

Department of Chemistry

2016-17

Class : B.Sc. Ist Year

Paper Name	Paper Code	Objects
Inorganic Chemistry	CH - 101	Chemical bonding, periodic properties, Qualitative Analysis. Properties of Glans and Cement.
Organic Chemistry	CH - 102	Mechanism of organic chemistry, Stenochemish arenes and its aromaticity.
Physical chemistry	CH - 103	Liquid, Colloidal state, solution phase, Gaseous state and kinetic of reactions.

Class : B.Sc. IInd Year

Paper Name	Paper Code	Objects
Inorganic Chemistry	CH - 201	Periodic properties acid and bases and coordination concepts.
Organic Chemistry	CH - 202	Absorption spectroscopy noncelature, properties reactions of phenols, Aldepydes, carboxylic and nitrogen containing compounds.
Physical chemistry	CH - 203	laws of thermodynamic phase, component and equilutorim.

Class : B.Sc. IInd Year

Paper Name	Paper Code	Objects
Inorganic Chemistry	CH - 301	Hard and soft acids, bioinorganic metallurgy concept.
Organic Chemistry	CH - 302	NMR spectroscopy, Str, properties and chemical Rx ⁿ of Heterocyclic. Compounds and synthetic polymer.

Physical chemistry	CH - 303	Different types of spectroscopy, photochemical process, solid state and adsorption p
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Class : M.Sc. (P) I Sem.

Paper Name	Paper Code	Objects
Inorganic Chemistry	CH - 101	Metal - legend equilibrium and types of trans
Organic Chemistry	CH - 102	Stereo chemistry and aromaticity organic compunds.
Physical chemistry	CH - 103	Catalytic, Chemical kin , adsorption polymer and electro chemistry of solution.
Instrumental Method of Analysis	CH - 104	Insrumental analysis methods, atomic spectro analytical techniques and chromatograpgy te

Class : M.Sc. (P) II Sem.

Paper Name	Paper Code	Objects
Inorganic Chemistry	CH - 201	Acid, Base hydrolysis, Substitution is square planer complexes and metal clusters.
Organic Chemistry	CH - 202	Aliphatic, aromatic nuclephilic and etectrophilic substitution reactions and its properties.
Physical chemistry	CH - 203	Classical and statistical thermodynamic concepts.
Instrumental Method of Analysis	CH - 204	Electro analytic methods thermal analysis and basic concepts of analytical instruments and voltammeter.

Class : M.Sc. (F) III Sem.

Paper Name	Paper Code	Objects
Group Theory And Inorganic Spectroscopy	CH - 301	Symmetry operations, point group. ESR, NMR and vibration spectroscopy.
Application of organic spectroscopy	CH - 302	U.V, Visible, IR, NMR and Mass spectroscopy and its applications.
Organo Metallic Chemistry	CH - 303	Organo transition metal compounds, transition metal and composes its banding and structure.
Nanotechnology and Nanomaterials	CH - 304	Nanostructure material and characterization techniques of Nano materials.

Class : M.Sc. (F) IV Sem.

Paper Name	Paper Code	Objects
Solid State Chemistry	CH - 401	Electronic str. of solids, properties of solid and different types of solid state reactions.
Biochemistry	CH - 402	Role of metal ions in biological process, enzyme coenzyme chemistry and Bio - Energetic and Bio polymers interaction.
Industrial Chemistry	CH - 403	Chemistry of colors, ores and minerals.
Polymer Chemistry	CH - 404	Structure and properties and commercial polymer and polymer processing.

