

Course outcome

Class	Course	Outcomes (Students will be able to)
M. Sc I Microbiology)	MB 101 Microbial Diversity	<ul style="list-style-type: none"> • Microbial taxonomy – concepts and techniques for identification • Concept related to extremophilic microbes and archaea • Characters and significance of algae and fungi • Characters and significance of virus
	MB 102 Microbial Biochemistry	<ul style="list-style-type: none"> • Structure and properties of Biomolecules • Transport and energy metabolism • Metabolism of carbohydrates, lipids, amino acid, nucleotide. • Metabolic pathways and Bioenergetics
	MB 103 Bio- analytical Techniques	<ul style="list-style-type: none"> • Principles of biophysical chemistry • Methods of separation techniques • Radio-labeling techniques • Microscopic techniques for electron microscopy
	MB 104 Methods in Microbiology	Cultivation of algae, and fungi <ul style="list-style-type: none"> • Nucleic acid and protein separation techniques • Advance instrumentation such as HPLC, GC, AAS
	MB 105 Methods in Biochemistry	<ul style="list-style-type: none"> • Basic biochemistry perpetrations • Biochemical analysis of sugar, protein, by various methods • Quantitative and qualitative estimation of nucleic acid • Basic bioinformatics softwares”
M. Sc II	MB201 Microbial Genetics	<ul style="list-style-type: none"> • Genome organization and vocabulary • Virus genome replication • DNA damage and repair • Gene regulations in bacteria, virus and eukaryotes
	MB202 Microbial Enzymology	<ul style="list-style-type: none"> • Basic Enzymology • Enzyme kinetics and inhibitions • Catalytic mechanisms and regulation, • Industrial applications of enzymes and extremozymes
	MB203 Immunolog	<ul style="list-style-type: none"> • Immune system and immune response • Detail procedure of hyper immune response • Immune response to infections and diseases • Histochemical and immune techniques
	MB 204 Methods in Enzymology	<ul style="list-style-type: none"> • Qualitative and quantitative enzyme assay • Effect of environmental factors on enzyme • Enzyme kinetics and immobilization • Purification of enzymes
	MB 205 Methods in Molecular Biology	<ul style="list-style-type: none"> • Methods used in molecular biology • DNA amplification using PCR technique • Isolation of plasmid and fungal DNA • Protein and DNA separation techniques
	MB301 Applied and	<ul style="list-style-type: none"> • Method of sampling, investigation and

	Environmental Microbiology	<p>examination of food</p> <ul style="list-style-type: none"> • Different techniques used to treat waste water • Biological conversion of lignocellulosic waste, • Bioremediation and biodegradation of xenobiotic compound, biomarkers and bioreporters
	MB302 Molecular Biology and Bioinformatics	<ul style="list-style-type: none"> • Basic concept of molecular biology • Basic concept in Bioinformatics • Process of transcription, translation, • Protein targeting and degradation.
	MB303 Pharmaceutical Microbiology	<ul style="list-style-type: none"> • Antibiotics and synthetic antimicrobial agents • Regulations aspects in pharmaceutical industry • Production of few biopharmaceuticals • Concept of drug design
	MB 304 Methods in Biostatistics and Bioinformatics	<ul style="list-style-type: none"> • Different computational methods used in basic biostatistics • Software used in the bioinformatics • Biological databases for protein and nucleic acid • Multivariate analysis in biostatistics
	MB 305 Methods in Applied Microbiology	<ul style="list-style-type: none"> • Validation of instruments • Microbiological assay of vitamin • Environmental monitoring in pharmaceutical industry • Analytical tests such as Microbial limit tests, Phenol coefficient, LAL
	MB401 Fermentation Technology	<ul style="list-style-type: none"> • Principals in upstream process in fermentation industries. • Design and application of bioreactor • Downstream processing and recovery • Production of few microbial products
	MB402 Applied Molecular Biology	<ul style="list-style-type: none"> • Tools of molecular biology for rDNA technology • Methods in r DNA technology • Concept of microbial genome • Protein engineering and proteomics
	MB403 Agricultural Microbiology	<ul style="list-style-type: none"> • Approaches used in agriculture to control disease in plant • Microbial ecology and microbial interaction • Pathogenic interactions with plant • Microbial biocontrol agents
	MB 404 Methods in Biotechnology	<ul style="list-style-type: none"> • Analysis of biogas digested slurry • Isolation and estimation of RNA/DNA from various sources • Protocols regarding siderophore, VAM fungi spores, PGPR • Protocols regarding DNA fingerprinting, GFP marker
	MB 405 Laboratory course (Project Dissertation)	<ul style="list-style-type: none"> • Selection of research topic • Collection and compilation of literature • Designing of experiment with objectivity • Compilation and interpretation of results • Presentation of research data in report form

