTATION

Code	CO Statement
CO1	Exposure to various Instrumental analysis of foods which needed for statutory requirements
CO2	Understand the constituents of foods which are always amenable during processing.
CO3	Knowledge of minor constituents useful to get organoleptic character of foods.

## FIFTH SEMESTER

Semester	5
Course Code	FTL5B10
Course Name	CEREALS, PULSES AND OIL SEEDS TECHNOLOGY

Code	CO Statement
CO1	Familiarize on milling technologies of rice & wheat.
CO2	Knowledge on baking technologies of bread, cake, biscuit and confectionary.
CO3	Knowing the processing methods of pulses, nuts and oilseeds.
CO4	Detailed description of millet chemistry.

## FIFTH SEMESTER

Semester	5
Course Code	FTL5B11
Course Name	FOOD PRESERVATION & PACKAGING TECHNOLOGY

Code	CO Statement
CO1	Signify the importance of various drying methods
CO2	Make knowledge on pros and cons of low temperature preservation
CO3	Optimize the idea on how ionizing radiation can be used for food preservation
CO4	Rely on ancient fermentation method and its application.
CO5	Clear the usual confusion for using various chemical preservatives.
CO6	Dominate the common preservation techniques with the recent and advanced one.
CO7	To be competitive with innovative ideas for developing substantial consumer products.

## FIFTH SEMESTER

Semester	5
Course Code	FTL5B13
Course Name	FOOD MICROBIOLOGY II

Code	CO Statement
CO1	To study the methods of isolation and culturing of microorganisms
CO2	To analyse different types of specimens microbiologically:

## SIXTH SEMESTER

Semester	6
Course Code	FTL6B15
Course Name	DAIRY TECHNOLOGY

Code	CO Statement
CO1	Lists the components of milk.
CO2	Signify the importance of physico chemical properties of milk.
CO3	Providing the importance of dairy processing technologies and equipment used.
CO4	Make more knowledge on different types of market milk and fermented milk products
CO5	Provide more information on CIP methods.

## SIXTH SEMESTER

Semester	6
Course Code	FTL6B16
Course Name	TECHNOLOGY OF ANIMAL FOODS

Code	CO Statement
CO1	Understand the importance of safe slaughtering methods and its significance in food safety
CO2	Innovative ideas on the production of various products
CO3	Describe the methods of preservation of different animal products based on their shelf life.
CO4	Quality parameters of egg and the preservation methods from ancient to modern technologies
CO5	A clear idea on fish processing Technology.



## SIXTH SEMESTER

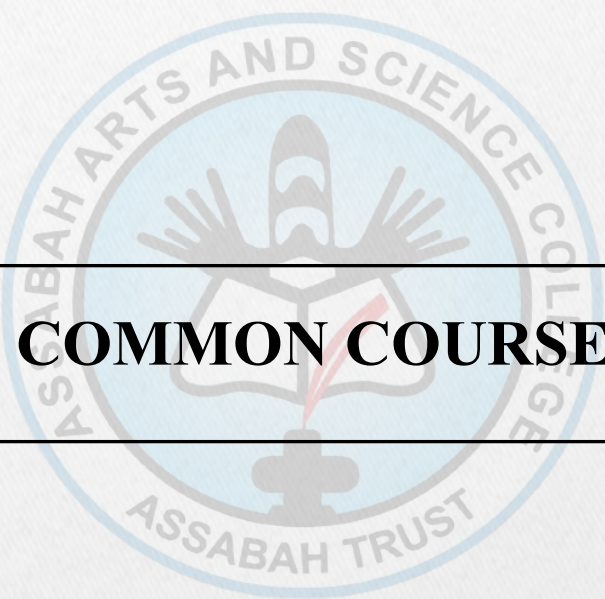
Semester	6
Course Code	FTL6B17
Course Name	FOOD SAFETY, FOOD LAWS &REGULATIONS

Code	CO Statement
CO1	Upon completion of the food safety regulations and packaging paper students will be able to understand the importance of food safety and hygiene and can apply it at industrial level.
CO2	Students will recognize the national and international standards and practices for food safety and can implement it at industries.
CO3	Students can take new concept of food plant sanitation and apply them to another situation
CO4	Students can implement the updated FSSAI act at analysis as well as production level.

## SIXTH SEMESTER

Semester	6
Course Code	FTL6B18
Course Name	TECHNOLOGY OF FRUITS, VEGETABLES, SPICES & PLANTATION

Code	CO Statement
CO1	Exposure to various processing Technology in Spices.
CO2	Understand the importance of Spices in Food industry.
CO3	Acquire knowledge about major spices and its products.
CO4	Understand the physiological changes occurring to fruit and vegetable during processing and storage to recognise and classify the various types of fruit and vegetable.



**COMMON COURSE**

### THIRD SEMESTER

Semester	3
Course Code	A12
Course Name	INFORMATICS AND EMERGING TECHNOLOGIES

Code	CO Statement
CO1	To understand about the basic parts of computer and its memory devices
CO2	To recognise scientific databases
CO3	To distinguish wireless technologies
CO4	To understand the basic principles and applications of optical fibers, lasers,

### THIRD SEMESTER

Semester	3
Course Code	A11
Course Name	BASIC NUMERICAL SKILLS

Code	CO Statement
CO1	To understand set operations
CO2	To acquire knowledge on matrix and operation rules
CO3	To acquire knowledge on solving equations.
CO4	To understand progression, Statistical tools and their applications.

## FOURTH SEMESTER

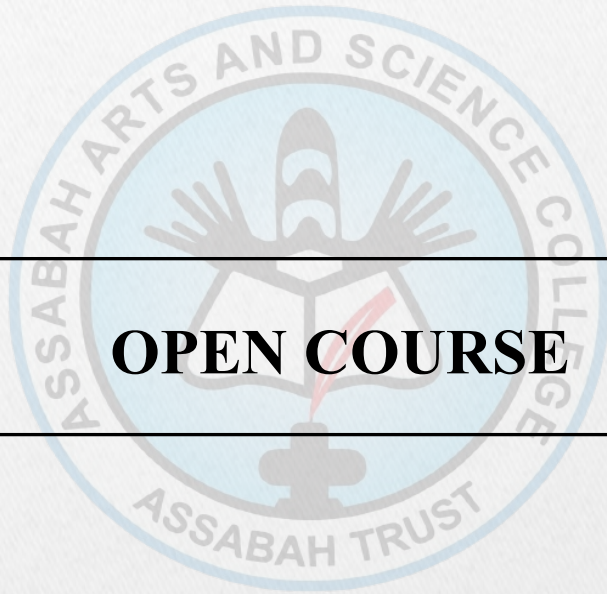
Semester	4
Course Code	A14
Course Name	NUTRITION AND HEALTH

Code	CO Statement
CO1	Developing supplementary nutrition program where ever necessary
CO2	Provided information about appropriate diet.
CO3	Increasing the nutrition knowledge and promoting desirable food behavior and nutritional practice.
CO4	Basic knowledge of what constitute a nutritious diet and how people best meet their nutritional needs from available recourses.
CO5	Understanding the relationship between diet and health and to changing food and nutritional attitude.

## FOURTH SEMESTER

Semester	4
Course Code	A13
Course Name	ENTREPRENEURSHIP AND ENVIRONMENTAL SCIENCE

Code	CO Statement
CO1	To appreciate the role of Entrepreneur in Economic Growth
CO2	To recognise the contradicting nature of industrialization and sustainable development
CO3	To distinguish the types of pollution of water, air and land
CO4	To understand the basic principles and applications of pollution control methods
CO5	To recognise the significance of Environment policies and Regulation



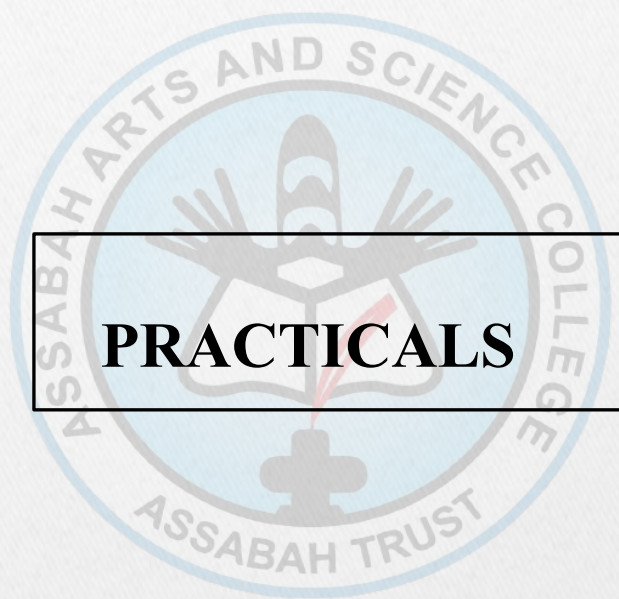
**OPEN COURSE**



### FIFTH SEMEESTER

Semester	5
Course Code	FT5D03
Course Name	FOOD AND HEALTH

Code	CO Statement
CO1	Familiarize basic knowledge of foods includes Nutritional Composition
CO2	Knowledge about Life style diseases and food related diseases.
CO3	acquire knowledge about various food additives and Food adulteration
CO4	Understand Food allergens and Food poison.



**PRACTICALS**

## SECOND SEMESTER

Course Code	FTL2B04(P)
Course Name	FOOD MICROBIOLOGY –I

Code	CO Statement
CO1	Understand various accessories for microbiology practical
CO2	Develop skill to stain bacterial cell

### THIRD SEMESTER

Course Code	FTL3B06 (P)
Course Name	FOOD PROCESSING & PRESERVATION

Code	CO Statement
CO1	Identify the mechanisms by which various unit operations in food processing optimize food quality and extend shelf life of foods
CO2	To understand Sensory evaluation

## FOURTH SEMESTER

Course Code	FTL4B08 (P)
Course Name	FOOD CHEMISTRY & ANALYTICAL INSTRUMENTATION

Code	CO Statement
CO1	To familiarise the principles and working of Instruments for food analysis

## FIFTH SEMESTER

Course Code	FTL5B12 (P)
Course Name	CEREALS, PULSES & OIL SEEDS TECHNOLOGY

Code	CO Statement
CO1	To exposure to various baking technologies including bread, cake, biscuit and confectionaries.

### FIFTH SEMESTER

Course Code	FTL5B13 (P)
Course Name	FOOD MICROBIOLOGY II

Code	CO Statement
CO1	To study the methods of isolation and culturing of microorganisms
CO2	To analyse different types of specimens microbiologically

## FIFTH SEMESTER

Course Code	FT5B14 (P)
Course Name	ANALYSIS OF FOODS

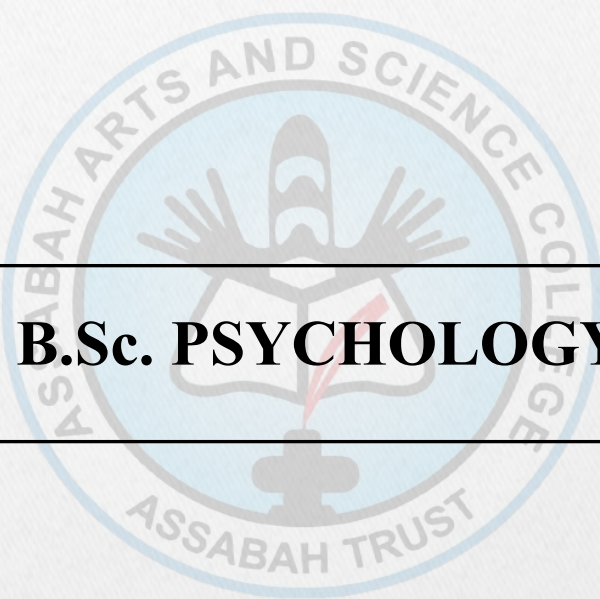
Code	CO Statement
CO1	Understand the physiological changes occurring to fruit and vegetable during processing and storage.
CO2	Be familiar with the processing techniques used for fruit and vegetable



## SIXTH SEMESTER

Course Code	FTL6B20(P)
Course Name	TECHNOLOGY OF ANIMAL FOODS

Code	CO Statement
CO1	By using Gerber method we can check the fat of milk
CO2	By using lactometer we can check the purity of cow's milk
CO3	Different kind of test are performing to determine the adulteration of milk



**B.Sc. PSYCHOLOGY**

## FIRST SEMESTER

Semester	1
Course Code	PSY1B01
Course Name	BASIC THEMES IN PSYCHOLOGY -1

Code	CO Statement
CO1	To make familiar the basic concept of the field of Psychology with an emphasis on applications of Psychology in everyday life.
CO2	To understand the basics of various theories in Psychology.
CO3	To provide basic knowledge about systems and processes like attention, learning, and Consciousness, sleep.

## SECOND SEMESTER

Semester	2
Course Code	PSY2B01
Course Name	BASIC THEMES IN PSYCHOLOGY -11

Code	CO Statement
CO1	To apply memory techniques to improve academic performance.
CO2	To analyze the cognitive processes behind psychological processes.
CO3	To apply learning principles in everyday life.
CO4	To develop skills to motivate self and others in personal and professional life.

### THIRD SEMESTER

Semester	3
Course Code	PSY3B01
Course Name	PSYCHOLOGICAL MEASUREMENT AND TESTING

Code	CO Statement
CO1	To offer a foundation on psychological measurement and testing.
CO2	To provide the basis of test construction and to build up skills in developing psychometric tests.
CO3	To familiarize the uses of psychological tests.
CO4	To make aware of ethical principles in testing.

## FOURTH SEMESTER

Semester	4
Course Code	PSY4B01
Course Name	INDIVIDUAL DIFFERENCES

Code	CO Statement
CO1	To provide theoretical knowledge about systems and processes like intelligence and personality.
CO2	To understand the history of intelligence and Personality Testing.
CO3	To familiarize the student with various types of tests in Psychology.

### FIFTH SEMESTER

Semester	5
Course Code	PSY5B01
Course Name	ABNORMAL PSYCHOLOGY

Code	CO Statement
CO1	To enable students to understand the concepts and historical views of abnormal behavior.
CO2	To develop awareness about different types of anxiety and stress disorders.
CO3	To encourage the students to know different therapeutic techniques in the management of anxiety and stress disorders.
CO4	To understand clusters and types of personality disorders and their management.