Department of Physics

2016-17

CLASS NAME	PAPER NAME	PAPER CODE	OBJECTIVE OF PAPER/STUDENT GAIN
B.SC -1 YEAR	MECHANICS	Phy.101	The objective of this paper is to make the students understand the concept of stress and strain in different types of structure different loading condition
	OPTICS	Phy.102	In this PAPER students should gain a greater understanding of what is light and how it interacts with different media.
	Electromagnetics	Phy.103	IN this Paper students to gain an in-Departmenth understanding of fundamental electromagnetic concepts, theorems, and analytical techniques
B.SC -2 YEAR	STATISTICAL AND THERMAL PHYSICS	Phy.201	Sstudents will be able to analyze and evaluate various thermodynamic cycles used for energy production - work and heat, within the natural limits of conversion.
	QUANTUM MECHANICS AND SPECTROSCOPY	Phy.202	Have a deep understanding of the mathematical foundations of quantum mechanics, • Be able to solve the

			Schrödinger equation for simple configurations, <ul style="list-style-type: none"> • Understand the effect of symmetries in quantum mechanics.
	Electronics	Phy.203	An ability to design a system, component, or process to meet desired needs within realistic constraints .
B.SC 3 YEAR	Solid State Physics	Phy.301	Understanding Solid State will also help to understand how instruments such as CT scan, MR imaging, digital camera, photo detectors and many other similar instruments are working. The information will also give abilities to student to improve their mind to understand and build new instruments.
	Nuclear Physics	Phy.302	The prime aim of the studies in nuclear physics is to understand the structure of nucleus.
	Relativity and Electrodynamics	Phy.303	To apprise the students regarding the concepts of electrodynamics and Maxwell equations and use them various situations

Department of Mathematics

2016-17

Class Name B.Sc. Part III MATHEMATICS

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	Abstract Algebra	Paper1	To understand algebraic concept with the help of linear algebra.
2	Analysis and Laplace Transforms	Paper2	To understand Basic Analysis part and there application
3	Mechanics II (Dynamics of Rigid Bodies and Hydrostatics)	Paper3	To understand hydrodynamics and concept of Dynamics eith there application in Life

Class Name B.Sc. Part II MATHEMATICS

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	Numerical Analysis and Linear Programming	Paper1	Understand concept of Linear Equation and there application in daily Life.
2	Differential Equations	Paper2	To solve differential and Partial differential equation
3	Mechanics I (Statics and Dynamics of partcle)	Paper3	To understand motion of particle and friction ,virtual work

Class Name B.Sc. Part I MATHEMATICS

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	Algebra and Co-ordinate Geometry of Two Dimensions	Paper1	Basic idea of 2 dimension geometry and

			Matrix algebra
2	Calculus	Paper2	Understand basic idea of differential and integral Calculus
3	Co-ordinate Geometry of three Dimensions and Vector Calculus	Paper3	Some vector theorem and Basic Idea of coordinate Geometry.

Class Name B.C.A. Part I MATHEMATICS

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	Fundamental of Mathematics	BCA101	Basic idea of Matrix ,trigonometry, coordinate geometry.

Class Name M.Sc. previous 1 sem MATHEMATICS

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	Algebra – I	Math – 101	Some theorems on algebra and there applications
2	Advanced Real Analysis	Math – 102	Understand concept of real Analysis by some theorems
3	Differential Equations	Math – 103	Solution of Riccati and other Equation
4	Special Functions	Math – 104	To understand basic idea of hyper geometric Function and other special function
5	Analytical Dynamics and Numerical Analysis	Math – 105	Some idea solution of differential equation by numerical Method and analytic Dynamics

Class Name M.Sc. previous2 sem MATHEMATICS

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	Algebra – II	Math – 201	Extension of theorems on algebra and there applications
2	Measure Theory and Integration	Math – 202	Some theorems on measure and there application on intrgral

3	Hydrodynamics	Math – 203	the branch of science concerned with forces acting on or exerted by fluids (especially liquids).
4	Classical Polynomials and Integral Transforms	Math – 204	Some basic Idea of Lagrange, hermit, miline transform
5	Analytical Dynamics and Numerical Analysis-II	Math – 205	Solution of Partial Equation by numerical Analysis .