M.Sc. 1(Organic chemistry)	CH-110 Physical Chemistry	<ul style="list-style-type: none"> • Learn parent –daughter relationship, application of radioactivity, NAA, IDA. Effect of radiation and units of radiation. • Understand the terms Eigen function, Eigen value, operator and postulates of Quantum mechanics. • Understand mechanics of particle in one, two and three dimensional box. • Learn the Fricke and ceric sulphate dosimeter. • Understand the terms ionic strength, activity coefficient .DHO equation • Understand the adsorption of gases by solid types of isotherms.
	CH-130 Inorganic Chemistry	<ul style="list-style-type: none"> • Learn and find out bond order and dipole moment • Learn 18 electron rule and application. • Determine the point group of inorganic molecules. • Learn molecular orbital's and its orientation. • Understand about geometry and shape of the molecule <ul style="list-style-type: none"> • Understand preparation and properties of transition metal carbonyls. • Understand concept of symmetry elements in molecules. ments of the inorganic molecule
	CH-150 Organic chemistry	<ul style="list-style-type: none"> • understand SN1, SN2 and SNi mechanism and stereochemistry <ul style="list-style-type: none"> • understand NGP by pi and sigma bonds, classical and non -classical carbocations • understand alkylation and acylation reaction. • understand stereo chemical principles, enantiomeric relationship R and S, E and Z nomenclature in C, N, S, P containing compound. • compare the difference between types of addition, elimination and substitution reaction. • Learn and solve problem of elimination, addition and substitution reaction
	CH-210 Physical Chemistry	<ul style="list-style-type: none"> • Understand the colligative properties of solutions, depression in f.p, elevation in b.p, osmotic pressure. • Understand the molecular spectroscopy: R, Raman, electronic and Mossbauer and its application. • Understand the statistical thermodynamics and various partition functions. • Understand the thermodynamic description of mixtures state function, exact, inexact differential. • Understand the consecutive elementary reactions, rate determining steps, steady state approximation, pre-equilibria, Michaelis-Menten mechanism, Lindemann- Hinshelwood mechanism, chain reactions.

	CH-230 Inorganic Chemistry	<ul style="list-style-type: none"> • Understand the Born-Haber cycle to calculate lattice energy • Understand about classification and use of catalyst. • Understand about structure of atom, Hunds rule, Term symbol, calculation of microstates, orbital selection rule. • Know metal complexes involved in biological systems. Vitamin-B12, Chlorophyll, Hemoglobin. • learn mechanism in transition metal complexes. • Learn radius ratio rule of coordination no 3,4,
	CH-250 Organic Chemistry	<ul style="list-style-type: none"> • understand mechanism of rearrangements reaction. • learn factors affecting on UV absorption spectra. • learn various name reaction with example. • use synthetic reagents of oxidation and reduction for solving the example. • interpret IR spectra on basic values IR frequencies • Solve problems of UV, IR and NMR.
	CH-290 General Chemistry	<ul style="list-style-type: none"> • Learn theory of electro gravimetric analysis, Electrolytic separation and determination of metals. • Know Instrumentation, choice of Mobile Phase, Solvent Treatment systems, Pumping systems, Sample injection systems, Columns for High Performance Liquid Chromatography. • Solve the problems on Chemo metrics Mean and Standard deviation. • Understand Phosphorescence, Fluorescence and Photo luminescent phenomena used for determination of mixtures. • Learn principle, theory of Glass Membrane Potential, The Alkaline and Acid Error, Standard Buffers, Accuracy of pH , Measurements with the pH-meter, types Ion-selective Electrodes. • Learn Voltammetric Electrodes, Detectors, Amperometric Sensors, Amperometric Titrations