## FIFTH SEMESTER

Semester	5
Course Code	PSY5B02
Course Name	SOCIAL PSYCHOLOGY

Code	CO Statement
CO1	Understand and explain behavior in social settings.
CO2	Explain the psychological aspects of various social phenomena.
CO3	To create awareness about managing human behavior in group settings.



### FIFTH SEMESTER

Semester	5
Course Code	PSY5B03
Course Name	DEVELOPMENTAL PSYCHOLOGY

Code	CO Statement
CO1	To understand human development in Psychological Perspectives.
CO2	To create awareness about major Psychological changes along with physical and cognitive development.

## FIFTH SEMESTER

Semester	5
Course Code	PSY5B04
Course Name	PSYCHOLOGICAL COUNSELLING

Code	CO Statement
CO1	To acquire theoretical knowledge in the areas of psychological counseling.
CO2	To understand the applications of counseling in various settings.
CO3	To practice counseling techniques through role-plays.

## FIFTH SEMESTER

Semester	5
Course Code	PSY5B05
Course Name	HEALTH PSYCHOLOGY

Code	CO Statement
CO1	To understand the Psychological, behavioral, and cultural factors contributing to physical and mental health.
CO2	To study the management of different illnesses.

## SIXTH SEMESTER

Semester	6
Course Code	PSY6B01
Course Name	ABNORMAL PSYCHOLOGY 11

Code	CO Statement
CO1	To develop awareness about major psychological disorders.
CO2	To acquaint the students with the causes of major psychological disorders.

## SIXTH SEMESTER

Semester	6
Course Code	PSY6B02
Course Name	APPLIED SOCIAL PSYCHOLOGY

Code	CO Statement
CO1	To familiarize the theoretical concept and research methods in applied Psychology.
CO2	To give knowledge about the application of Social Psychology in different areas like clinical, Educational, health, and media.
CO3	To understand the major social issues in India.

## SIXTH SEMESTER

Semester	6
Course Code	PSY6B03
Course Name	DEVELOPMENT PSYCHOLOGY 11

Code	CO Statement
CO1	To study emotional and social development of life span periods.
CO2	To study vocational development and adjustments in adulthood.
CO3	To understand the period of late adulthood.

## SIXTH SEMESTER

Semester	6
Course Code	PSY6B04
Course Name	LIFE SKILL EDUCATION: APPLICATIONS AND TRAINING

Code	CO Statement
CO1	To enable students to develop theoretical and practical insights about life skills.
CO2	To equip students to deal with the challenges of everyday life.
CO3	To enable them to develop critical thinking
CO4	To learn the concepts through activities and examples from real-life situations

## SIXTH SEMESTER

Semester	6
Course Code	PSY6B05
Course Name	COGNITIVE PSYCHOLOGY

Code	CO Statement
CO1	Understand the fundamental concepts and historical view of cognitive psychology and cognitive processes.
CO2	Understand the evolution of theory and research in cognitive psychology.
CO3	Think critically about how memories are encoded, and stored.
CO4	To analyze the representation and organization of knowledge.



## SIXTH SEMESTER

Semester	6
Course Code	PSY6B06
Course Name	EXPERIMENTAL PSYCHOLOGY 11

Code	CO Statement
CO1	To create interest in the subject matter of psychology.
CO2	To develop scientific and experimental attitudes in the student.
CO3	To facilitate comprehension of the theoretical concepts through experiments.
CO4	To develop the skills of observation and scientific reporting in psychology.
CO5	To provide basic training in planning and conducting a psychological experiment.

## SIXTH SEMESTER

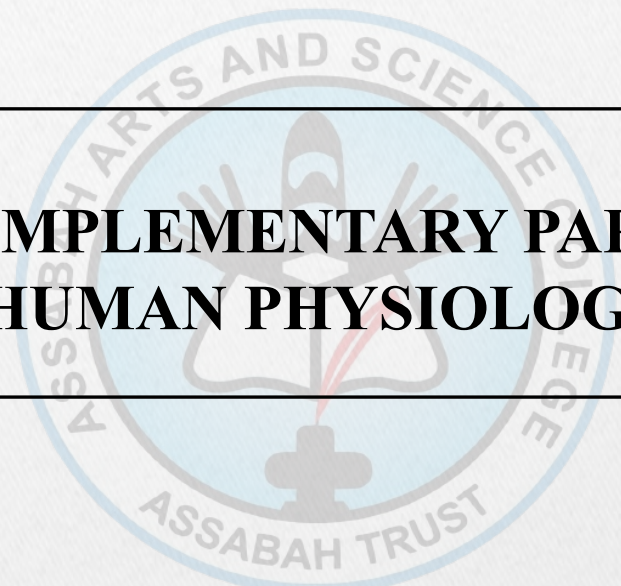
Semester	6
Course Code	PSY6B07
Course Name	EXPERIMENTAL PSYCHOLOGY 111

Code	CO Statement
CO1	To develop the ability to understand self and others.
CO2	To familiarize with psychological instruments and tools
CO3	To generate interest in the analysis of psychological data.
CO4	To develop the skills of testing and scientific reporting in psychology.
CO5	To generate interest in working in the community with a psychological outlook.

## SIXTH SEMESTER

Semester	6
Course Code	PSY6B08
Course Name	PROJECT

Code	CO Statement
CO1	Devise and conduct original and ethical research.
CO2	Develop an understanding of the application of psychological concepts.
CO3	Design and create a dissertation in APA format.
CO4	Gain practical knowledge on empirical/data-based (quantitative, qualitative, or mixed-methods).



**COMPLEMENTARY PAPER:  
HUMAN PHYSIOLOGY**

## FIRST SEMESTER

Semester	1
Course Code	PSG1CO1
Course Name	HUMAN PHYSIOLOGY I

Code	CO Statement
CO1	To familiarize with the most essential and fundamental aspects of cell biology.
CO2	To understand the anatomy and physiology of the nervous system.
CO3	To introduce central nervous system.

## SECOND SEMESTER

Semester	2
Course Code	PSG2CO1
Course Name	HUMAN PHYSIOLOGY II

Code	CO Statement
CO1	To imparts extensive information on the nervous system.
CO2	To understand the states of brain activities and techniques in neurophysiology.
CO3	To master the knowledge about central nervous system.

### THIRD SEMESTER

Semester	3
Course Code	PSG3CO1
Course Name	HUMAN PHYSIOLOGY III

Code	CO Statement
CO1	To familiarize with the sensory systems and pathways
CO2	To learn about the perception of various senses.
CO3	To introduce the student to endocrine system.

## FOURTH SEMESTER

Semester	4
Course Code	PSG4CO1
Course Name	HUMAN PHYSIOLOGY IV

Code	CO Statement
CO1	To familiarize with the most essential and fundamental aspects of physiological processes underlying psychological events.
CO2	To dwell on brain damage and Neuroplasticity.



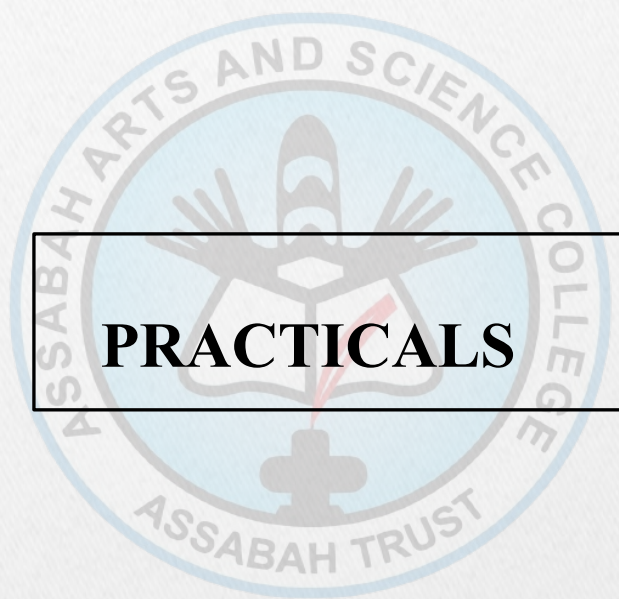


**OPEN COURSE**

## FIFTH SEMESTER

Semester	5
Course Code	PSY5D02
Course Name	LIFE SKILL APPLICATIONS

Code	CO Statement
CO1	To promote life skill education.
CO2	To develop abilities for adaptive and positive behavior.
CO3	To enhance self-confidence and self-esteem.



**PRACTICALS**

## FOURTH SEMESTER

Course Code	PSY4B02
Course Name	EXPERIMENTAL PSYCHOLOGY PRACTICAL I

Code	CO Statement
CO1	To nurture the ability of students to understand himself/herself and other persons.
CO2	To develop the skills of testing and scientific reporting in psychology.
CO3	To familiarize the students with various psychological tests and assessment tools.
CO4	To generate an interest in working in the community with a psychological outlook.

## SIXTH SEMESTER

Course Code	PSY6B06
Course Name	EXPERIMENTAL PSYCHOLOGY 11

Code	CO Statement
CO1	To create interest in the subject matter of psychology.
CO2	To develop scientific and experimental attitudes in the student.
CO3	To facilitate comprehension of the theoretical concepts through experiments
CO4	To develop the skills of observation and scientific reporting in psychology.
CO5	To provide basic training in planning and conducting a psychological experiment.

## SIXTH SEMESTER

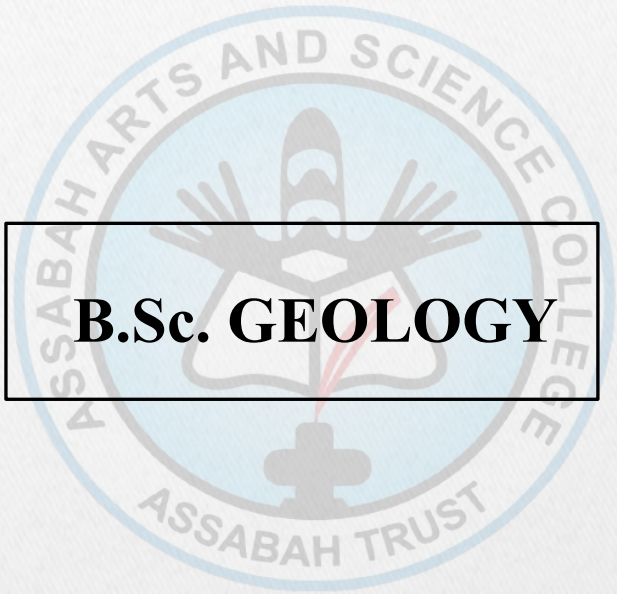
Course Code	PSY6B07
Course Name	EXPERIMENTAL PSYCHOLOGY 111

Code	CO Statement
CO1	To develop the ability to understand self and others.
CO2	To familiarize with psychological instruments and tools
CO3	To generate interest in the analysis of psychological data.
CO4	To develop the skills of testing and scientific reporting in psychology.
CO5	To generate interest in working in the community with a psychological outlook

## SIXTH SEMESTER

Course Code	PSY6B08
Course Name	PROJECT

Code	CO Statement
CO1	Devise and conduct original and ethical research.
CO2	Develop an understanding of the application of psychological concepts
CO3	Design and create a dissertation in APA format.
CO4	Gain practical knowledge on empirical/data-based (quantitative, qualitative, or mixed-methods).



**B.Sc. GEOLOGY**



## FIRST SEMESTER

Semester	1
Course Code	GEO1B01
Course Name	ESSENTIALS OF GEOLOGY

Code	CO Statement
CO1	To explain the origin and evolution of earth, various branches of Geology and elementary ideas of plate tectonics
CO2	To identify the various methods of age determination of earth and also about the time span represented by the Geological Time Scale.
CO3	To discuss about the nature of crystals, the role of minerals in making rocks and also about the rock cycle.
CO4	To describe in detail about earthquakes, volcanism, mass movements and marine processes.

## SECOND SEMESTER

Semester	2
Course Code	GEO2B03
Course Name	DYNAMIC GEOLOGY AND GEOINFORMATICS

Code	CO Statement
CO1	To explain the work of various geological agents, the different processes involved and the resulting landforms
CO2	To describe the fundamental concepts of GIS and its applications in geosciences.
CO3	To discuss the basics of remote sensing, different satellite data products, platforms and sensors.

### THIRD SEMESTER

Semester	3
Course Code	GEO3B05
Course Name	CRYSTALLOGRAPHY AND MINERALOGY

Code	CO Statement
CO1	To explain the different crystal systems, symmetry elements and classification of crystals
CO2	To describe the symmetry elements and forms of the different classes of cubic, tetragonal, hexagonal, orthorhombic, monoclinic and triclinic systems with special reference to the type minerals
CO3	To discuss about twin crystals, effects of twinning and law
CO4	To describe the physical and chemical properties of minerals

## FOURTH SEMESTER

Semester	4
Course Code	GEO4B07
Course Name	OPTICAL AND DESCRIPTIVE MINERALOGY

Code	CO Statement
CO1	To explain double refraction, polarized light and the working of petrological microscope.
CO2	To discuss about the optical classification of minerals and their various optical properties.
CO3	To discuss about the different mineral groups and their properties.

## FIFTH SEMESTER

Semester	5
Course Code	GEO5B09
Course Name	STRUCTURAL GEOLOGY AND GEOTECTONICS

Code	CO Statement
CO1	To describe the fundamental field techniques of structural geology using Brunton compass.
CO2	To discuss rock deformation and various structural features such as folds, faults, joints and unconformities.
CO3	To explain the structure and characteristics of layers of the Earth.
CO4	To describe the concept of plate tectonics and the tectonic evolution of Indian subcontinent

### FIFTH SEMESTER

Semester	5
Course Code	GEO5B10
Course Name	STRATIGRAPHY AND SEDIMENTOLOGY

Code	CO Statement
CO1	To explain the different types of stratigraphic classification.
CO2	To explain the sedimentary processes, classification of sedimentary rocks and different types of sedimentary.
CO3	To describe the textures and structures of sedimentary rocks.
CO4	To discuss the important and typical sedimentary rock types

### FIFTH SEMESTER

Semester	5
Course Code	GEO5B11
Course Name	IGNEOUS PETROLOGY

Code	CO Statement
CO1	To explain the composition and constitution of magma and forms of intrusive igneous rocks
CO2	To describe the textures and structures of igneous rocks
CO3	To discuss the different classification schemes of igneous rocks.
CO4	To explain the crystallization of unicomponent magma, crystallization and petrogenetic significance of Binary magmas
CO5	To describe the various rock types giving their texture, mineralogy, classification, and modes of occurrence.