Class Name M.Sc. Final3 sem MATHEMATICS

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	Complex Analysis	Math – 301	This course is aimed to provide an introduction to the theories for functions of a complex variable. ... The notion of the Riemann sheet is presented to help student visualize multi-valued complex functions. Complex integration and complex power series are presented
2	Tensor Analysis	Math – 302	tensor calculus or tensor analysis is an extension of vector calculus to tensor fields (tensors that may vary over a manifold, e.g. in spacetime). Developed by Gregorio Ricci-Curbastro and his student Tullio Levi-Civita, it was used by Albert Einstein to develop his theory of general relativity.
3	Functional Analysis – I	Math – 303	Functional analysis is a branch of mathematical analysis , the core of which is formed by the study of vector spaces endowed with some kind of limit-related structure (e.g. inner product, norm, topology, etc.) and the linear functions defined on these spaces and respecting these structures in a suitable sense
4	Operation research/Integral equation	Math – 304	The objective of the course module is to study Integral Equations and to know that what is the relationship between the integral equations and ordinary differential equations
5	MHD/LVFT	Math – 305	Define laminar flow and turbulent flow. Explain what viscosity is. Calculate flow and resistance with Poiseuille's law

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	Topology	Math – 401	study of geometrical properties and spatial relations unaffected by the continuous change of shape or size of figures.
2	Differential Geometry	Math – 402	Differential Geometry is the study geometric properties using Differential and Integral Calculus. It is a branch of mathematics dealing with geometrical forms and the intrinsic properties of curves and surfaces as related to differential calculus and mathematical analysis.
3	Functional Analysis – II	Math – 403	Functional analysis is a branch of mathematical analysis , the core of which is formed by the study of vector spaces endowed with some kind of limit-related structure (e.g. inner product, norm, topology, etc.) and the linear functions defined on these spaces and respecting these structures in a suitable sense
4	Operation research2/Integral equation2	Math – 404	Operations research (OR) is an analytical method of problem-solving and decision-making that is useful in the management of organizations. In operations research , problems are broken down into basic components and then solved in defined steps by mathematical analysis
5	MHD2/LVFT2	Math – 405	Magnetohydrodynamics (MHD; also magneto-fluid dynamics or hydromagnetics) is the study of the magnetic properties and behaviour of electrically conducting fluids.

Department of Zoology
2016-17

Class Name: B.Sc. First Year

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	PAPER I: ANIMAL DIVERSITY AND EVOLUTION	1513	Provides knowledge about diversity of invertebrate animals in nature with their key features, taxonomy and understanding of the process of evolution
2	PAPER II: BIOLOGY OF NON-CHORDATES	1514	Giving a detailed knowledge about life of non-chordates.
3	PAPER III: CELL BIOLOGY AND GENETICS	1515	Provides information about cell and its components along with inheritance of characters

Class Name: B.Sc. Second Year

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	PAPER I: CHORDATE STRUCTURE AND FUNCTIONS	1561	Provides knowledge about chordate classification and their life, biological process and adaptations.
2	PAPER II: DEVELOPMENT BIOLOGY	1562	Giving a detailed understanding about the fact the journey of life from gametogenesis to organogenesis. Provides knowledge about twins, stem cells, cloning, artificial insemination etc.
3	PAPER III: IMMUNOLOGY MICROBIOLOGY BIOTECHNOLOGY	1563	Provides knowledge about our defense system, medical and applied microbiology, microbes study, applications of biotechnology in different fields.

Class Name: B.Sc. Third Year

S.N	Paper Name	Paper Code	Objective of Paper /Student Gain(In 2-3 Lines)
1	PAPER I: ANIMAL PHYSIOLOGY AND BIOCHEMISTRY	1616	Provides complete knowledge about different physiological systems of humans and their mechanism with detailed information about biomolecules
2	PAPER II : ECOLOGY AND BEHAVIOUR	1617	The paper giving knowledge about the environment, different ecosystems of earth, pollution, communities and different behaviors of animals and their social organization and wildlife
3	PAPER III : APPLIED ZOOLOGY	1618	Provides knowledge about how we earn from zoology by understanding the different techniques of applied zoology like Vermiculture, sericulture, pest management, fish culture etc.