	CH-P-1 : Physical Chemistry Practical	<ul style="list-style-type: none"> • Determine stability constant of a complex ion and standard free energy change G^0 and equilibrium constant by potentiometry. • investigate the rate constant for depolymerization , energy of activation and order of the reaction • prepare molar and normal solutions of various concentrations. • determine concentration of unknown solutions and degree of hydrolysis and hydrolysis constant by Spectrophotometry. • Calculate Hammett constant and amount of aspirin in the given tablet by pH measurement. • Determine specific rotation and percentage of two optically active substances by polarimetrically.
	CH: I-1: Practical course Inorganic chemistry:	<ul style="list-style-type: none"> • Analyses iron from given drug sample and calcium in milk sample. • Perform paper chromatographic technique. • Estimate phosphate from waste water by spectrophotometer • Perform gravimetric and volumetric analysis ores. • Analyses binary mixtures by gravimetric and volumetric method. • Prepare various inorganic complexes and determination of its Percent purity.
	CH –O- 1 Organic Chemistry practical	<ul style="list-style-type: none"> • perform Thin layer chromatography technique for completion of reaction. • perform single and two stage preparation. • Apply knowledge of Green principle for organic synthesis • Make use of soxhlet extractor and steam distillation assembly for Purification of organic compound. • Know uses of chemistry software's like ISI draw, chem Draw, Chem sketch. • draw the different structure of organic compound.
M.Sc. II(organic Chemistry)	CH-350 Organic Reaction Mechanism	<ul style="list-style-type: none"> • Understand accepted mechanism of organic reaction including all intermediates • Understand Concave upward and downward deviation. • Solve the problems on Taft and Hammett constant. • Learn the type of hydrolysis of ester. • Solve problems on Anionic assisted reaction • Compare the major and minor product of variety of organic reaction.

	CH-351 Spectroscopic Methods in Structure Determination	<ul style="list-style-type: none"> • Understand principle and instrumentation of ¹H NMR, ¹³C NMR and Mass spectroscopy. • Investigate structures on these techniques. • Resolve structure of organic compounds by 2D NMR techniques. • Analyze reaction sequences by using spectroscopic technique. • Interpret the ¹H NMR, ¹³C NMR and Mass spectra and Investigate structures
	CH-352 Organic Stereochemistry	<ul style="list-style-type: none"> • learn Three dimensional structure of cyclic and acyclic compounds • Use selectivity of reagents for chemical reactions. • Compare the major and minor product of asymmetric synthesis. • solve the examples on ORD ,CD
	CH-353: Free radical, photochemistry, pericyclic reaction and their	<ul style="list-style-type: none"> • Understand Norrish-I and Norrish-II cleavages, Paterno-Buchi reaction. • Understand Photochemistry of olefins and arenes: 1, 2- , 1, 3- and 1, 4- additions. • Understand term quantum yield, and electronic states and transitions in molecules. • Understand free radical reaction contain Halogen, Sulphur, and, Selenium Group transfer reaction. • Understand selection rule for thermal and photochemical reactions. • Understand Frontier molecular orbital approach and Aromatic transition state approach according to Huckel and Mobius system.
	CH-450: Chemistry of Natural Products	<ul style="list-style-type: none"> • Classify sources of various vitamins. • Learn biological importance of vitamins B1, B2, B6, folic acid, B12, C, D1, E, K1, and K • Understand and apply the role of enzyme in reactions. • know concept of biogenesis of natural products. • Synthesize natural organic compounds by chemical methods. • Learn the stereochemistry of natural product.
	CH-451: Synthetic Methods in Organic Chemistry	<ul style="list-style-type: none"> • Understand Transition metal complexes in organic synthesis, Grubb's catalyst, Ziegler Natta catalyst. • Design the organic compounds by use of synthetic reagents • Understanding role of Umpolung in organic synthesis. • Know basic principles of green chemistry and design green synthesis. • Use ecofriendly green reagents, solvents, catalysts and reaction conditions • Understanding Protection and deprotection in the synthesis of polypeptide and polynucleotide.