### FIFTH SEMESTER

Semester	5
Course Code	GEO5B12
Course Name	METAMORPHIC PETROLOGY

Code	CO Statement
CO1	To describe the limits, variables and types of metamorphism.
CO2	To explain the metamorphic structures, textures and mineral paragenesis.
CO3	To explain metamorphic grade, metamorphic facies and the effects of metamorphism on various types of rocks..
CO4	To discuss the petrography and origin of common metamorphic rocks, concepts of prograde and retrograde metamorphism.
CO5	To explain UHP and UHT metamorphism; anatexis and migmatites; metamorphic differentiation, geothermometry and geobarometry; P-T-t paths and tectonic environments..



## FIFTH SEMESTER

Semester	5
Course Code	GEO5D01
Course Name	UNDERSTANDING THE EARTH

Code	CO Statement
CO1	To learn about the layers and of the earth and composition
CO2	Fundamental concepts of plate tectonics
CO3	Oceans, their geological work and ocean bottom topography
CO4	Learn about the natural hazards like earthquakes and landslides

## SIXTH SEMESTER

Semester	6
Course Code	GEO6B17
Course Name	PALAEONTOLOGY

Code	CO Statement
CO1	To describe the fossils and their preservation and uses.
CO2	To explain the general morphology, geological history, distribution and stratigraphic significance of the important phylums of organisms.
CO3	To discuss a brief outline of the classification of vertebrates, general classification of plant kingdom and plant fossils from India.

## SIXTH SEMESTER

Semester	6
Course Code	GEO6B18
Course Name	INDIAN GEOLOGY

Code	CO Statement
CO1	The student will be able to explain the Precambrian stratigraphy of India with particular reference to the important rock units.
CO2	The student will be able to explain the Palaeozoic stratigraphy of India with particular reference to the important rock units.
CO3	The student will be able to explain the Mesozoic stratigraphy of India with particular reference to the important rock units.
CO4	The student will be able to explain the Cenozoic stratigraphy of India with particular reference to the important rock units.

## SIXTH SEMESTER

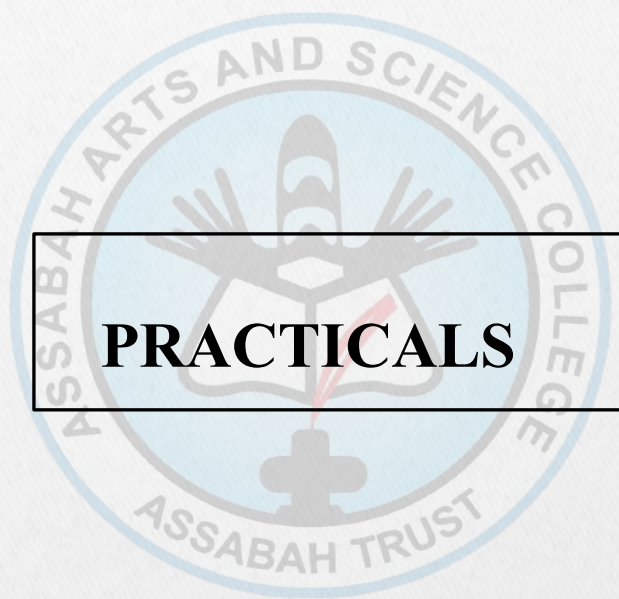
Semester	6
Course Code	GEO6B19
Course Name	ECONOMIC GEOLOGY

Code	CO Statement
CO1	To explain the geochemical distribution of elements, materials of mineral deposits, metallogenic epochs and provinces, geologic thermometers.
CO2	To describe the classification of mineral deposits.
CO3	To explain the various processes of ore formation.
CO4	To describe the diagnostic physical properties, chemical composition, uses, modes of occurrence and distribution in India of the important ore minerals.
CO5	To report the uses, classification, constitution, origin and distribution in India of fossil fuels.

## SIXTH SEMESTER

Semester	6
Course Code	GEO6B22 (E01)
Course Name	ENVIRONMENTAL GEOLOGY

Code	CO Statement
CO1	To describe the scientific method as applied in the earth sciences; and explain the fundamental concepts and man as a geological agent. To describe the scientific method as applied in the earth sciences; and explain the fundamental concepts and man as a geological agent.
CO2	The interaction of man and environmental hazards, explain how earth processes create hazards to life and property.
CO3	The interaction of man and Hydrosphere and the interaction of man and atmosphere.
CO4	Learn about the global energy scenario and geology and waste management.



**PRACTICALS**

## FOURTH SEMESTER

Course Code	GEO4B08(P)
Course Name	GEOINFORMATICS, CRYSTALLOGRAPHY & MINERALOGY: PRACTICAL I

Code	CO Statement
CO1	To identify and classify the mineral using its physical properties.
CO2	To identify and classify the mineral using its optical properties
CO3	To learn with the possibilities of GtAide software in the study of coordinates and toposheets

## SIXTH SEMESTER

Course Code	GEO6B20(P)
Course Name	STRUCTURAL AND ECONOMIC GEOLOGY: PRACTICAL II

Code	CO Statement
CO1	To solve structural problems
CO2	To megascopically identify and describe the minerals together with a description of their Indian occurrences & uses.



## SIXTH SEMESTER

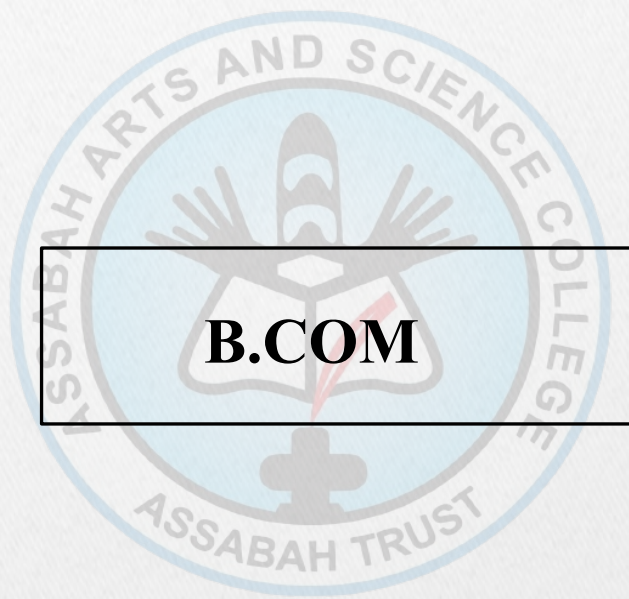
Course Code	GEO6B21(P)
Course Name	PETROLOGY AND PALAEONTOLOGY: PRACTICAL II

Code	CO Statement
CO1	To identify and classify the rocks using its optical properties and mineralogy
CO2	To identify and classify fossils according to their morphological features.

## SIXTH SEMESTER

Course Code	GEO6B23(PR)
Course Name	PROJECT WORK

Code	CO Statement
CO1	Understand research methodology
CO2	Understand and formulate a research project
CO3	Design and implement a research project
CO4	Identify and enumerate the scope and limitations of a research project



**B.COM**

## FIRST SEMESTER

Semester	1
Course Code	BCM1B01
Course Name	BUSINESS MANAGEMENT

Code	CO Statement
CO1	Understand the concept of Management.
CO2	Understand the importance of Management in a global perspective.
CO3	Understand the differences between management and leadership in real life situations.
CO4	Analyze the concept of corporate social responsibility towards various stakeholders.
CO5	Understand about the most modern techniques of management practiced in developed countries.

## FIRST SEMESTER

Semester	1
Course Code	BCM1C01
Course Name	MANAGERIAL ECONOMICS

Code	CO Statement
CO1	Understand Macro & Micro economics & its role in managerial decision making.
CO2	Understand the concept of law of diminishing marginal utility theory.
CO3	Understand the structure and importance of different types of markets
CO4	Understand the role played by government in regulating Indian economy
CO5	Understand a conceptual knowledge regarding India's foreign trade and the application of this knowledge in securing business opportunities.

## SECOND SEMESTER

Semester	2
Course Code	BCM2C02
Course Name	FINANCIAL ACCOUNTING

Code	CO Statement
CO1	Students learn to prepare accounts even from incomplete information.
CO2	The learner learns to prepare Company accounts.
CO3	Understands the concept of debentures and learns to account for debentures.
CO4	Understand the application of IFRS in Companies CO5. Critically learns 'AS' and IFRS.

## SECOND SEMESTER

Semester	2
Course Code	BCM2C02
Course Name	MARKETING MANAGEMENT

Code	CO Statement
CO1	The learner understands the core marketing concepts and consumer buying behaviour.
CO2	The Scholar learns the concept of creating and capturing value.
CO3	Understand the concept of marketing channels in the competitive environment.
CO4	Learns to enrich the firm's competitive strength.
CO5	Understand and develop an idea about the latest trends in e-commerce and e-marketing.

### THIRD SEMESTER

Semester	3
Course Code	BCM3A11
Course Name	BASIC NUMERICAL METHODS

Code	CO Statement
CO1	The learner learns the concepts of equations and quadratic formula.
CO2	Facilitates the scholar to use matrices for large volume data processing.
CO3	This helps to solve problems involving arithmetic and geometric progressions.
CO4	Able to choose the right mode of interest and EMI for debt repayment
CO5	Develop the skill of using descriptive statistical tools.



### THIRD SEMESTER

Semester	3
Course Code	BCM3A12
Course Name	PROFESSIONAL BUSINESS SKILLS

Code	CO Statement
CO1	Facilitates easy business communication
CO2	Improved knowledge of E-learning resources and its delivery broadens vision and insight of management.
CO3	Knowledge of artificial intelligence and data analysis helps to diversify and grow business cutting across obstacles
CO4	Knowledge of existing national and international cyber laws makes communication and business easier.
CO5	Digital marketing and its application of social media channels and advertisements enhances changes and horizons of business.

### THIRD SEMESTER

Semester	3
Course Code	BCM3BO3
Course Name	BUSINESS REGULATIONS

Code	CO Statement
CO1	Helps to establish and run business as directed by the government.
CO2	Knowledge of Indian Contract Act 1872 helps to enter into valid contracts in life and business
CO3	Learning of Sale of Goods Act helps to do business keeping all legal formalities.
CO4	Understanding of the privileges and rights of consumers helps to do legally standing business admitting the status of the customers; increases business and relationships in the long run.
CO5	Able to create LLP business with sound legal knowledge

### THIRD SEMESTER

Semester	3
Course Code	BCM3BO4
Course Name	CORPORATE ACCOUNTING

Code	CO Statement
CO1	Helps to establish and run business as directed by the government.
CO2	Knowledge of Indian Contract Act 1872 helps to enter into valid contracts in life and business.
CO3	Learning of Sale of Goods Act helps to do business keeping all legal formalities.
CO4	Understanding of the privileges and rights of consumers helps to do legally standing business admitting the status of the customers; increases business and relationships in the long run.
CO5	Able to create LLP business with sound legal knowledge

### THIRD SEMESTER

Semester	3
Course Code	BCM3C03
Course Name	HUMAN RESOURCE MANAGEMENT

Code	CO Statement
CO1	Knowledge of human resource management helps to run business effectively.
CO2	Understand the necessary skills required for employment in an organisation.
CO3	Familiarity with the induction and organisational training practices helps to have an effectively trained workforce in the organisation..
CO4	Understand the concept of career planning and performance appraisal.
CO5	Insight on compensation and grievance management practices helps to take effective and appropriate decisions on time.

### FOURTH SEMESTER

Semester	4
Course Code	BCM4A13
Course Name	ENTREPRENEURSHIP DEVELOPMENT

Code	CO Statement
CO1	It motivates the learner to become an entrepreneur
CO2	Knowledge of supports available helps to reap the benefits of easily
CO3	It is intended to trigger the mindset of youth to establish and run MSMEs in life
CO4	Knowledge of establishing industrial units helps to start with business units easily.
CO5	The learner can draft and finalise a project report without external help and support.

## FOURTH SEMESTER

Semester	4
Course Code	BCM4A14
Course Name	BANKING AND INSURANCE

Code	CO Statement
CO1	Candidates get clear picture of the banking business India and he can plan accordingly.
CO2	Knowledge of negotiable instruments, features & formalities helps to deal with care.
CO3	This helps the candidate to be up-to-date in banking formalities and fund transfer.
CO4	Knowledge of insurance business helps to hedge, avoid, and reduce risk in business.
CO5	Knowledge of LIC and IRDA helps to move with Insurance people with confidence.

## FOURTH SEMESTER

Semester	4
Course Code	BCM4B05
Course Name	COST ACCOUNTING

Code	CO Statement
CO1	The learner gets insights into the costing and cost accounting tools and techniques.
CO2	The learner understands the scientific material cost control measures in use..
CO3	The scholar gets used to the scientific labour and overhead cost control measures.
CO4	Knowledge of various methods of costing helps the learner to practice in life.
CO5	Variance analysis helps to identify its causes and take corrective actions.

## FOURTH SEMESTER

Semester	4
Course Code	BCM4BO6
Course Name	CORPORATE REGULATIONS

Code	CO Statement
CO1	Knowledge of Indian Companies Act gives the legislative backgrounds of a company.
CO2	The candidate knows the formalities for formation of a company which will help to form more corporates in life.
CO3	The knowledge of raising funds will help the candidate to choose between debt and equity easily
CO4	The candidate can easily manage a company as he knows the rights, duties and powers of all positions.
CO5	Knowledge of situations when a company may go for liquidation helps to run the business effectively



## FOURTH SEMESTER

Semester	4
Course Code	BCM4C04
Course Name	QUANTITATIVE TECHNIQUES FOR BUSINESS

Code	CO Statement
CO1	Knowledge of QT broadens vision and outlook of the candidate to face business problems.
CO2	Understanding of correlation and regression analysis helps to predict with greater degree of accuracy.
CO3	Awareness of probability and other theories helps to have critical thinking and rational decisions.
CO4	Familiarity with theoretical distributions helps to correlate issues with standard theories and take decisions.
CO5	Knowledge of LPP and modeling will be of great help in decision making.

### FIFTH SEMESTER

Semester	5
Course Code	BCM5B07
Course Name	ACCOUNTING FOR MANAGEMENT

Code	CO Statement
CO1	To make the learner aware of the methodologies of Management Accounting
CO2	It is to make the candidate learn how to conceive and interpret financial statements
CO3	Ratios are very helpful tools for analysis and interpretations.
CO4	Knowledge of movements in working capital helps to check/control flow of funds/cash.
CO5	Knowledge of CVP analysis will be of great help for managerial decision making.

