

**M.S. RAMAIAH COLLEGE OF ARTS,SCIENCE AND COMMERCE**

**Course Outcomes for Msc(Bio Chemistry) program**

	<b>Program</b>	<b>CourseCode</b>	<b>CourseName</b>	<b>COCode</b>	<b>CO</b>
	M.Sc Biochemistry	BCT-205	Microbiology	CO1	Deliberate in details different approaches for the classification of Bacteria – Conventional and molecular methods and brief study of important groups of bacteria with examples.
	M.Sc Biochemistry	BCT-205	Microbiology	CO2	Detailed study of the classification, cultivation and morphology of fungi, algae and protozoa. Methods of Control of fungal growth and mycotoxins and their mode of actions.
	M.Sc Biochemistry	BCT-205	Microbiology	CO4	Specify in detail the principles of microbial nutrition, pure culture techniques and cultivation of microbes. Detailed study of bacterial growth, reproduction and adaptations.
	M.Sc Biochemistry	BCT-205	Microbiology	CO5	Write down in details with application- Sterilization methods, sterility testing and mode of action of antibiotics.
	M.Sc Biochemistry	BCT-205	Microbiology	CO6	Learn in details with examples Food spoilage, preservation methods, fermented foods and exotoxins.
	M.Sc Biochemistry	BCT-205	Microbiology	CO7	Specify the sources and contamination of milk by micro-organisms. Bacterial count, reactions occurring in milk, Pasteurization, sterilization and fermented milk products.
	M.Sc Biochemistry	BCT-205	Microbiology	CO8	Identify the characteristics of normal microflora of the human body and its significance. mechanism of pathogen control, antibiotic assay and endotoxins.
	M.Sc Biochemistry	BCT-205	Microbiology	CO9	Identify in details with significance- Classification and General Properties and structure of plant, animal and bacterial viruses. The cultivation, enumeration and control of viruses. Production and mode of action of Interferons.
	M.Sc Biochemistry	BCT-205	Microbiology	CO3	Learn the principle, procedure and applications of Staining techniques, ultrastructure of bacteria and mechanism of motility.
	M.Sc Biochemistry	BCP-206	GENERAL BIOCHEMISTRY -1	BCP206	Students gained experiential training of titrimetry, qualitative, quantitative, purification methods
	M.Sc Biochemistry	BCHT – 102	Metabolism-I	M1	This chapter gives insights of carbohydrate metabolism how glucose molecule converted into pyruvate and then generates ATP (ENERGY SOURCE). It also gives knowledge on what alternative pathways are available for cellsto make energy when glucose is not available

M.Sc Biochemistry	BCHT – 102	Metabolism-I	M2	Lipid metabolism gives knowledge of Importance of lipids in our body and how they generate energy in our body. It also explains how lipids are metabolised in our body
M.Sc Biochemistry	BCHT – 103	Analytical Biochemistry – I	BCT104_5	5. Students learnt about Radioisotopic methods and Statistical methods in biochemical measurements
M.Sc Biochemistry	BCHT – 103	Analytical Biochemistry – I	BCT103_2	2. Students learnt about principles of different microscopes, Fluorescence Microscopes and their applications
M.Sc Biochemistry	BCHT – 103	Analytical Biochemistry – I	BCT103_3	3. Students got knowledge about Types of Centrifugation techniques, Ultrafiltration, Dialysis, Precipitation, Flow cytometry
M.Sc Biochemistry	BCHT – 103	Analytical Biochemistry – I	BCT103_4	4. Students got knowledge about Biocalorimetry, ITC, DSC - principle, design and applications; Manometry - Warburg, Gilson - principle, design and applications
M.Sc Biochemistry	BCHT – 103	Analytical Biochemistry – I	BCT-103_1	1. Students got knowledge about Overview of Biochemical Investigations, Experimental model organisms and extraction methods
M.Sc Biochemistry	BCHT – 104	General Physiology	BCT104	1. Students gained knowledge on Nervous system
M.Sc Biochemistry	BCHT – 104	General Physiology	BCT104	2. students gained knowledge on muscular system
M.Sc Biochemistry	BCHT – 104	General Physiology	BCT104	3. Students got indepth knowledge on cytoskeleton and cellular dynamics
M.Sc Biochemistry	BCHT – 104	General Physiology	BCT104	4. Students got insights into digestive and cardio-vascular system
M.Sc Biochemistry	BCHT – 104	General Physiology	BCT104	5. students acquired knowledge on excretory and endocrine system
M.Sc Biochemistry	BCHSCT – 105	Clinical Biochemistry and Nutrition	BCT105_1	1. Students learnt about basic biochemistry of Carbohydrates, Lipids, Proteins
M.Sc Biochemistry	BCHSCT – 105	Clinical Biochemistry and Nutrition	BCT105_2	2. Students learnt about biochemistry of Macro-minerals, Micro-minerals and Ultra trace minerals