	CH-452: Heterocyclic chemistry, Chiron approach, chiral drugs	<ul style="list-style-type: none"> • Understand Structure of triose, Pentose, hexose, Stereochemistry and reaction of Glucose. • Understand Synthesis and Pharmacological activity of S-Ibuprofen , S-Metaprolol, (+) Ephedrine • Understand basic Pharmacokinetics of drugs, anti Microbial drugs, Antifungal, Antibacterial, antiviral, antiprotozoals. • Know the main synthetic routes and reactivity for variety of heterocyclic compounds and applications. • Understand Important Terms –Receptor, therapeutic index, bioavailability, Drug assay and Drug Potency used in medicinal chemistry.
	CH-O-2 (organic Practical chemistry MSc II)	<ul style="list-style-type: none"> • Separate organic compounds in different phases. • Perform qualitative test to analyze functional group of organic compounds. • learn distillation technique. • detect elements N, S, and X in organic compounds. • use purification techniques of organic compounds.
	CH -O-3: Three stage preparations	<ul style="list-style-type: none"> • perform three stage preparations. • Purify the organic compounds by crystallization. • draw the reaction mechanism. • Perform chromatographic technique to check completion of reaction. • Apply the knowledge about different reaction conditions
	CHO-4: Short Research Project	<ul style="list-style-type: none"> • Survey literature for the topic of the project. • Learn to apply reaction conditions for synthesis, isolation of product and give mechanism. • Handle instruments for analysis and discuss their experimental results. • Used ICT tools to prepare project reports and present it using Power point presentation. • Work within a small team to achieve a common research goal
M. Sc Mathematics	MT 101 Advanced Real Analysis	<ul style="list-style-type: none"> • Identify different types of sets countable ,uncountable & etc. • Concept related to measure of sets and functions. • Learn differentiability and integration by different way. • Learn theorems on differentiation and integration.
	MT 102 Topology	<ul style="list-style-type: none"> • Learn new spaces. • Study open and closed set with topology. • Learn about connectedness and compactness with topology.. • Different lemmas and theorems in topological

		space.
	MT 103 Abstract Algebra	<ul style="list-style-type: none"> • Learn different types of subgroups and theorems related with them. • Learn various domains and polynomials. • Learn new type of ring i.e. Noetherian ring.
	MT 104 Ordinary & Partial Differential Equation	<ul style="list-style-type: none"> • Know about higher order linear differential equation. Find the solution by various methods of PDE. • Understand various types of form of canonical form.
	MT 106 Programming in C++	<ul style="list-style-type: none"> • Know about computer language C++. • Learn various type sof program of mathematics.
M. Sc II	MT 201 General Measure Theory	<ul style="list-style-type: none"> • Learn measure space with various types of measure. • Learn L_p space and inequalities related with this • Learn various theorems in measurable space. • Know about measure and integration in product space.
	MT 202 Complex Analysis	<ul style="list-style-type: none"> • Learn about power series. • Learn analytic function and Mobius transformation. • Know about bounded variation • Learn integration in complex and various theorems and singularities with various theorems.
	MT 203 linear Algebra	<ul style="list-style-type: none"> • Learn about modules. • Understand theorems on modules. • Find Jordan and rational canonical forms .
	MT 204 Mathematical Methods	<ul style="list-style-type: none"> • Learn various boundry value problems. • Understand orthogonality of function and find eigen value, eigen vector of SL-problem. • Learn wave , heat, Laplace's equations. • Learn Bessel's function.
	MT 205 Number Theory	<ul style="list-style-type: none"> • Understand different types of functions. • Learn congruences and theorems. • Determine quadratic residues and laws. • Know about primitive roots.
	MT 301 Topics in Functional Analysis	<ul style="list-style-type: none"> • Learn norm linear spaces and Banach spaces. • Learn various theorem with Banach spaces. • Learn inner product spaces and Hilbert spaces. • Know about fixed point and contraction mapping.
	MT 302 Statistical Techniques	<ul style="list-style-type: none"> • Basic concepts of measure of central tendency . • Basic concepts of measure of dispertion. • Learn about probability with theorems. • Learn probability distribution, correlation and regression. Various types of sampling distribution and tests.
	MT 303 Topics in Field Theory	<ul style="list-style-type: none"> • Learn different extensions and fields. • Learn Galois extension and find degree of this extension • Learn geometric constructions.