### FIFTH SEMESTER

Semester	5
Course Code	BCM5B08
Course Name	BUSINESS RESEARCH METHODS

Code	CO Statement
CO1	The learner knows the primary matters of business research
CO2	The student know how to fix a research design, scaling checking validity etc
CO3	The candidate knows the method of data collection and its processing and validation.
CO4	The learner knows to process collected data, test hypothesis and arrive at conclusions
CO5	The student knows well how to write an academic report and present it

### FIFTH SEMESTER

Semester	5
Course Code	BCM5B09
Course Name	INCOME TAX LAW AND ACCOUNTS

Code	CO Statement
CO1	To understand the method and methodology of taxation on income in India.
CO2	To learn the provisions related to computation of Taxable Salary Income.
CO3	Knowledge of taxing income from house property helps the learner to compute taxable income under the head House Property correctly.
CO4	Knowledge of computing income under the head profits and gains of business or profession helps the learner to do it effectively in life.
CO5	Knowledge of computing income under the head Capital Gains and other sources makes the learner self-confident and competent to practice income tax.



**FINANCE SPECIALISATION**

## FINANCE SPECIALIZATION

Semester	5
Course Code	BCM5B10
Course Name	FINANCIAL MARKETS AND SERVICES

Code	CO Statement
CO1	The; learner acquires thorough knowledge about the financial markets and products available
CO2	The scholar understands Indian Money Market, Players in the market, Instruments traded, and their functions.
CO3	The candidate gets clear idea of the composition Indian Capital Market, Who all are the major players in it, how indices are constructed and major indices in use. This will help the candidate to enter such a market with confidence.
CO4	The Student get acquainted with various NBFCs in playing in India, major instruments traded in the country, factoring, leasing etc.
CO5	The scholar gets clear idea of the regulatory mechanism in India and role of RBI and SEBI in enforcing transparent fair dealings. This will help the candidate to master the topic easily with confidence.

## FINANCE SPECIALIZATION

Semester	5
Course Code	BCM5B11
Course Name	FINANCIAL MANAGEMENT

Code	CO Statement
CO1	Knowledge of financial management and time of value money helps decisions making effective.
CO2	Understanding of capital investment evaluation techniques makes investment selection easier.
CO3	Familiarity with cost of capital helps to use capital judiciously
CO4	Knowledge of dividend policies helps to take appropriate decision on dividend
CO5	Helps to have effective working capital management.

## COOPERATION SPECIALIZATION

Semester	5
Course Code	BCM5B10
Course Name	CO-OPERATIVE THEORY AND PRACTICE

Code	CO Statement
CO1	It helps to learn about cooperation, cooperative movement and its principles
CO2	It facilitates a comparative study of cooperation and other economic systems
CO3	It helps to learn cooperative training houses and methods of training.
CO4	Ideas on different types of cooperatives help to choose from as when needed.
CO5	History of successful business houses motivates people to start new cooperative business houses.



### COOPERATION SPECIALIZATION

Semester	5
Course Code	BCM5B11
Course Name	LEGAL ENVIRONMENT FOR CO-OPERATIVES

Code	CO Statement
CO1	Knowledge of cooperative movement in India helps to form new cooperatives.
CO2	Knowledge of cooperative legislation helps to go by law and make valid decisions.
CO3	Learning of Kerala Cooperative Societies Act helps to run societies easily.
CO4	Administrative set up of Cooperatives helps to contact the right person at the right time.
CO5	Banking Regulation Act helps to have a comparative study of both the Acts.



**COMPUTER APPLICATION  
SPECIALISATION**

## COMPUTER APPLICATION SPECIALIZATION

Semester	5
Course Code	BCM5B10
Course Name	COMPUTER APPLICATIONS IN BUSINESS

Code	CO Statement
CO1	Knowledge of networking and its application business helps students to learn in a networked community much easily.
CO2	Knowledge of website creation and its updation and maintenance magnifies the identity and scope of business at much cheaper a cost.
CO3	This helps to grow business across boarders easily.
CO4	Students become more competitive in this digital era for he knows these entire well.
CO5	Knowledge of the threats present in the Net helps to take preventive measures early and thereby could be avoided on time

## COMPUTER APPLICATION SPECIALIZATION

Semester	5
Course Code	BCM5B11
Course Name	BUSINESS INFORMATION SYSTEMS

Code	CO Statement
CO1	Knowledge of MIS helps to gather, process and take decisions easily.
CO2	It helps to provide right information at the right time at the right quantity
CO3	Knowledge of DBMS helps to process data scientifically keeping all manifestations.
CO4	Understanding of ERP helps easy automation and results in reduced costs.
CO5	Business Process Reengineering results in increased dignity in business and profits



# **TRAVEL AND TOURISM**

## TRAVEL AND TOURISM

Semester	5
Course Code	BCM5B10
Course Name	TOURISM PRINCIPLES AND PRACTICES

Code	CO Statement
CO1	Helps to have a clear idea of what, why and how tourism. CO2. It assists to assess the positive and negative aspects of tourism.
CO2	Knowledge of intermediaries and agencies in tourism help to grow faster and wider.
CO3	It helps to have a planned growth over short, medium and long run.
CO4	Knowledge of new initiatives in tourism helps to reap the benefits of modern tourism opportunities.

## TRAVEL AND TOURISM

Semester	5
Course Code	BCM5B11
Course Name	TOURISM PRODUCT AND PROMOTION

Code	CO Statement
CO1	Learners will be more competent to tap the potential tourism avenues.
CO2	Awareness of natural tourism spots helps to increase business and profit.
CO3	Understanding of the tourism potential of cultural events will be an added advantage.
CO4	The candidates have clear ideas about the potential of each and every tourism activity.
CO5	Knowledge of agencies engaged in promotion of tourism helps to grow

## SIXTH SEMESTER

Semester	6
Course Code	BCM6B12
Course Name	INCOME TAX & GST

Code	CO Statement
CO1	Students will be able to Compute tax liability of individuals
CO2	The Learner can do filing of returns of income meeting statutory obligations
CO3	The scholars understand the concept of GST and e-filing procedures
CO4	The candidates understand the offences and penalties under the Acts.
CO5	The Learner learns the rights, duties and powers of CAG and tax authorities.



## SIXTH SEMESTER

Semester	6
Course Code	BCM6B13
Course Name	AUDITING AND CORPORATE GOVERNANCE

Code	CO Statement
CO1	Knowledge of auditing helps give newer insights and wide vision on the topic.
CO2	Learn to do verification, vouching and valuation independently.
CO3	.Knows to set internal control systems effectively to check frauds, errors and omissions.
CO4	Solid understanding of the models and benefits of corporate governance.
CO5	Evaluate different stakeholders' roles and significance in corporate governance.



# **FINANCE SPECIALISATION**

## SIXTH SEMESTER

Semester	6
Course Code	BCM6B14
Course Name	FUNDAMENTALS OF INVESTMENT

Code	CO Statement
CO1	Develops a broad understanding of the concept of investment management
CO2	Learn security valuation of bonds, preference shares and equity shares
CO3	Study calculation of return on investment and expected return through examples
CO4	Understand analysis of securities, approaches, tools, stock charts, patterns and theories
CO5	Understands portfolio management, analysis and redress issues easily.

## SIXTH SEMESTER

Semester	6
Course Code	BCM6B15
Course Name	FINANCIAL DERIVATIVES

Code	CO Statement
CO1	This helps to master the capital market segment and derivatives market
CO2	This develops knowledge on derivatives trading and its legal framework
CO3	It helps to differentiate between various types of derivatives.
CO4	Understand the trading strategies adopted on option trading
CO5	It helps to learn forwards, futures, and swaps.



**COOPERATION  
SPECIALISATION**

## SIXTH SEMESTER

Semester	6
Course Code	BCM6B14
Course Name	INTERNATIONAL CO-OPERATIVE MOVEMENT

Code	CO Statement
CO1	Acquire knowledge about the cooperative movement in the world
CO2	Understand the structure and aim of international alliances
CO3	Be aware about the significance of international organizations.
CO4	Impart knowledge on the inter-cooperative relations in the country.

## SIXTH SEMESTER

Semester	6
Course Code	BCM6B15
Course Name	CO-OPERATIVE MANAGEMENT AND ADMINISTRATION

Code	CO Statement
CO1	Understand the concepts and characteristics of cooperatives
CO2	Understand the functional and management aspects of cooperatives
CO3	Develop an insight about cooperative leadership
CO4	Equip students with preparation of documents and financial statements Develop skills do verification and valuation of assets and liabilities.



**COMPUTER APPLICATION  
SPECIALISATION**



## SIXTH SEMESTER

Semester	6
Course Code	BCM6B14
Course Name	OFFICE AUTOMATION TOOLS

Code	CO Statement
CO1	Students understand how to prepare documents using MS-WORD
CO2	Learner demonstrates excel spreadsheets and its applications.
CO3	The candidate knows Power Point Presentations and its use in business meetings.
CO4	Scholar acquires Knowledge on distribute and client-server computing.
CO5	Understand the applications of the internet in the field of business education and governance.

## SIXTH SEMESTER

Semester	6
Course Code	BCM6B15
Course Name	COMPUTERIZED ACCOUNTING WITH TALLY

Code	CO Statement
CO1	Helps to develop awareness on accounting concepts and principles
CO2	Aids to perform documentation, accounting and inventory operations using Tally
CO3	Assist preparation of financial statements, tax documents, budgets and presentations
CO4	Develop adequate knowledge on accounting information system and their application.
CO5	To excel in budgets, reporting and accounting using Tally



# **TRAVEL AND TOURISM**

## TRAVEL AND TOURISM

Semester	6
Course Code	BCM6B14
Course Name	TOURIST TRANSPORT AND TOUR OPERATION

Code	CO Statement
CO1	Knowledge of tourist transport system in the world helps to do business in tourism
CO2	Understanding of the merits and demerits of air travel helps easy movement of tourist
CO3	An idea of the various agencies in tourism helps to do business easily
CO4	Knowledge of other professionals in tourism will be of great use.

## TRAVEL AND TOURISM

Semester	6
Course Code	BCM6B15
Course Name	HOSPITALITY MANAGEMENT

Code	CO Statement
CO1	Scholars learn the importance of hospitality in tourism and thereby increased business.
CO2	Knowledge of the hospitality industry and its dimensions give newer insights.
CO3	Understanding and fixation of duties and responsibilities of front office and Housekeeping help to avoid clashes.
CO4	Knowledge of customer needs and taste helps to keep a group of satisfied customers.
CO5	Information on safety and security in tourism helps to have sustainable growth.

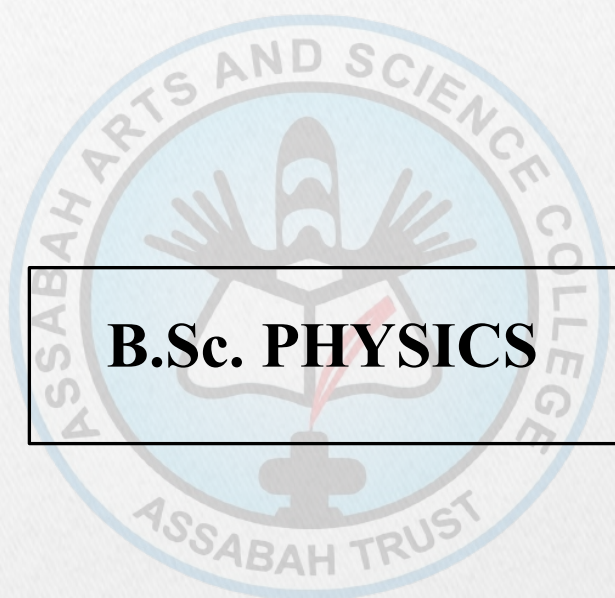


**OPEN COURSE - B.COM**

**OPEN COURSE- B.COM**

Semester	5
Course Code	BCM5D03
Course Name	BASIC ACCOUNTING

<b>Code</b>	<b>CO Statement</b>
CO1	Principles of Accounting while recording business transactions and preparing various ledger accounts and Prepare the final accounts of sole trading concerns to evaluate their performance



**B.Sc. PHYSICS**



## SEMESTER 1

Semester	1
Course Code	PHY1B01
Course Name	MECHANICS – I

Code	CO Statement
CO1	Understand and apply the basic concepts of Newtonian Mechanics to Physical Systems
CO2	Understand and apply the basic idea of work-energy theorem to physical systems
CO3	Understand and apply the rotational dynamics of rigid bodies.

## SEMESTER 2

Semester	2
Course Code	PHY2B02
Course Name	MECHANICS – II

Code	CO Statement
CO1	Understand the features of non-inertial systems and fictitious forces
CO2	Understand and analyze the features of central forces with respect to planetary forces
CO3	Understand the basic ideas of Harmonic Oscillations
CO4	Understand the analyze the basic concepts of wave motion

### SEMESTER 3

Semester	3
Course Code	PHY3B03
Course Name	ELECTRODYNAMICS I

Code	CO Statement
CO1	Understand and apply the fundamentals of vector calculus
CO2	Understand and analyze the electrostatic properties of physical systems
CO3	Understand the mechanism of electric fields in matter.
CO4	Understand and analyze the magnetic properties of physical systems
CO5	Understand the mechanism of magnetic field in matter.