M.Sc Biochemistry	BCHSCT – 105	Clinical Biochemistry and Nutrition	BCT105_3	3. Student got knowledge about Vitamins - fat and water soluble forms, their roles and pathology
M.Sc Biochemistry	BCHSCT – 105	Clinical Biochemistry and Nutrition	BCT105_4	4. Students learnt about Energy metabolism - BMR, thermoregulation, and importance of nutrition in different age groups
M.Sc Biochemistry	BCHSCT – 105	Clinical Biochemistry and Nutrition	BCT105__5	5. Students got knowledge of Oxidative stress and Antioxidants
M.Sc Biochemistry	BCHP – 106	General Biochemistry	BCP_106	1. Students acquired experiential learning on titrimetry, reagent/buffer preparations, qualitative and quantitative estimations of general biochemistry
M.Sc Biochemistry	BCHT – 201	Protein Structure and Enzymology	BCT405	Students learnt about active site structure and enzyme catalysis, protein enzyme assays; DNA amplification, Restriction digestion and other experiments of Genetic engineering ,
M.Sc Biochemistry	BCHT – 202	Analytical Biochemistry – II	BCHT_202_5	5. Knowledge on Bioinformatics
M.Sc Biochemistry	BCHT – 202	Analytical Biochemistry – II	BCHT-202_1	1. Knowledge on Chromatoragraphy
M.Sc Biochemistry	BCHT – 202	Analytical Biochemistry – II	BCHT-202_2	2. Knowledge on TLC, GLC, Electrophoresis & Immunoelectrophoresis
M.Sc Biochemistry	BCHT – 202	Analytical Biochemistry – II	BCHT -202_3	3. Knowledge on Mass Spectrometry, UV, Fluorescece, IR, Raman, FTIR, Mass spec
M.Sc Biochemistry	BCHT – 202	Analytical Biochemistry – II	BCHT_202_4	4. Knowledge on Proteomics
M.Sc Biochemistry	BCHT – 204	Metabolism-II	CO1	Deliberate in details with application, if applicable, Metabolism
M.Sc Biochemistry	BCHT – 204	Metabolism-II	CO2	Learn in details with application, if applicable, Metabolism
M.Sc Biochemistry	BCHT – 204	Metabolism-II	CO3	Understand in details with examples Metabolism

M.Sc Biochemistry	BCHT – 204	Metabolism-II	CO4	Understand in details with examples Metabolism
M.Sc Biochemistry	BCHT – 204	Metabolism-II	CO5	Understand in details with examples Metabolism
M.Sc Biochemistry	BCHP – 206	Immunochemistry and Informatics	BCP_206_1	1. Students have got experiential training in Immunochemical Techniques
M.Sc Biochemistry	BCHP – 206	Immunochemistry and Informatics	BCP206_2	2. Students have acquired hands-on training on basic chromatography techniques
M.Sc Biochemistry	BCHP – 206	Immunochemistry and Informatics	BCP206_3	3. Students got experiential training in Electrophoresis, 2D gel electrophoresis, etc
M.Sc Biochemistry	BCHP – 207	Enzymology	CO1	Determination of Enzyme activity
M.Sc Biochemistry	BCHP – 207	Enzymology	CO2	Determination of KM and Vmax
M.Sc Biochemistry	BCHP – 207	Enzymology	CO3	Determination of optimum pH and Temperature
M.Sc Biochemistry	BCHP – 207	Enzymology	CO4	Determination of type of inhibition
M.Sc Biochemistry	BCT – 301	Molecular Biology – I	BCT301_2	2. Students gained knowledge on Prokaryotic DNA replication and Extra chromosomal replication
M.Sc Biochemistry	BCT – 301	Molecular Biology – I	BCT302_3	3. Students gained knowledge on DNA repair
M.Sc Biochemistry	BCT – 301	Molecular Biology – I	BCT302_4	4. Students learnt about transcription in prokaryotes and eukaryotes
M.Sc Biochemistry	BCT – 301	Molecular Biology – I	BCT301_1	1. Students gained knowledge on Introductory molecular biology including Clusters and repeats, topological problems