	MT 304 Fluid Dynamics	<ul style="list-style-type: none"> • Learn basic concepts of fluid mechanics. • Know about kinematics . • Learn equation of motion for fluid and motion in two dimension. To learn various type of theorems.
	MT 306 Theory of Lattices	<ul style="list-style-type: none"> • Learn various Lattices. • Charecterize modular and distributive lattice with theorems and examples on it.
	MT401 Advanced mathematical methods	<ul style="list-style-type: none"> • Know about integral equations with types. • Learn different type of kernels. • Learn Fourier transform and Z transform. • Learn about calculus of variations.
	MT 402 Operations Reasearch	<ul style="list-style-type: none"> • Know about PERT and CPM. • Learn queuing models. • Understand decision theory and Replacement models. • Learn simulation and Inventory models.
	MT 403 Commutative Algebra	<ul style="list-style-type: none"> • Study different modules • Learn Noetherian modules. • Learn concept of integral extensions.
	MT 405 Advanced Numerical Methods	<ul style="list-style-type: none"> • Find solution of system of linear equation by different methods. • Find differentiation and integration by various formulas and rules • Find solution of IVP and BVP by various methods.
	MT 406 Algebric Topology	<ul style="list-style-type: none"> • Learn complexes. • Know about Homology groups , examples and structure. • Know about Homotopic paths and fundamental groups.
M. Sc I Biotechnology	BT 101 Microbial Physiology and Diversity	<ul style="list-style-type: none"> • Microbial taxonomy – Basic concepts of taxonomies • Understands the diversity among microorganisms • Aware the microbes in different ecosystems. • Basics characterization of virus diseases and its classification
	BT 102 Biochemistry	<ul style="list-style-type: none"> • Metabolism of carbohydrates, lipids, amino acid, nucleotide. • Concepts of Enzymology and its kinetics • Catalytic mechanisms and regulation • Metabolic pathways and Bioenergetics • Inhibitors and immobilization of enzymes
	BT 103 Immunology	<ul style="list-style-type: none"> • Immune system and immune response • Detail procedure of hyper immune response • Immune response to infections and diseases • Histochemical and immune techniques
	BT 104 Methods in Microbiology and Biochemistry	<ul style="list-style-type: none"> • Isolation of actinomycetes, yeast, molds and fungi • Study of growth curve of bacteria, effect of salinity • Biochemical analysis of sugar, protein, by various methods • Quantitative estimation of nucleic acid, amino

		acids and lipids
	BT 105 Methods in Enzymology and Immunology	<ul style="list-style-type: none"> • Basics of blood group detection and cell identification • Advance instrumentation such as HPLC, GC, AAS • Calculations of Enzyme activity SA, Km and Vmax, and effect of temp and pH
	BT 201 Molecular Biology	<ul style="list-style-type: none"> • Genome organization and vocabulary • Virus genome replication • DNA damage and repair • Gene regulations in bacteria, virus and eukaryotes
	BT 202 Biophysical Chemistry & biostatistics	<ul style="list-style-type: none"> • Basics of analytical chemistry & separation methods for biomolecules • Spectroscopy & radiolabelling for living cells • Safety handling of radioactive materials • Basics of statistics for biotechnological experimental design analysis
	BT 203 Bioprocess Technology	<ul style="list-style-type: none"> • Use of DNA technology for microbial strain development • Design of bioreactors for versatile applications • Microbial growth kinetics & sterilization procedures • Downstream processing for fermented products
	BT 204 Methods in Molecular Biology and Biochemistry	<ul style="list-style-type: none"> • Isolation of RNA, genomic & plasmid DNA • Proteins, amino acids & lipids separation methods • Restriction digestion & transformation protocols • Demonstration of GC/HPLC/LCMS/AAS techniques
	BT 205 Methods in Industrial Biotechnology	<ul style="list-style-type: none"> • Production of alcohol, enzymes, antibiotics & acids via microbial fermentation & their downstream processing • Development of Standard operating procedures for tests • Study of biostatics via data presentation & software • Demonstration of running of typical bioreactor
M. Sc II	BT 301 Recombinant DNA Technology	<ul style="list-style-type: none"> • Enzymes & vehicles for genetic engineering • Study of different gene transfer methods in detail • Cloning of genes, gene banking & expression strategies • Applications & hazards of rDNA technology in society
	BT 302 Plant Biotechnology	<ul style="list-style-type: none"> • Basics of plant tissue culture (PTC) along with aseptic manipulation in organized PTC lab • Study of PTC types, their development & preservation • Genomics of plant & application of gene technology for production of transgenic plants with risk assessment
	BT 303 Advanced Environmental Biotechnology	<ul style="list-style-type: none"> • Soil, water & solid-waste management strategies • Study of biodegradation & bioremediation over