## SEMESTER 4

Semester	4
Course Code	PHY4B04
Course Name	ELECTRODYNAMICS II

Code	CO Statement
CO1	Understand the basic concepts of electrodynamics
CO2	Understand and analyze the properties of electromagnetic waves
CO3	Understand the behavior of transient currents
CO4	Understand the basic aspects of ac circuits
CO5	Understand and apply electrical network theorems

## SEMESTER 5

Semester	5
Course Code	PHY5B06
Course Name	COMPUTATIONAL PHYSICS

Code	CO Statement
CO1	Understand the Basics of Python programming
CO2	Understand the applications of Python modules
CO3	Understand the basic techniques of numerical analysis
CO4	Understand and apply computational techniques to physical problems

## SEMESTER 5

Semester	5
Course Code	PHY5B07
Course Name	QUANTUM MECHANICS

Code	CO Statement
CO1	Understand the particle properties of electromagnetic radiation
CO2	Describe Rutherford – Bohr model of the atom
CO3	Understand the wavelike properties of particles
CO4	Understand and apply the Schrödinger equation to simple physical systems
CO5	Apply the principles of wave mechanics to the Hydrogen atom

## SEMESTER 5

Semester	5
Course Code	PHY5B08
Course Name	OPTICS

Code	CO Statement
CO1	Understand the fundamentals of Fermat's principles and geometrical optics
CO2	Understand and apply the basic ideas of interference of light
CO3	Understand and apply the basic ideas of diffraction of light
CO4	Understand the basics ideas of polarization of light
CO5	Describe the basic principles of holography and fiber optics

## SEMESTER 5

Semester	5
Course Code	PHY5B09
Course Name	ELECTRONICS (ANALOG & DIGITAL)

Code	CO Statement
CO1	Understand the basic principles of rectifiers and dc power supplies
CO2	Understand the principles of transistor
CO3	Understand the working and designing of transistor amplifiers and oscillators
CO4	Understand the basic operation of Op – Amp and its applications
CO5	Understand the basics of digital electronics



## SEMESTER 6

Semester	6
Course Code	PHY6B10
Course Name	THERMODYNAMICS

Code	CO Statement
CO1	Understand the zero and first laws of thermodynamics
CO2	Understand the thermodynamics description of the ideal gas
CO3	Understand the second law of thermodynamics and its applications
CO4	Understand the basic ideas of entropy
CO5	Understand the concepts of thermodynamic potentials and phase transitions

## SEMESTER 6

Semester	6
Course Code	PHY6B11
Course Name	STATISTICAL PHYSICS, SOLID STATE PHYSICS, SPECTROSCOPY & PHOTONICS

Code	CO Statement
CO1	Understand the basic principles of statistical physics and its applications
CO2	Understand the basic aspects of crystallography in solid state physics
CO3	Understand the basic elements of spectroscopy
CO4	Understand the basics ideas of microwave and infra-red spectroscopy
CO5	Understand the fundamental ideas of photonics

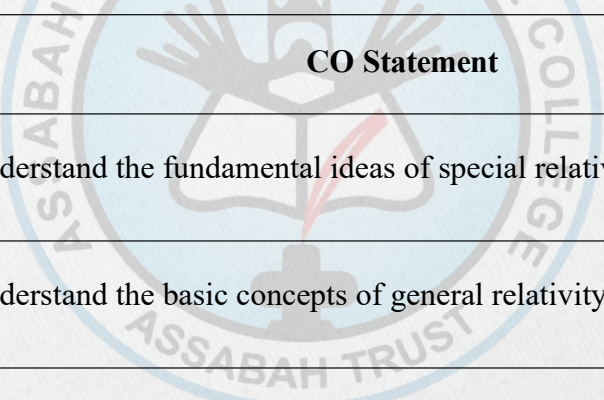
## SEMESTER 6

Semester	6
Course Code	PHY6B12
Course Name	NUCLEAR PHYSICS AND PARTICLE PHYSICS

Code	CO Statement
CO1	Understand the basic aspects of nuclear structure and fundamentals of radioactivity
CO2	Describe the different types of nuclear reactions and their applications
CO3	Understand the principle and working of particle detectors
CO4	Describe the principle and working of particle accelerators
CO5	Understand the basic principles of elementary particle physics

## SEMESTER 6

Semester	6
Course Code	PHY6B13
Course Name	RELATIVISTIC MECHANICS AND ASTROPHYSICS



Code	CO Statement
CO1	Understand the fundamental ideas of special relativity
CO2	Understand the basic concepts of general relativity and cosmology
CO3	Understand the basic techniques used in astronomy
CO4	Describe the evolution and death of stars
CO5	Describe the structure and classification of galaxies

## SEMESTER 6

Semester	6
Course Code	PHY6B14 (EL1)
Course Name	BIOMEDICAL PHYSICS

Code	CO Statement
CO1	Understand the basic principles of biophysics
CO2	Understand the fundamentals of medical instrumentation
CO3	Understand the principles of ultrasound and x-ray imaging
CO4	Understand the basic principles of NMR
CO5	Describe the applications of lasers in medicine

## SEMESTER 6

Semester	6
Course Code	PHY6B14 (EL2)
Course Name	NANOSCIENCE AND TECHNOLOGY

Code	CO Statement
CO1	Understand the elementary concepts of nanoscience
CO2	Understand the electrical transport mechanisms in nanostructures
CO3	Understand the applications of quantum mechanics in nanoscience
CO4	Understand the fabrication and characterization techniques of nanomaterials
CO5	Enumerate the different applications of nanotechnology

## SEMESTER 6

Semester	6
Course Code	PHY6B14 (EL3)
Course Name	MATERIALS SCIENCE

Code	CO Statement
CO1	Understand the basic ideas of bonding in materials
CO2	Describe crystalline and non crystalline materials
CO3	Understand the types of imperfections and diffusion mechanisms in solids
CO4	Describe the different properties of ceramics and polymers
CO5	Describe the different types of material analysis techniques



# COMPLEMENTARY COURSES



### COMPLEMENTARY COURSES

Semester	1
Course Code	PHY1C01
Course Name	Properties of matter & Thermodynamics

Code	CO Statement
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

### COMPLEMENTARY COURSES

Semester	2
Course Code	PHY2C02
Course Name	Optics, Laser & Electronics

Code	CO Statement
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

### COMPLEMENTARY COURSES

Semester	3
Course Code	PHY3C03
Course Name	Mechanics, Relativity, Waves and Oscillations

Code	CO Statement
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

### COMPLEMENTARY COURSES

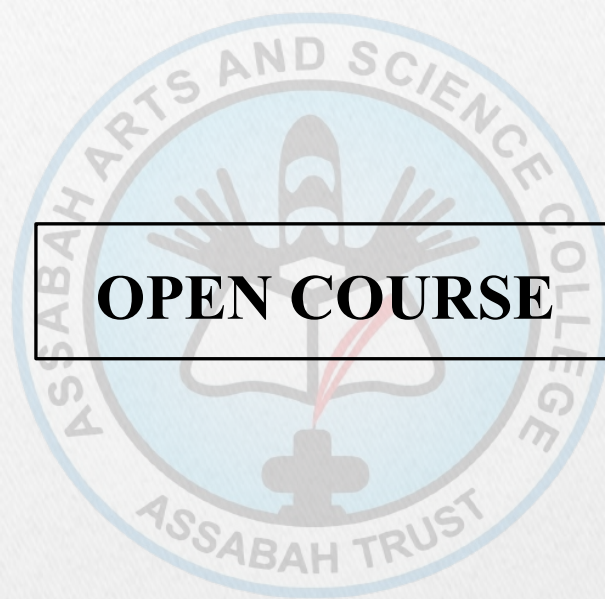
Semester	4
Course Code	PHY4C04
Course Name	Electricity, Magnetism and Nuclear physics

Code	CO Statement
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

### SEMESTER 1 TO 4

Semester	1-4
Course Code	PHY4C05
Course Name	PHYSICS PRACTICALS I

Code	CO Statement
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

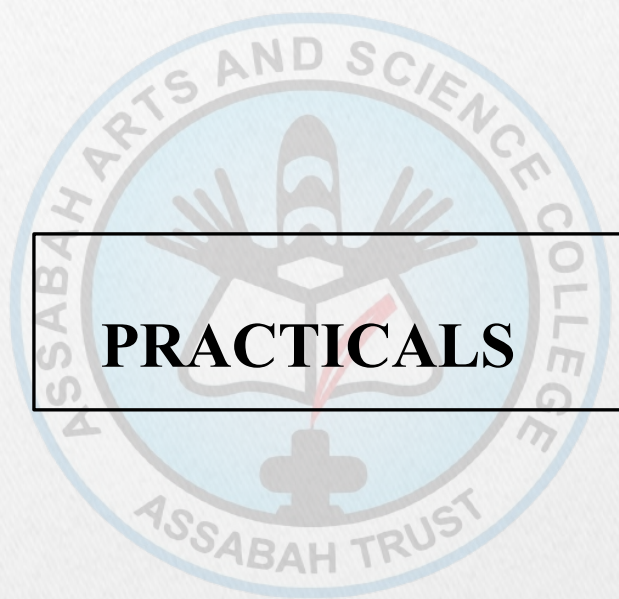


# OPEN COURSE

## SEMESTER 5

Semester	5
Course Code	PHY5D01(1)
Course Name	NON CONVENTIONAL ENERGY SOURCES

Code	CO Statement
CO1	Understand the importance of non conventional energy sources
CO2	Understand basic aspects of solar energy
CO3	Understand basic principles of wind energy conversion
CO4	Understand the basic ideas of geothermal and biomass energy and recognize their merits and demerits
CO5	Understand the basic ideas of oceans and chemical energy resources and recognize their merits and demerits



# PRACTICALS



## FOURTH SEMESTER

Course Code	PHY4B05
Course Name	PRACTICAL I

Code	CO Statement
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

## SIXTH SEMESTER

Course Code	PHY6B15
Course Name	PRACTICAL II

Code	CO Statement
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 and spectroscopy through experiments
CO4	Apply and illustrate the principles of heat through experiments

## SIXTH SEMESTER

Course Code	PHY6B16
Course Name	PRACTICAL III

Code	CO Statement
CO1	Apply and illustrate the principles of semiconductor diode and transistor through experiments
CO2	Apply and illustrate the principles of transistor amplifier and oscillator through experiments
CO3	Apply and illustrate the principles of digital electronics through experiments
CO4	Analyze and apply computational techniques in Python programming

## SIXTH SEMESTER

Course Code	PHY6B17(P)
Course Name	PROJECT

Code	CO Statement
CO1	Understand research methodology
CO2	Understand and formulate a research project
CO3	Design and implement a research project
CO4	Identify and enumerate the scope and limitations of a research project

## SIXTH SEMESTER

Course Code	PHY6B17(R)
Course Name	RESEARCH METHODOLOGY (In lieu of Project)

Code	CO Statement
CO1	Understand research methodology
CO2	Understand the concept of measurement in research
CO3	Understand the significance and limitations of experimentation in research
CO4	Understand and formulate a research project, ethics and responsibility of scientific research



**B.A. ENGLISH LANGUAGE  
AND LITERATURE**

## SEMESTER 1

Semester	1
Course Code	ENG1B01
Course Name	INTRODUCING LITERATURE

Code	CO Statement
CO1	Differentiate between with the different aspects of the language of literature.
CO2	Discover the linguistic structures of poetic texts.
CO3	Distinguish diverse points of view within a single text and locate the rationale of polyphony.
CO4	Determine and interpret the dominant voice/s within the text and its agendas.
CO5	Discriminate marginalized voices and determine themselves to the voices of the child, Dalit, transgender and female.

## SEMESTER 2

Semester	2
Course Code	ENG2B02
Course Name	APPRECIATING POETRY

Code	CO Statement
CO1	Outline the basic elements of poetry, the stylistic and rhetorical devices and various genres of poetry.
CO2	Analyse and identify the trends in poetry and the linguistic structures of poetic texts.
CO3	Discover various perspectives in reading poetry like gender, race, caste, ethnicity, religion, region, environment and nation.
CO4	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.
CO5	Appreciate poetry as an art form.



### SEMESTER 3

Semester	3
Course Code	ENG3B03
Course Name	APPRECIATING PROSE

Code	CO Statement
CO1	Develop critical thinking.
CO2	Interpret and appreciate different types of prose.
CO3	Identify different styles of prose writing and understand the use of literary devices.
CO4	Identify, analyse, interpret and describe the critical ideas, values, and themes that appear in literary and cultural texts
CO5	Develop creative writing skills.

### SEMESTER 3

Semester	3
Course Code	ENG3B04
Course Name	ENGLISH GRAMMAR AND USAGE

Code	CO Statement
CO1	Determine the key concepts of English grammar and to apply them more sensitively in their day-to-day communication needs.
CO2	Manipulate the language in a better way by understanding of the sentence patterns in English.
CO3	Develop a sense of English grammar, idioms, syntax, semantics and their usage
CO4	Develop the logical and analytical skills in the use of language for communication.
CO5	Appraise contemporary English usage.

#### SEMESTER 4

Semester	4
Course Code	ENG4B05
Course Name	APPRECIATING FICTION

Code	CO Statement
CO1	Develop critical thinking and imagination through long and short fiction
CO2	Interrelate cultural diversity through different representative samples of fiction.
CO3	Discover the pleasures in reading fiction.
CO4	Critique human condition and the complexities of life.
CO5	Discover different types of fiction and analyse them.

## SEMESTER 4

Semester	4
Course Code	ENG4B06
Course Name	LITERARY CRITICISM

Code	CO Statement
CO1	Differentiate between judgment and appreciation.
CO2	Identify various movements and schools of thought
CO3	Critique plays, passages and poems
CO4	Recognize the history and principles of literary criticism since Plato
CO5	Develop the philosophical and critical skills with which literature can be appreciated.
CO6	Appraise important texts and movements in the history of literary criticism.
CO7	Demonstrate how literary criticism shapes literature and culture across centuries.
CO8	Recognize and critique the major arguments underlying critical writings.
CO9	Compare and contrast critical perspectives of Indian Poetics and Western critical concepts. SEMESTER 5:

## SEMESTER 5

Semester	5
Course Code	ENG5B07
Course Name	APPRECIATING DRAMA AND THEATRE

Code	CO Statement
CO1	Establish and illustrate the basic elements of drama, including the historical progress of drama in different continents.
CO2	appreciate drama as an art form.
CO3	Identify the different genres and masters of drama.
CO4	assess the theatrical performances and the texts and evaluate them critically from various standpoints.
CO5	Explain the insights, conventions and experimentation associated with English Drama.
CO6	Demonstrate how writers use the resources language as a creativity
CO7	Point out the entire range of human experience through drama as a literary form.

## SEMESTER 5

Semester	5
Course Code	ENG5B08
Course Name	LITERARY THEORY

Code	CO Statement
CO1	Develop an understanding of important texts and movements in the history of literary theory.
CO2	Critique literature and culture in the context of theory.
CO3	Develop various perspectives of thinking and critique the major arguments presented in theory.
CO4	Construct a pluralistic perspective of culture and literature in a multicultural society.
CO5	Identify, analyze, interpret and describe the critical ideas, values, and themes that appear in literary and cultural texts .
CO6	Identify the origin of critical ideas in literature
CO7	Define the function of criticism.