M.Sc Biochemistry	BCT – 302	Molecular Physiology	BCT-302_1	1. Student gained knowledge about Nerve Signaling
M.Sc Biochemistry	BCT – 302	Molecular Physiology	BCT302_2	2. Students gained knowledge about Endocrine Signaling and Nuclear signaling
M.Sc Biochemistry	BCT – 302	Molecular Physiology	BCT302_3	3. Students gained knowledge about Cell cycle and Apoptosis
M.Sc Biochemistry	BCT – 302	Molecular Physiology	BCT302_4	4. Students gained knowledge about Cancer and signaling in plants
M.Sc Biochemistry	BCT – 303	Metabolism – II	CO1	Learn in details with application, if applicable, Metabolism – II
M.Sc Biochemistry	BCP – 306	Molecular Biology	BCP306	Students acquired experiential training on DNA isolation from different sources including bacteria, plant, animal tissues, etc; PCR; RAPD; RNA isolation; Phage titration; Southern hybridization; Plasmid Isolation techniques
M.Sc Biochemistry	BCT – 401	Molecular Biology – II	BCT401_2	2. Students got knowledge on Transcriptional activator
M.Sc Biochemistry	BCT – 401	Molecular Biology – II	BCT401_3	3. Students learnt about molecular biology of drosophila development
M.Sc Biochemistry	BCT – 401	Molecular Biology – II	BCT401_4	4. Students got knowledge about Ribosomes, types and its roles in cell
M.Sc Biochemistry	BCT – 401	Molecular Biology – II	BCT401_5	5. Students got knowledge on Translation
M.Sc Biochemistry	BCT – 401	Molecular Biology – II	BCT401_1	1. Students acquired knowledge on Gene expression in prokaryotes and eukaryotes
M.Sc Biochemistry	BCT – 402	Biochemical Genetics	CO1	learn about Human Genetics
M.Sc Biochemistry	BCT – 402	Biochemical Genetics	CO2	History of Classical Genetics

M.Sc Biochemistry	BCT – 402	Biochemical Genetics	CO3	How works Bacterial Genetics
M.Sc Biochemistry	BCT – 402	Biochemical Genetics	CO3	Learn about Viral Genetics
M.Sc Biochemistry	BCT – 403	Biotechnology	CO1	know about Restriction endonucleases and DNA modifying enzymes
M.Sc Biochemistry	BCT – 403	Biotechnology	CO2	Learn about Cloning Vectors
M.Sc Biochemistry	BCT – 403	Biotechnology	CO3	How works PCR, Genomic and cDNA libraries
M.Sc Biochemistry	BCT – 403	Biotechnology	CO4	Sequencing and mutagenesis concept
M.Sc Biochemistry	BCT – 403	Biotechnology	CO5	Gene transfer to animals cells and plants
M.Sc Biochemistry	BCT – 404	Immunology and Toxicology	BCT404_1	1. Knowledge on Infection, Complement fixation and Immunity
M.Sc Biochemistry	BCT – 404	Immunology and Toxicology	BCT404_2	2. Knowledge on Immunoglobulins, types and their roles
M.Sc Biochemistry	BCT – 404	Immunology and Toxicology	BCT404_3	3. Knowledge on Immune system, HLA typing, B and T cell differentiation
M.Sc Biochemistry	BCT – 404	Immunology and Toxicology	BCT404_4	4. Knowledge on Molecular Immunology, Antibody Diversity, MHC, Class switching
M.Sc Biochemistry	BCT – 404	Immunology and Toxicology	BCT404_5	5. Knowledge on Clinical Immunology, Immuno assay methods, Toxicology
M.Sc Biochemistry	BCT – 405	Genetic Engineering and Protein chemistry	MBP1	The lab practicals involves mainly molecular Biology techniques such as PCR, Gel electrophoresis and DNA extraction.

	M.Sc Biochemistry	BCPR – 406	Project work	PW1	This project work involves complete research work i.e wet lab with detailed research topic, Design of experiments and result analysis. Finally all results will be analyzed and thesis writing with interpretation of outcome of project work
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