		land <ul style="list-style-type: none"> • Biodiversity, its measurement & conservation • Biosensors, biofuels & biotoxicity with antidote methods
	BT 304 Laboratory Course - V	<ul style="list-style-type: none"> • Preparation & sterilization of media & explants for PTC • Culturing of tissue culture variants till plant regeneration • Isolation of plasmid (with transformation) & yeast DNA • Demonstration of PCR and/or blotting techniques
	BT 305 Laboratory Course - VI	<ul style="list-style-type: none"> • Vermicomposting & co-composting of various wastes • Determination of soil & water parameters • Estimation of biodiversity index & DNA damage • Demonstration of AAS for metal content estimation
	BT 401 Food And Pharmaceutical Biotechnology	<ul style="list-style-type: none"> • Food processing & preservation with additives • Genetic engineering for food products • Good manufacturing practices with toxicity estimation • Gene therapy for biopharmaceuticals
	BT 402 Bioinformatics	<ul style="list-style-type: none"> • Fundamentals of genomics & proteomics • Biological databases & their different types in details • Sequence analysis & phylogenetic study • Data mining & data visualization methods
	BT 403 Industrial and Business Biotechnology	<ul style="list-style-type: none"> • Microbial production of organic acids, enzymes, solvents, amino acids, vitamins & polysaccharides • Microbial transformation of steroids & non-steroids • Business management principals, ISO standards & IPR
	BT 404 Laboratory Course - VII	<ul style="list-style-type: none"> • Production of bacterial lipase, protease, exopolysaccharides & sauerkraut. • Alignment study of DNA & protein • Analysis of milk products & food adulterants • Estimation of probiotic cultures & vitamins/antibiotics
	BT 405 Laboratory course VIII (Project Dissertation)	<ul style="list-style-type: none"> • Selection of research topic • Collection and compilation of literature • Designing of experiment with objectivity • Compilation and interpretation of results • Presentation of research data in report form
Class	Course	Outcomes (Students will be able to)
M. Sc I Statistics	ST 101 Real Analysis	<ul style="list-style-type: none"> • Identify different types of sets countable ,uncountable & etc. • Concept related to sets and functions. • Learn various sequences and series.