## SEMESTER 5

Semester	5
Course Code	ENG5B09
Course Name	LANGUAGE AND LINGUISTICS

Code	CO Statement
CO1	Recognize key concepts of Linguistics and develop awareness of latest trends in Language Study
CO2	Point out the features of languages, their sounds, their ways of forming words, their sentence structures, and their systems of expressing meaning.
CO3	Examine through an objective study the relation of language with human mind and communicative action
CO4	Operate the features of pronunciation and their general standards in every day conversation and in reading.
CO5	Develop a sense of English syntax and will be able to provide complete syntactic analyses for sentences of English
CO6	Develop a sense of awareness of principles of language that govern the distribution of morphology and how morphology interacts with other components of language.
CO7	Recognize the fundamental topics in semantics and develop a concept of different semantic levels.

## SEMESTER 5

Semester	5
Course Code	ENG5B10
Course Name	INDIAN WRITING IN ENGLISH

Code	CO Statement
CO1	Correlate the various phases of the evolution of Indian writing in English.
CO2	Delineate the thematic concerns, genres and trends of Indian writing in English .
CO3	Recognize the pluralistic aspects of Indian culture and identity.
CO4	Determine how and why Indian literature emerged as a distinct field of study
CO5	Identify the development of history of Indian English literature from its beginning to the present day.
CO6	Interpret the works of great writers of Indian writers in English.
CO7	Demonstrate, through discussion and writing, an understanding of significant cultural and societal issues presented in Indian English literature.



## SEMESTER 6

Semester	6
Course Code	ENG6B11
Course Name	VOICES OF WOMEN

Code	CO Statement
CO1	Generalize and infer on what grounds women's writings can be considered as a separate genre.
CO2	Interpret texts written by Women writers across different cultures.
CO3	Differentiate between sex and gender and how the latter is a social construction
CO4	Identify the issues and concerns of the women writers of the developed, developing and under-developed countries.
CO5	Identify the misconceptions regarding women and to evolve a human perspective about them
CO6	Develop a keen interest in analyzing critically the diversity of women's experiences across the world and to marvel at their creative skills.

## SEMESTER 6

Semester	6
Course Code	ENG6B12
Course Name	CLASSICS OF WORLD LITERATURE

Code	CO Statement
CO1	Identify the classic literature and thereby composite cultures of the world
CO2	Develop cross cultural perspectives
CO3	Classify literary texts in English or English translation in terms of their main stylistic and thematic features.
CO4	Describe the literary, historical, social and cultural backgrounds of these texts.
CO5	Identify some of the main theoretical and methodological issues involved in reading World Literature.

## SEMESTER 6

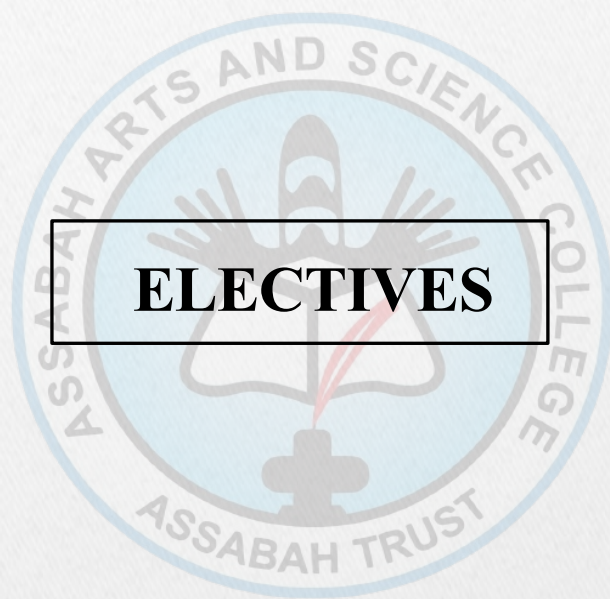
Semester	6
Course Code	ENG6B13
Course Name	FILM STUDIES

Code	CO Statement
CO1	Appraise film as an art form and its aesthetics.
CO2	Relate and connect film with history, politics, technology, psychology and performance.
CO3	Appraise the nature of representation on screen and how class, race ethnicity and sexuality are represented.
CO4	Develop analytical skills so that the student can produce informed and thorough close readings of films
CO5	Discover the articulation of a film's content, form and structure.
CO6	Identify and define the formal and stylistic elements of film.
CO7	Develop an understanding of film language and terminology, and analyze the ways in which that this language constructs meaning and ideology.
CO8	Identify and interpret significant film movements and key concepts.
CO9	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.

## SEMESTER 6

Semester	6
Course Code	ENG6B14
Course Name	NEW LITERATURES IN ENGLISH

Code	CO Statement
CO1	Distinguish diverse cultures and modes of expression.
CO2	Discuss issues of cultural plurality and hybridity
CO3	Identify literary negotiations of colonization and decolonization, identity, inequality, marginalization and so on.
CO4	Point out the canon of English literature, Commonwealth literature, Post Colonialism and the context of New Literatures



**ELECTIVES**

## ELECTIVES

Semester	6
Course Code	JOU12CO1
Course Name	INTRODUCTION TO COMMUNICATION AND JOURNALIS

Code	CO Statement
CO1	To attain the basic concepts of communication and the evolution of mass communication.
CO2	The knowledge gained from the course should act as a gateway and navigator to the various branches of mass communication.
CO3	To gain the capacity to examine the media and to develop better working of the perspectives of media

## SEMESTER 6

Semester	6
Course Code	JOU43CO1
Course Name	JOURNALISTIC PRACTICES

Code	CO Statement
CO1	Provide the students with practical knowledge in reporting and editing.
CO2	Introduce them to the other journalistic practices like P.R. and advertising.



**COMPLEMENTARY  
COURSES**



### COMPLEMENTARY COURSES

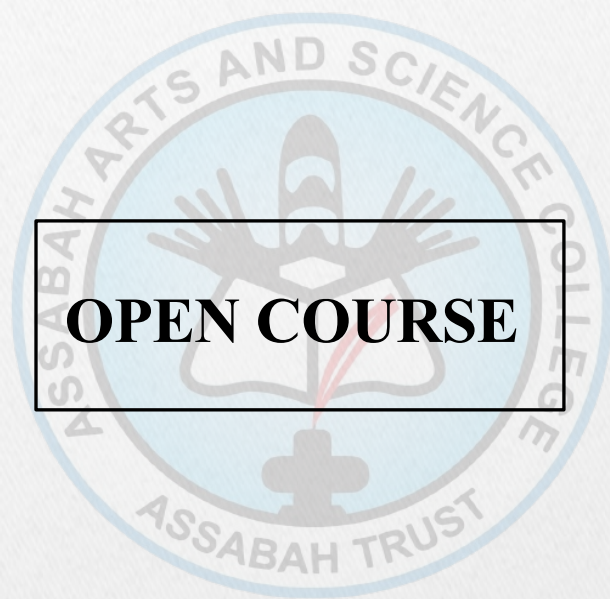
Semester	6
Course Code	ENG1(2)C02
Course Name	HISTORY OF ENGLISH LITERATURE – I

Code	CO Statement
CO1	Outline the origin and evolution of English Language
CO2	Identify the various stages in the evolution of language from the early period to the romantic revival
CO3	Discover the various socio-political forces and contexts that influenced English language and literature at different historical contexts
CO4	Point out the pattern of changes language has undergone at different stages.

### COMPLEMENTARY COURSES

Semester	6
Course Code	ENG 4(3) C02
Course Name	HISTORY OF ENGLISH LITERATURE – II

Code	CO Statement
CO1	Outline the history of English Language from the Victorian age to the present day
CO2	Identify the various forces that worked together to form and shape modern English language
CO3	Indicate the various socio-political forces and contexts that influenced English language and also literature
CO4	Survey the pattern of changes language has undergone at different stages.
CO5	Develop a historical view of English literature
CO6	Point out the entire range of human experience through drama as a literary form.



**OPEN COURSE**

## OPEN COURSES

Semester	5
Course Code	ENG5D03
Course Name	APPRECIATING LITERATURE

Code	CO Statement
CO1	Identify the different aspects of the language of literature.
CO2	Discover the features of creative texts.
CO3	Distinguish diverse points of view in creative writing
CO4	Determine the genres of literary works.
CO5	Discover the function of literary texts as a reflection of life in its philosophical and social level



**PROJECT WORK/ RESEARCH  
METHODOLOGY**

**PROJECT WORK/ RESEARCH  
METHODOLOGY**

Semester	6
Course Code	ENG6B21
Course Name	PROJECT

Code	CO Statement
CO1	Demonstrate knowledge of and an ability to conduct research work in the several areas related to language and literature.
CO2	identify, define and demonstrate the research problem
CO3	Create original research projects which assess the contributions and/or complexities of a selected writer, literary movement, aspects of language etc.
CO4	Assess, critique, evaluate a project work and construct meaningful tools for it



**BACHELOR OF BUSINESS  
ADMINISTRATION**

## SEMESTER 1

Semester	1
Course Code	BBA1B01
Course Name	MANAGEMENT THEORY AND PRACTICES

Code	CO Statement
CO1	Discuss different schools of management thought
CO2	Understand apply the concepts of planning, organizing, staffing and controlling for effective management.
CO3	Aware and apply the ethically and socially responsible behavior in management.
CO4	Aware and pursue the modern management practices in business



## SEMESTER 1

Semester	1
Course Code	BBA1CO1
Course Name	MANAGERIAL ECONOMICS

Code	CO Statement
CO1	Acquire knowledge regarding relevant economic concepts applicable in managerial decisions
CO2	Design competition strategies, including costing, pricing, product differentiation and market environment according to the nature of products and the structures of the markets
CO3	Make optimal business decisions by integrating the concepts of economics

## SEMESTER 2

Semester	2
Course Code	BBA2B02
Course Name	FINANCIAL ACCOUNTING

Code	CO Statement
CO1	Discuss and apply fundamental accounting concepts, principles and conventions
CO2	Record basic accounting transactions and prepare annual financial statements for a sole proprietorship business.
CO3	Record accounting transactions in respect of hire purchase and installments system and branches.

## SEMESTER 2

Semester	2
Course Code	BBA2B03
Course Name	MARKETING MANAGEMENT

Code	CO Statement
CO1	Understand and develop insights and knowledge base of various concepts that driving marketing strategies.
CO2	Develop skills in organizing for effective marketing and in implementing the market planning process.

### SEMESTER 3

Semester	3
Course Code	BBA3A11
Course Name	BASIC NUMERICAL METHODS

Code	CO Statement
CO1	to understand, numerical equations, matrix, progression, financial mathematics, descriptive statistics and their applications.

### SEMESTER 3

Semester	3
Course Code	BBA3A12
Course Name	PROFESSIONAL BUSINESS SKILLS

Code	CO Statement
CO1	To update and expand basic Informatics skills of the students.
CO2	To equip the students to effectively utilize the digital knowledge resources for their study

### SEMESTER 3

Semester	3
Course Code	BBA3BO4
Course Name	CORPORATE ACCOUNTING

Code	CO Statement
CO1	Understand and apply fundamental IndASs on inventories, PPE, provisions, income tax, borrowing cost and intangible assets.
CO2	Prepare annual financial statements for companies and compute accounting ratios.
CO3	Record accounting transactions in respect of redemption of preference shares and debentures

### SEMESTER 3

Semester	3
Course Code	BBA3BO5
Course Name	FINANCIAL MANAGEMENT

Code	CO Statement
CO1	Understand and develop insights and knowledge base of various concepts of finance.
CO2	Develop skills for effective Financial, Investment and Dividend decisions making.

### SEMESTER 3

Semester	3
Course Code	BBA3CO2
Course Name	BUSINESS REGULATIONS

Code	CO Statement
CO1	Analyse statutory provisions and the core concepts in business laws.
CO2	Analyze legal issues arising in day-to-day business operations prevalent in India .
CO3	Discuss possible solutions to issues in organizations in the frame work of business law



## SEMESTER 4

Semester	4
Course Code	BBA4A13
Course Name	ENTREPRENEURSHIP DEVELOPMENT

Code	CO Statement
CO1	To familiarize the students with the concept of entrepreneurship.
CO2	To identify and develop the entrepreneurial talents of the students.
CO3	To generate innovative business ideas in the emerging industrial scenario

### SEMESTER 4

Semester	4
Course Code	BBA4A14
Course Name	BANKING AND INSURANCE

Code	CO Statement
CO1	To enable the students to acquire knowledge about basics of Banking and Insurance.
CO2	To familiarize the students with the modern trends in banking.

#### SEMESTER 4

Semester	4
Course Code	BBA4B06
Course Name	COST AND MANAGEMENT ACCOUNTING

Code	CO Statement
CO1	Understand cost and management accounting concepts and its application for decision making.
CO2	Aware as to cost consciousness and the various methods and techniques of costing

## SEMESTER 4

Semester	4
Course Code	BBA4C03
Course Name	CORPORATE REGULATIONS

Code	CO Statement
CO1	Understand the features and different types of companies.
CO2	Aware as to the formation of companies and also as to different documents of companies.
CO3	Understand the share capital and other relevant provisions of the same.
CO4	Understand the management, corporate governance, corporate social responsibility and some basic aspects of SEBI.
CO5	Understand the provisions of conducting meetings and also the winding up procedure of companies.

## SEMESTER 4

Semester	4
Course Code	BBA4C04
Course Name	QUANTITATIVE TECHNIQUES FOR BUSINESS

Code	CO Statement
CO1	Understand and develop insights and knowledge base of various concepts of Quantitative Techniques.
CO2	Develop skills for effectively analyze and apply Quantitative Techniques in decision making

## SEMESTER 5

Semester	5
Course Code	BBA5B07
Course Name	HUMAN RESOURCES MANAGEMENT

Code	CO Statement
CO1	Develop insights on various concepts and Functions of Human Resource Management.
CO2	Learn the latest trends in Human Resource Management

## SEMESTER 5

Semester	5
Course Code	BBA5B08
Course Name	BUSINESS RESEARCH METHODS

Code	CO Statement
CO1	Understand and develop insights and knowledge base of various concepts in Research.
CO2	Develop skills for conducting business research

## SEMESTER 5

Semester	5
Course Code	BBA5B09
Course Name	OPERATIONS MANAGEMENT

Code	CO Statement
CO1	Understand the different concepts of operation Management.
CO2	Acquire the knowledge to make plans at the operational level of an industry



## SEMESTER 5

Semester	5
Course Code	BBA5B10
Course Name	INCOME TAX

Code	CO Statement
CO1	On completing the course the students will be able to understand the latest provisions of Income Tax Act Law and be able to compute different heads of income as well as total income and tax liability.