Department of Botany

2016-17

S.N	Class	Paper Name	Paper code	Objective of Paper /Student Gain(In 2-3 Lines)
1	B.sc. I yr	Fungi , Microbiology, Plant Pathology	-	Knowledge about Lower plant group and its development
2	B.sc. II yr	Anatomy of Angiosperm, and Economy Botany	-	Student gain the information about Internal structure of the plant as well as knowing about commercially important about plant
3	B.sc. Iyear	Practical work- Algae , Plant Pathology, Microbiology	-	Hands on practices of Microorganism like Bacteria and Fungi , as well as divers group of algae and disease of plants
4	B.sc.II year	Practical work- Taxonomy and Cytology	-	Gain the knowledge about Flowering plant in nature and know their chromosome study in laboratory by hand hand
5	M.sc.Isem	Biology and Diversity of Microbes, Algae and Fungi	BOT103	Knowledge about Lower plant group and its development
6	M.sc.IIsem	Plant Resources, Utilization and conservation	BOT203	Student always gain the information about growing pattern of the plant, utilization and conservation in Local Tour
7	M.sc. IIIsem	Microbial Ecology-I	BOT 304	Student gain the knowledge about microbes present in
8	M.sc.IVsem	Microbial Ecology-	BOT	the extreme environment

		II	404B	
9	M.sc.Isem	Practical	BOT 103	
10.	M.sc.IIsem	Practical	BOT 203	
11	M.sc.IIIsem	Practical	BOT 304	
12.	M.sc. IVsem	Practical	BOT 404 B	

S.N	Class	Paper Name	Paper code	Objective of Paper /Student Gain
1	B.sc. I yr	Algae, Lichen and Bryophytes	-	To Information about Biodiversity of plant , Morphological, and internal structure , development and internal functioning process of plants theoretically as well as practically
2	B.sc. II yr	Taxonomy and Embryology of Angiosperm	-	
3	B.sc. III yr	Plant physiology, Biochemistry	-	
4	B.sc. III yr	Practical	-	
5	M.sc.I sem	Biology and Diversity of Microbes, Algae and Fungi	BOT103	
6	M.sc.II sem	Plant Development And Reproductive Biology	202	
7	M.sc. II sem	Plant physiology	204	
8	M.sc.III sem	Plant Metabolism	302	
9	M.sc.I sem	Practical	BOT 106	
10.	M.sc.II sem	Practical	BOT 205	
11	M.sc.II sem	Practical	BOT 206	
12.	M.sc. III sem	Practical	BOT 305	

Department of Biotechnology

2016-17

B.Sc. FIRST YEAR		
PAPER NAME	PAPER CODE	OBJECTIVE OF PAPER/STUDENT GAIN
BIOCHEMISTRY AND BIOSTATISTICS	PAEPR-I	Students gain knowledge on basics of Biochemistry- functioning of biomolecules; Biostatistics- data collection and interpretation
CELL BIOLOGY AND GENETICS	PAPER-II	Students gain information regarding structures of Cell organelles and principles of genetics
MICROBIOLOGY AND COMPUTATIONAL BIOLOGY	PAPER-III	Students learn about microbial diversity, metabolism and genetics along with basics of Bioinformatics.
PRACTICALS		Basic Biochemistry through protein and sugar and lipid estimation and chromatography. Staining techniques and Microbial culture.
B.Sc. SECOND YEAR		
MOLECULAR BIOLOGY	PAEPR-I	Students learn the basic working of cell, various activities and gene flow.
BIOPHYSICS	PAPER-II	Students gain knowledge about mechanism of reactions in biomolecules, photosynthesis, light reception. Information regarding hearing, vision and their basics, instrumentation techniques and their applications
IMMUNOLOGY AND CELL CULTURE	PAPER-III	Students learn about the basics of Immunology, Antibody-antigen interactions, conditions related to immune responses. Information regarding Animal cell culture and technology and its application is also