		<ul style="list-style-type: none"> • Learn theorems on differentiation and integration.
	ST 102 Linear Algebra	<ul style="list-style-type: none"> • Learn about vector spaces and subspaces. • Study eigen value, eigen vector and eigen space. • Learn about system of equations • Different lemmas and theorems in topological space.
	ST 103 Sample survey and Statistics for National Development	<ul style="list-style-type: none"> • To get a idea about how to plan a sample survey • To understand the basic methods of sample selection from finite population using equal and unequal probability sampling design • To estimate the national income using income product approach and expenditure approach
	ST104 Distribution Theory	<ul style="list-style-type: none"> • expected to learn basic concepts of Statistics such as Role of Statistics in Science, Society and for National Development. • Be aware about the concept of Probability and Probability Distributions • How to apply different distributions in real-life situations.
	ST 105 Programming in C++	<ul style="list-style-type: none"> • Know about computer language C++. • Learn various types of program related with statistics.
	ST 106 Practicals I	<ul style="list-style-type: none"> • Based on Above subjects with real life data and situations.
M. Sc II	ST 201 Probability Theory	<ul style="list-style-type: none"> • Learn measure space with various types of measure. • Learn various theorems in measurable space. • Know about various types of convergences.
	ST 202 Stochastic Processes	<ul style="list-style-type: none"> • To understand the concept of Stochastic Processes and its different types • To apply Markov chains in social, biological and physical sciences • To understand birth and death processes and different queuing systems
	ST 203 Multivariate Analysis	<ul style="list-style-type: none"> • Learn about multivariate version of some distributions. • Understand multivariate normal distribution. • Learn about principal component analysis.
	ST 204 Parametric Inference	<ul style="list-style-type: none"> • To understand the concept of sufficiency, Fisher information • To Test the hypothesis in sociological problems • To find power of most powerful test • Estimation of point estimation and interval estimation
	ST 205 Linear Models And Regression Analysis	<ul style="list-style-type: none"> • Understand General linear model. • Learn about Simple linear regression model. • Learn about Multiple linear regression model. • Learn about logistic regression model.
	ST 206 Practicals III	<ul style="list-style-type: none"> • Based on Above subjects with real life data and situations.

M.Sc. II	ST 301 Asymptotic and Nonparametric Inference	<ul style="list-style-type: none"> • get the knowledge about consistency and CAN estimator • learn about non-parametric statistical inference
	ST 302 Design, Planning and Analysis of experiments	<ul style="list-style-type: none"> • Basic principles of Design of Experiments . • Basic concepts of various models. • Learn about General Two Way Block Design, BIBD, LSD and Youden Square Design. • Learn Analysis of Covariance, Applications and need of ANACOVA. • Study Two Level Fractional Experiments, Resolution of a Design. • Learn Response Surface Methodology, Central Composite Designs.
	ST 303 Total Quality Management (TQM), Statistical Process Control (SPC) and Reliability	<ul style="list-style-type: none"> • Learn concept of Quality, Quality Philosophy and Concept of Total Quality Management. • Learn Six Sigma and other extensions of TQM. • Learn Various Statistical Methods useful in Quality Improvement. • Study Statistical Process Control, Control Charts for Attributes, Control Charts for Variables. • Learn about Process Capability, Acceptance Sampling Plan and Basic concept of Reliability.
	ST 304(A) Design And Analysis of Clinical Trials	<ul style="list-style-type: none"> • Understand basic concept of Clinical Trials(CTs) • Learn about Randomization and Blinding, Generalization of Controlled Randomized Trials • Learn about Bioavailability and Bioequivalence Studies.
	ST 305 Practicals III	
	ST401 Optimization Techniques	<ul style="list-style-type: none"> • get the knowledge about Linear Programming Problem (LPP) • get the knowledge about quadratic Programming Problem (QPP) • get the knowledge about shortest route method and network models. • learn to apply queuing system to real life data sets and simulation of various queuing models.
	ST 402 Actuarial Statistics	<ul style="list-style-type: none"> • Learn about Insurance Business, Insurance and Utility Theory. • Learn about Risk Models. • Understand Survival functions and Life Tables. • Learn about Life Insurance, Annuities, Net Premium, Reserve and Multiple Life Functions.
	ST 403(B) Time Series Analysis	<ul style="list-style-type: none"> • Learn about Time series analysis in detail. • Detailed study of the stationary processes: (1) Moving average (MA), (2) Auto regressive (AR) and (3) ARMA process. • Introduction to spectral analysis of weakly stationary process. Periodogram and correlogram analyses.
	ST 404 Technical	<ul style="list-style-type: none"> • Learn about Technical and official communication

	Communication and Practicals IV	<p>skills.</p> <ul style="list-style-type: none"> • Understand Communication/presentation skills of the student. • Based on Above subjects with real life data and situations.
	ST 405 Project	<ul style="list-style-type: none"> • Students will be given one month period in December during last semester for their industrial work/data collection/survey or any other fieldwork involved in the project. • Students in consultation with the guide will decide Project Topic/Area.