## SEMESTER 5

Semester	5
Course Code	BBA5B11
Course Name	FINANCIAL MARKETS AND INSTITUTIONS

Code	CO Statement
CO1	The course helps to understand different aspects and components of financial Institutions and financial markets. This will enable the students to make rational decisions on the financial market and institutions.

## SEMESTER 6

Semester	6
Course Code	BBA6B12
Course Name	ORGANISATIONAL BEHAVIOR

Code	CO Statement
CO1	To familiarize the students with the basic concepts of individual behavior and organizational behavior.
CO2	To enable the students to catch an idea about inter-personal and group behavior.
CO3	To acquire knowledge regarding organizational change and organizational development.

## SEMESTER 6

Semester	6
Course Code	BBA6B13
Course Name	MANAGEMENT SCIENCE

Code	CO Statement
CO1	On completion of the course the students will be able to learn different OR techniques useful in managerial decisions

## SEMESTER 6

Semester	6
Course Code	BBA6B14
Course Name	PROJECT MANAGEMENT

Code	CO Statement
CO1	Understand the different concepts of managing a project.
CO2	Analyse the viability of a project.

## SEMESTER 6

Semester	6
Course Code	BBA6B15
Course Name	FINANCIAL SERVICES

Code	CO Statement
CO1	On completion of the course students will be able to be aware of various financial services available in the Indian financial system.

## SEMESTER 6

Semester	6
Course Code	BBA6B16
Course Name	INVESTMENT MANAGEMENT

Code	CO Statement
CO1	By completing the course students will be able to aware of various investment opportunities from an investor's perspective of maximizing return on investment.



**OPEN COURSE - BBA**



## SEMESTER 5

Semester	5
Course Code	BBA5D02
Course Name	E-COMMERCE

Code	CO Statement
CO1	Know the basics of E-Commerce and the various Business Models of E-Commerce. This enhances the students' skills for designing and developing websites
CO2	It helps them to use the emerging modes of E-payment



**B.Sc. MATHEMATICS**

## SEMESTER 1

Semester	1
Course Code	MTS 1B 01
Course Name	BASIC LOGIC AND NUMBER THEORY

Code	CO Statement
CO1	Prove result involving divisibility, greatest common divisor, least common multiple, and a few Applications.
CO2	Understand the theory and method of solutions of LDE.
CO3	Solve linear congruent equations.
CO4	Learn three classical theorems Wilson's theorem ,fermats theorem, Euler's theorem and a few important consequences

## SEMESTER 1

Semester	1
Course Code	MTS1C01
Course Name	MATHEMATICS 1

Code	CO Statement
CO1	Fundamental ideas of limit ,continuity,and differentiability.
CO2	Increasing and decreasing functions ,local maxima,minima,concavity,and inflection points.To apply these ideas in drawing the graphs of functions.
CO3	To find the solution of maximum minimum problems using the idea of derivatives.The mean value theorem and L Hopital's rule.
CO4	Riemann sums,fundamental theorem of calculus and proof,average values and the mean value theorem for integrals
CO5	To solve the area problem ,the problem of finding the arc length of a plane curve and volume of solids

## SEMESTER 2

Semester	2
Course Code	MTS2B02
Course Name	CALCULUS OF SINGLE VARIABLE 1

Code	CO Statement
CO1	To introduce students to the fundamental ideas of limit, continuity and differentiability and also to some basic theorems of differential calculus
CO2	It is also shown how these ideas can be applied in the problem of sketching of curves and in the solution of some optimization problems of interest in real life..
CO3	finding out the area of a planar region. The idea of definite integral is defined with the notion of limits.
CO4	The notion of definite integral not only solves the area problem but is useful in finding out the arc length of a plane curve, volume and surface areas of solids and so on.

## SEMESTER 2

Semester	2
Course Code	MTS1C02
Course Name	MATHEMATICS 2

Code	CO Statement
CO1	Represent points in polar coordinates and convert from one system to another. Graphing in polar Coordinates
CO2	Derivatives and anti-derivatives of hyperbolic and inverse hyperbolic functions, arc length and surface area, of revolution, improper integrals..
CO3	Limit of sequences, integral using trapezoidal rule and Simpson's rule, convergence and divergence of series
CO4	Matrix theory, rank and inverse of matrix, eigen values and eigen vectors, diagonalization

### SEMESTER 3

Semester	3
Course Code	MTS3B03
Course Name	CALCULUS OF SINGLE VARIABLE 2

Code	CO Statement
CO1	The natural logarithm function is defined and its properties are examined. This allows us to define its inverse function namely the natural exponential function and also the general exponential function.
CO2	Certain combinations of exponential functions namely hyperbolic functions that also arise very frequently in applications such as the study of shapes of cables hanging under their own weight.
CO3	the idea of improper integrals, their convergence and evaluation. This enables to study a related notion of convergence of a series, which is practically done by applying several different tests such as integral test, comparison test and so on
CO4	idea of parametrization of curves, they learn how to calculate the arc length, curvature etc. using parametrization and also the area of surface of revolution of a parametrized plane curve.
CO5	vectors in dealing with the problems involving geometry of lines, curves, planes and surfaces in space and have acquired the ability to sketch curves in plane and space given in vector valued form.

### SEMESTER 3

Semester	3
Course Code	MTS3C03
Course Name	MATHEMATICS 3

Code	CO Statement
CO1	idea of limit, continuity, derivative of vector valued functions.
CO2	Tangent plane, normal fine-grained function, double and triple integral,
CO3	Curl and divergence of vector field, line, surface and triple integrals.
CO4	Green's theorem, Gauss theorem, stokes theorem and applications, harmonic function and them relation with analytic function
CO5	Complex integration, Cauchy -Gour sat theorem, Cauchy integral formula



## SEMESTER 4

Semester	4
Course Code	MTS4B04
Course Name	LINEAR ALGEBRA

Code	CO Statement
CO1	Solving systems of linear equations is a basic tool of many mathematical to perform matrix algebra and also to calculate the inverse and determinant of a matrix..
CO2	algebraic properties under vector addition and scalar multiplication will make them realize that the idea of a general vector space is in fact an abstraction of what they already know. general properties of vector spaces are studied
CO3	The idea of a subspace, spanning vectors, basis and dimension are discussed and fundamental results in these areas are explored. to understand the relationship among the solutions of a given system of linear equations
CO4	some important subspaces associated with the coefficient matrix of the system. , some basic matrix transformations in the vector spaces $\mathbb{R}^2$ and $\mathbb{R}^3$ , having Just like choosing an appropriate coordinate system.
CO5	eigenvalues and eigenvectors of a given matrix, the idea of diagonalization of a matrix (and hence the diagonalization of a matrix operator) is introduced and students learn a few fundamental results involving diagonalization

## SEMESTER 4

Semester	4
Course Code	MTS4C04
Course Name	MATHEMATICS 4

Code	CO Statement
CO1	The major classification of differential equations and the conditions for the existence of solutions of first and second order initial value problems
CO2	Formulate a mathematical model of a physical process and to solve the first order differential equations that are linear, separable, exact and Bernoulli's forms
CO3	Numerical method of solving a differential equation using Euler's method and the method of solving the second order linear homogeneous and non-homogeneous equations with constant coefficients
CO4	Method of reduction of order to find a second solution of linear second order equation by reducing to linear first order equation and the method of solution of Cauchy Euler equation.
CO5	Linear models and boundary value problems, solving a differential equation using the Laplace method which is useful to deal with problems in engineering
CO5	Fourier series and technique of solving partial differential equations using the method of separation of variables

## SEMESTER 5

Semester	5
Course Code	MTS5B05
Course Name	ABSTRACT ALGEBRA

Code	CO Statement
CO1	Basic ideas and results of abstract algebra. Students understand the abstract notion of a group, learn several examples, are taught to check whether an algebraic system forms a group or not and are introduced to some fundamental results of group theory. The idea of structural similarity, the notion of cyclic group, permutation group, various examples and very fundamental results in the areas are also explored

## SEMESTER 6

Semester	6
Course Code	MTS5B06
Course Name	BASIC ANALYSIS

Code	CO Statement
CO1	to learn and deduce rigorously many properties of real number system by assuming a few fundamental facts about it as axioms. In particular they will learn to prove Archimedean property, density theorem, existence of a positive square root for positive numbers and so on
CO2	to know about sequences ,their limits, several basic and important theorems involving sequences and their applications . For example, they will learn how monotone convergence theorem can be used in establishing the divergence of the harmonic series,
CO3	to understand some basic topological properties of real number system such as the concept of open and closed sets, their properties, their characterization and so on.
CO4	to get a rigorous introduction to algebraic, geometric and topological structures of complex number system, functions of complex variable, their limit and continuity and so on.

## SEMESTER 5

Semester	5
Course Code	MTS5B07
Course Name	NUMERICAL ANALYSIS

Code	CO Statement
CO1	Understand several methods such as bisection method, fixed point iteration method, regula falsi method etc. to find out the approximate numerical solutions of algebraic and transcendental equations with desired accuracy.
CO2	Understand the concept of interpolation and also learn some well known interpolation techniques.
CO3	Understand a few techniques for numerical differentiation and integration and also realize their merits and demerits.
CO4	Find out numerical approximations to solutions of initial value problems and also to understand the efficiency of various methods.

## SEMESTER 5

Semester	5
Course Code	MTS5B08
Course Name	LINEAR PROGRAMMING

Code	CO Statement
CO1	solve linear programming problems geometrically.
CO2	understand the drawbacks of geometric methods.
CO3	solve LP problems more effectively using Simplex algorithm via. the use of condensed tableau of A.W. Tucker
CO4	convert certain related problems, not directly solvable by simplex method, into a form that can be attacked by simplex method..
CO5	understand duality theory, a theory that establishes relationships between linear programming problems of maximization and minimization
CO6	understand game theory and solve transportation and assignment problems by algorithms that take advantage of the simpler nature of these problems

## SEMESTER 5

Semester	5
Course Code	MTS5B09
Course Name	INTRODUCTION TO GEOMETRY AND THEORY OF EQUATIONS

Code	CO Statement
CO1	Understand several basic facts about parabola, hyperbola and ellipse (conics) such as their equation in standard form, focal length properties, and reflection properties, their tangents and normal.
CO2	Recognized and classify conics.
CO3	Understand Kleinian view of Euclidean geometry.
CO4	Understand affine transformations, the inherent group structure, the idea of parallel projections and the basic properties of parallel projections.
CO5	Understand the fundamental theorem of affine geometry.
CO6	Learn to solve polynomial equations up to degree four

## SEMESTER 5

Semester	5
Course Code	MTS5D04
Course Name	MATHEMATICS FOR DECISION MAKING

Code	CO Statement
CO1	Understand the classification of data, various data collection techniques
CO2	Learn to visualize various types of data with the use of frequency chart and appropriate graphs
CO3	understand measures of central tendency, variation and position.
CO4	Conditional probability, addition rule, theories of probability
CO5	probability distribution of discrete and continuous variables., normal and standard normal distribution.



## SEMESTER 6

Semester	6
Course Code	MTS6B10
Course Name	REAL ANALYSIS

Code	CO Statement
CO1	Continuous functions, formulate sequential criteria for continuity and prove or disprove continuity of functions using this criterion.
CO2	Understand several deep and fundamental results of continuous functions on intervals such as boundedness theorem, maximum minimum theorem, intermediate value theorem, preservation of interval theorem and so on.
CO3	Realize the difference between continuity and uniform continuity and equivalence of these ideas for functions on closed and bounded intervals.
CO4	Understand the significance of uniform continuity in continuous extension theorem. 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.
CO5	Understand a few basic and fundamental results of integration theory. Formulate Cauchy criterion for integrability and a few applications of it. In particular they learn to use Cauchy criteria in proving the non-integrability of certain functions.
CO6	Understand classes of functions that are always integrable. Understand two forms of fundamental theorem of calculus and their significance in the practical problem of evaluation of an integral.
CO7	Understand the difference between pointwise and uniform convergence of sequences and series of functions. Learn and find out examples/counterexamples to prove or disprove the validity of several mathematical statements that arise naturally in the process/context of learning.
CO8	Understand the notion of improper integrals, their convergence, principal value and evaluation. Beta Gamma functions.

## SEMESTER 6

Semester	6
Course Code	MTS6B11
Course Name	COMPLEX ANALYSIS

Code	CO Statement
CO1	to understand the difference between differentiability and analyticity of a complex function and construct examples. To understand necessary and sufficient conditions for checking analyticity.
CO2	to know of harmonic functions and their connection with analytic functions to know a few elementary analytic functions of complex analysis and their properties. to understand the definition of complex integral, its properties and evaluation.
CO3	to know a few fundamental results on contour integration theory such as Cauchy's theorem, Cauchy-Goursat theorem and their applications.
CO4	to understand and apply Cauchy's integral formula and a few consequences of it such as Liouville's theorem, Morera's theorem and so forth in various situations. To see the application of Cauchy's integral formula in the derivation of power series expansion of an analytic function.
CO5	to know a more general type of series expansion analogous to power series expansion viz. Laurent's series expansion for functions having singularity. To understand how Laurent's series expansion lead to the concept of residue, which in turn provide another fruitful way to evaluate complex integrals and, in some cases, even real integrals.
CO6	to see another application of residue theory in locating the region of zeros of an analytic function.