		explained in the paper.
PRACTICALS		DNA extraction procedure for plants, Immuno-diagnostic techniques, Spectrophotometry, Study of Blood cell, type and basics.
B.Sc. FINAL YEAR		
RECOMBINANT DNA TECHNOLOGY	PAEPR-I	Students learn about the tools and techniques of rDNA Technology and its varied applications
PLANT BIOTECHNOLOGY	PAPER-II	Students gain information about the basics of Plant Tissue culture-history, advance, its tools and techniques along with the applications
ENVIRONMENTAL AND ANIMAL BIOTECHNOLOGY	PAPER-III	Students learn about the advances in animal cell culture technology, its application in medical science. Effects of conventional fuel usage on the environment. Biodiversity, Bio remediation and use of non-conventional fuels to help the reduction of carbon emissions.
PRACTICALS		Plant Tissue culture techniques, media preparation, Calculation of D.O and C.O.D, estimation of protein in animal tissue.

DEPARTMENT OF BIOTECHNOLOGY
COURSE OUTCOME- UNDERGRADUATE PROGRAMME

M.Sc. PREVIOUS		
SEMESTER-I		
PAPER CODE	PAPER NAME	OBJECTIVE OF PAPER/STUDENT GAIN
BT-101	PRINCIPLES OF MICROBIOLOGY	Students learn about the basics of Microbial Cell structure, function, classification.
BT-102	CELL AND DEVELOPMENTAL BIOLOGY	Students gain knowledge regarding the developmental processes in animal and plant cells, the metabolic activities in the cell
BT-103	FUNDAMENTALS OF IMMUNOLOGY	Students learn about the basics of Immunology, Antibody-antigen interactions, conditions related to immune responses, Auto-immune disease and Immune techniques.
BT-104	BASIC MOLECULAR BIOLOGY	Students learn about the central dogma, the molecular biology of replication, transcription and translation. Biology of oncogenes and tumor suppressor genes.
BT-105	PRACTICAL EXAMINATION I COVERING FIRST TWO THEORY PAPERS	Basic Biochemistry through protein and sugar and chromatography. Staining techniques and Microbial culture.
BT-106	PRACTICAL EXAMINATION II COVERING SECOND TWO THEORY PAPERS	Basic Immuno-techniques, Isolation of DNA, practical related to Immunology, Molecular Biology
SEMESTER-II		
BT-201	PRINCIPLES OF BIOCHEMISTRY	Students gain knowledge on basics of Biochemistry- functioning of biomolecules; kinetics and actions.

BT-202	GENETICS AND EVOLUTION	Students learn about the laws of Genetics and its applications to study heredity and variation. Principles of Evolution and its relevance
BT-203	COMPUTATIONAL BIOLOGY AND BIOINFORMATICS	Students learn about Biostatistics and Bioinformatics- basics and application
BT-204	BIOANALYTICAL TECHNIQUES	Students gain information about the various instrumentation techniques used in the Biotechnology and the principles behind them- their working and applications.
BT-205	PRACTICAL EXAMINATION I COVERING FIRST TWO THEORY PAPERS	Experiments related to protein, sugar estimation. Chromatography, Genetics
BT-206	PRACTICAL EXAMINATION II COVERING SECOND TWO THEORY PAPERS	Experiments related to Bioinformatics and Biostatistics and use of Instruments.

DEPARTMENT OF BIOTECHNOLOGY
COURSE OUTCOME- POST-GRADUATE PROGRAM

M.Sc. FINAL		
SEMESTER-III		
PAPER CODE	PAPER NAME	OBJECTIVE OF PAPER/STUDENT GAIN
BT-301	GENOMICS AND PROTEOMICS	Students learn about the basics of Genomics and Proteomics, the various techniques used in the analysis of genes and genome. Study of Genome of Prokaryotic and Eukaryotic organisms.
BT-302	GENETIC ENGINEERING	Students learn about the tools and techniques of rDNA Technology and its varied applications. The novel techniques related to study of genes and disease and application
BT-303	ENVIRONMENTAL BIOTECHNOLOGY	Students gain knowledge related to Environmental Pollution and ways to mitigate it through Biotechnological approaches.
BT-304	IPR, BIOSAFETY AND BIOETHICS	Students learn about the basics of Intellectual Property rights, patenting procedure, Bioethics in lab and Biosafety measures.
BT-305	PRACTICAL EXAMINATION I COVERING FIRST TWO THEORY PAPERS	Experiments related to Gene study, sequence alignment and other Bioinformatics approaches. Mapping studies and construction, amplification of DNA.
BT-306	PRACTICAL EXAMINATION II COVERING SECOND TWO THEORY PAPERS	Experiments related to Environmental Biology and Biosafety measures.