## SEMESTER 6

Semester	6
Course Code	MTS6B12
Course Name	CALCULUS OF MULTIVARIABLE

Code	CO Statement
CO1	Understand several contexts of appearance of multivariable functions and their representation using graph and contour diagrams. Formulate and work on the idea of limit and continuity for functions of several variables.
CO2	Understand the notion of partial derivative, their computation and interpretation. Understand chain rule for calculating partial derivatives. Get the idea of directional derivative, its evaluation, interpretation, and relationship with partial derivatives.
CO3	Understand the concept of gradient, a few of its properties, application and interpretation. Understand the use of partial derivatives in getting information of tangent plane and normal line.
CO4	Calculate the maximum and minimum values of a multi variable function using second derivative test and Lagrange multiplier method. Find a few real life applications of Lagrange multiplier method in optimization problems. Extend the notion of integral of a function of single variable to integral of functions of two and three variables.
CO5	Address the practical problem of evaluation of double and triple integral using Fubini's theorem and change of variable formula. Realise the advantage of choosing other coordinate systems such as polar, spherical, cylindrical etc. in the evaluation of double and triple integrals .
CO6	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. Understand the notion of a vector field, the idea of curl and divergence of a vector field, their evaluation and interpretation.
CO7	Understand the idea of line integral and surface integral and their evaluations. Learn three major results viz. Green's theorem, Gauss's theorem and Stokes' theorem of multi variable calculus and their use in several areas and directions

## SEMESTER 6

Semester	6
Course Code	MTS6B13
Course Name	DIFFERENTIAL EQUATIONS

Code	CO Statement
CO1	learn what an ODE is, what it means by its solution, how to classify DEs, what it means by an IVP and so on. learn to solve DEs that are in linear, separable and in exact forms and also to analyse the solution.
CO2	realise the basic differences between linear and non linear DEs and also basic results that guarantees a solution in each case. learn a method to approximate the solution successively of a first order IVP.
CO3	They will learn to find out a series solution for homogeneous equations with variable coefficients near ordinary points.
CO4	acquire the knowledge of solving a differential equation using Laplace method which is especially suitable to deal with problems arising in engineering field.
CO5	Students learn the technique of solving partial differential equations using the method of separation of variables

## SEMESTER 6

Semester	6
Course Code	MTS6B14(E01)
Course Name	GRAPH THEORY

Code	CO Statement
CO1	Understand and apply the fundamental concepts in graph theory
CO2	Apply graph theory based tools in solving practical problems
CO3	Improve the proof writing skill and analyse properties of graph
CO4	Understand trees and their properties, Eulerian, Hamiltonian and planar graphs



**B.Sc. CHEMISTRY**

## SEMESTER 1

Semester	1
Course Code	CHE1B01
Course Name	THEORETICAL AND INORGANIC CHEMISTRY- I

Code	CO Statement
CO1	CO1 To apply the methods of a research project.
CO2	To understand the principles behind volumetry.
CO3	To analyze the characteristics of different elements.
CO4	To distinguish between different acid base concepts.
CO5	To analyze the stability of different nuclei.

## SEMESTER 2

Semester	2
Course Code	CHE2B02
Course Name	THEORETICAL AND INORGANIC CHEMISTRY- II

Code	CO Statement
CO1	CO1 To understand the importance and the impact of quantum revolution in science.
CO2	To understand and apply the concept that the wave functions of hydrogen atom are nothing but atomic orbitals.
CO3	To understand that chemical bonding is the mixing of wave functions of the two combining atoms.
CO4	To understand the concept of hybridization as linear combination of orbitals of the same atom.
CO5	To inculcate an atomic/molecular level philosophy in the mind.



### SEMESTER 3

Semester	3
Course Code	CHE3B03
Course Name	PHYSICAL CHEMISTRY – I

Code	CO Statement
CO1	To understand the properties of gaseous state and how it links to thermodynamic systems.
CO2	To understand the concepts of thermodynamics and it's relation to statistical thermodynamics.
CO3	To apply symmetry operations to categorize different molecules.

## SEMESTER 4

Semester	4
Course Code	CHE4B04
Course Name	ORGANIC CHEMISTRY- I

Code	CO Statement
CO1	To apply the concept of stereochemistry to different compounds.
CO2	To understand the basic concepts of reaction mechanism.
CO3	CO3 To analyse the mechanism of a chemical reaction.
CO4	To analyse the stability of different aromatic systems.

## SEMESTER 5

Semester	5
Course Code	CHE4B05 (P)
Course Name	INORGANIC CHEMISTRY PRACTICAL – I

Code	CO Statement
CO1	To enable the students to develop skills in quantitative analysis and preparing inorganic complexes.
CO2	To understand the principles behind quantitative analysis.
CO3	To apply appropriate techniques of volumetric quantitative analysis in estimations.
CO4	To analyze the strength of different solutions.

## SEMESTER 5

Semester	5
Course Code	CHE5B06
Course Name	INORGANIC CHEMISTRY – III

Code	CO Statement
CO1	To understand the principles behind quantitative and qualitative analysis.
CO2	To understand basic processes of metallurgy and to analyze the merits of different alloys.
CO3	To understand the applications of different inorganic polymers.
CO4	To analyze different polluting agents.
CO5	To apply the principles of solid waste management..

## SEMESTER 5

Semester	5
Course Code	CHE5B07
Course Name	ORGANIC CHEMISTRY – II

Code	CO Statement
CO1	To understand the difference between alcohols and phenols.
CO2	To understand the importance of ethers and epoxides.
CO3	To apply organometallic compounds in the preparation of different functional groups.
CO4	To apply different reagents for the inter conversion of aldehydes, carboxylic acids and acid derivatives.
CO5	To apply active methylene compounds in organic preparations

## SEMESTER 5

Semester	5
Course Code	CHE5B08
Course Name	PHYSICAL CHEMISTRY – II

Code	CO Statement
CO1	To apply the concept of kinetics, catalysis and photochemistry to various chemical and physical processes.
CO2	To characterise different molecules using spectral methods.
CO3	To understand various phase transitions and its applications

## SEMESTER 6

Semester	6
Course Code	CHE6B09
Course Name	INORGANIC CHEMISTRY – IV

Code	CO Statement
CO1	To understand the principles behind different instrumental methods.
CO2	To distinguish between lanthanides and actinides
CO3	To appreciate the importance of CFT.
CO4	To understand the importance of metals in living systems.
CO5	To distinguish geometries of coordination compounds.

## SEMESTER 6

Semester	6
Course Code	CHE6B10
Course Name	ORGANIC CHEMISTRY – III

Code	CO Statement
CO1	To elucidate the structure of simple organic compounds using spectral techniques.
CO2	To understand the basic structure and tests for carbohydrates.
CO3	To understand the basic components and importance of DNA.
CO4	To understand the basic structure and applications of alkaloids and terpenes.
CO5	To distinguish different pericyclic reactions



## SEMESTER 6

Semester	6
Course Code	CHE6B11
Course Name	PHYSICAL CHEMISTRY – III

Code	CO Statement
CO1	To understand the basic concepts of electrochemistry.
CO2	To understand the importance of colligative properties.
CO3	To relate the properties of materials/solids to the geometrical properties and chemical compositions.

## SEMESTER 6

Semester	6
Course Code	CHE6B12
Course Name	ADVANCED AND APPLIED CHEMISTRY

Code	CO Statement
CO1	To understand the importance of nanomaterials.
CO2	To appreciate the importance of green approach in chemistry.
CO3	To understand the uses and importance of computational calculations in molecular design
CO4	To understand the role of chemistry in human happiness index and life expectancy.

## SEMESTER 6

Semester	6
Course Code	CHE6B13(E2)
Course Name	POLYMER CHEMISTRY

Code	CO Statement
CO1	To understand various classification of polymers and types of polymerisation methods.
CO2	To understand the important characteristics of polymers such as average molecular weight, glass transition temperature, viscoelasticity and degradation.
CO3	To appreciate the importance of processing techniques.
CO4	To characterise different commercial polymers and to understand the significance of recycling.

## SEMESTER 6

Semester	6
Course Code	CHE6B18(Pr)
Course Name	PROJECT WORK

Code	CO Statement
CO1	To understand the scientific methods of research project.
CO2	To apply the scientific method in life situations
CO3	To analyze scientific problems systematically.



**COMPLEMENTARY COURSE**

# COMPLEMENTARY COURSE

## SEMESTER 1

Semester	1
Course Code	CHE1C01
Course Name	GENERAL CHEMISTRY

Code	CO Statement
CO1	To understand and to apply the theories of quantitative and qualitative analysis.
CO2	To understand the theories of chemical bonding.
CO3	To appreciate the uses of radioactive isotopes.
CO4	To understand the importance of metals in biological systems.

## SEMESTER 2

Semester	2
Course Code	CHE2C02
Course Name	PHYSICAL CHEMISTRY

Code	CO Statement
CO1	To understand the importance of free energy in defining spontaneity.
CO2	To realise the theories of different states of matter and their implication.
CO3	To understand the basic principles of electrochemistry..

### SEMESTER 3

Semester	3
Course Code	CHE3C03
Course Name	ORGANIC CHEMISTRY

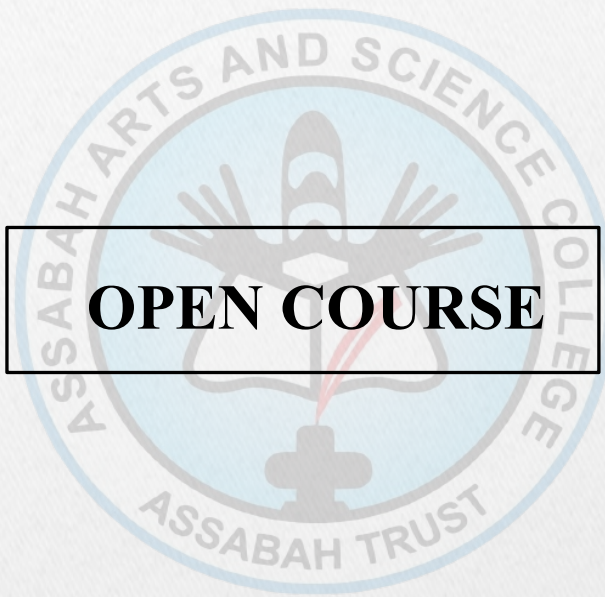
Code	CO Statement
CO1	To understand the basic concepts involved in reaction intermediates.
CO2	To realise the importance of optical activity and chirality.
CO3	To appreciate the importance of functional groups and aromatic stability.
CO4	To understand the basic structure and importance of carbohydrates, nucleic acids, alkaloids and terpenes.



### SEMESTER 4

Semester	4
Course Code	CHE4C04
Course Name	PHYSICAL AND APPLIED CHEMISTRY

Code	CO Statement
CO1	To understand the basic concepts behind colloidal state and nanochemistry.
CO2	To understand the importance of green chemistry and pollution prevention.
CO3	To appreciate the importance of different separation methods and spectral techniques.
CO4	To understand the extent of chemistry in daily life.

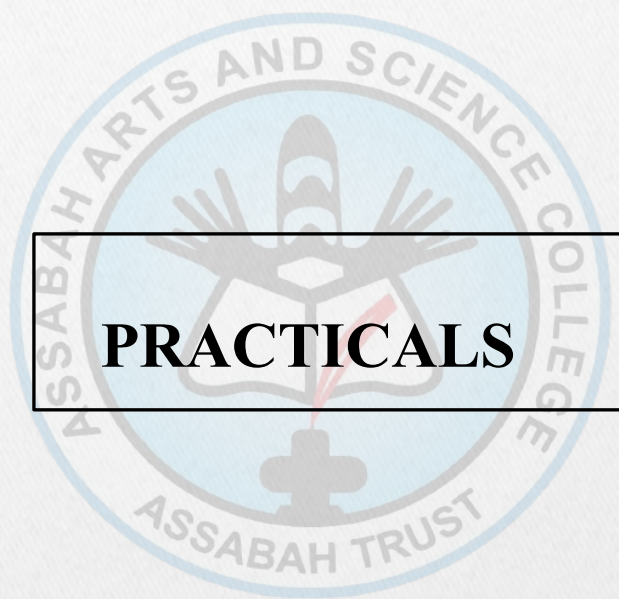


**OPEN COURSE**

## SEMESTER 5

Semester	5
Course Code	CHE5D01
Course Name	ENVIRONMENTAL CHEMISTRY

Code	CO Statement
CO1	Recall the technical/scientific terms involved in pollution
CO2	Understand the causes and effects of air pollution
CO3	Understand the sources, types and effects of water pollution
CO4	Describe water quality parameters
CO5	Know soil, noise, thermal and radioactive pollutions and their effects
CO6	Study various pollution control measures
CO7	Understand the basics of green chemistry



# PRACTICALS

## FOURTH SEMESTER

Course Code	CHE4B05 (P)
Course Name	INORGANIC CHEMISTRY PRACTICAL – I

Code	CO Statement
CO1	To enable the students to develop skills in quantitative analysis and preparing inorganic complexes.
CO2	To understand the principles behind quantitative analysis.
CO3	To apply appropriate techniques of volumetric quantitative analysis in estimations
CO4	To analyse the strength of different solutions.

## SIXTH SEMESTER

Course Code	CHE6B14(P)
Course Name	PHYSICAL CHEMISTRY PRACTICAL

Code	CO Statement
CO1	To enable the students to develop analytical skills in determining the physical properties (physical constants).
CO2	To develop skill in setting up an experimental method to determine the physical properties.
CO3	To understand the principles of Refractometry, Potentiometry and Conductometry.

## SIXTH SEMESTER

Course Code	CHE6B15(P)
Course Name	ORGANIC CHEMISTRY PRACTICAL

Code	CO Statement
CO1	To enable the students to develop analytical skills in organic qualitative analysis.
CO2	To develop talent in organic preparations to ensure maximum yield.
CO3	To apply the concept of melting or boiling points to check the purity of compounds.
CO4	To analyse and characterise simple organic functional groups.
CO5	To analyse individual amino acids from a mixture using chromatograph

## SIXTH SEMESTER

Course Code	CHE6B16(P)
Course Name	INORGANIC CHEMISTRY PRACTCAL-II

Code	CO Statement
CO1	To enable the students to develop analytical skills in inorganic quantitative analysis.
CO2	To understand the principles behind gravimetry and to apply it in quantitative analysis.
CO3	To understand the principles behind colorimetry and to apply it in quantitative analysis.



## SIXTH SEMESTER

Course Code	CHE6B17(P)
Course Name	INORGANIC CHEMISTRY PRACTCAL-III

Code	CO Statement
CO1	To enable the students to develop skills in inorganic quanlitative analysis.
CO2	To understand the principles behind inorganic mixture analysis and to apply it in quanlitative analysis.
CO3	To analyse systematically mixtures containing two cations and two anions.

## SIXTH SEMESTER

Course Code	CHE4C05(P)
Course Name	CHEMISTRY PRACTICAL

Code	CO Statement
CO1	To understand the basic concepts of inter group separation.
CO2	To enable the students to develop analytical and preparation skills