SEMESTER-IV

BT-401	BIOPROCESS ENGINEERING AND TECHNOLOGY	Students gain information about Bioprocess fundamentals, Downstream processing, applications etc.
BT-402	PLANT BIOTECHNOLOGY	Students gain information about the basics of Plant Tissue culture-history, advances, its tools and techniques along with the applications
BT-403	ANIMAL CELL CULTURE AND APPLICATION	Students learn about the basics of Animal cell culture, sterilization and instrumentation and its application in various fields
BT-404	DISSERTATION	A three month training program aiming to develop research aptitude in the students with presentation of a Dissertation on the topic the student has worked on.
BT-405	PRACTICAL EXAMINATION I COVERING FIRST TWO THEORY PAPERS	Experiments related to Bioprocess technology basics, Plant Tissue culture and its varied types
BT-406	PRACTICAL EXAMINATION II COVERING SECOND TWO THEORY PAPERS	Experiments related to Animal Cell Culture and Basic Cell morphology

Department of Computer Science

2016-17

CODE	SUBJECT	DESCRIPTION
THEORY		
BCA-101	Fundamentals of Mathematics	Learn basic maths with set relations, quadratic equations, circle, determinant and Matrices
BCA-102	Programming with 'C'	Concepts of programming and approaches
BCA-103	Internet Technology	Learn basics of Internet and technology
BCA-104	Fundamentals of Computers	Learn basics about computer, Network and Digital and analog signals
BCA-105	Digital Logic	Study and designing of Digital circuits
BCA-106	Environmental studies	Get knowledge related to environment.
PRACTICAL		
BCA-107	HTML Lab	Learn web development
BCA-108	C Programming Lab	Learn code and syntax to develop a program
BCA-109	MS Office Lab	Learn word, excel, PowerPoint to express views in attractive manner with formatting.
BCA-110	Digital Electronics Lab	Implementation of designing of Digital circuits

BCA II YEAR

CODE	SUBJECT	DESCRIPTION
THEORY		
BCA-201	Operating system	Knowledge about various computer operating systems
BCA-202	Data structures and algorithms	Knowledge about various data structures in computer architecture
BCA-203	Programming with C++	Develops skill in C++ Programming
BCA-	Computer system	Learns Microprocessor architecture and

204	architecture	microprocessor programming
BCA-205	DBMS	Learns basic database management system through different softwares
BCA-206	Visual Programming	Learn web and windows application development related syntax, code and read about basic objects and controls
PRACTICAL		
BCA-207	Visual Basic .NET Lab	Learn implementation of code and syntax for web and windows application development
BCA-208	Oracle SQL Lab	Study of implementation of database management softwares
BCA-209	Programming C++ Lab	Study and implementation of C++ programming
BCA-210	8085 Microprocessor Lab	Study and implementation of Microprocessor programming

BCA III YEAR

CODE	SUBJECT	DESCRIPTION
THEORY		
BCA-301	Java Programming	Develops skill in JAVA Programming
BCA-302	Multimedia Tools	Study about multimedia product development tools Like Image,sound,graphics,text,audio Video, Animation etc.
BCA-303	Computer Networks	study about Network architecture, Data communication process and Lan access technology, error detection and correction techniques
BCA-304	Web Technologies	Study about web based technologies
BCA-305	System analysis & Design	Study about various phases of Project development
BCA-306	Communication Skills	Study about communicative English

PRACTICAL

BCA-307	Java Lab	Study and implementation of JAVA programming
BCA-308	ASP.NET Lab	Study and implementation of ASP.NET programming
BCA-309	Project Work	Implementation of Languages and team work
BCA-310	Seminar	Presentation and communication skills