

## Mapping of the courses to Employability



Hindi Vidya Prachar Samiti's  
**RamniranjanJhunjhunwala College**  
Of Arts, Science & Commerce  
(Autonomous College)

Affiliated to  
UNIVERSITY OF MUMBAI

## Mapping of the courses to Employability

**Program: B.Sc. BIOTECHNOLOGY**

**Program Code: RJSUBT**

*(CBCS 2020-2021)*

## Mapping of the courses to Employability

### Mapping of the courses to Employability / Entrepreneurship / Skill Development

#### Name of the Program B.Sc Biotechnology

Class	Course Name	Course Code	Topics focusing on Employability / Entrepreneurship / Skill development	Employability / Entrepreneurship / Skill development
<b>FYBSc Biotech</b>	Basic Chemistry and Microscopy	RJSUBT101	Nomenclature and classification Chemical bond and water Microscopy, stains and dyes	Skill development in the form of gaining knowledge of basic chemistry principles and application of dyes and stains for staining microorganisms
	Stereo and Analytical Chemistry	RJSUBT102	Stereochemistry Titration and Buffers Calibration of glassware	Skill development by gaining understanding of Normality calculations and preparation of buffers
	Microbial diversity and Cytology	RJSUBT103	Origin of life and Biodiversity Ultrastructure of Prokaryotic cell & Eukaryotic Cell	Skill development in understanding Ultrastructure of eukaryotic and prokaryotic cells
	Basic Microbiology	RJSUBT104	History of microbial Classification, Nutrition, Enumeration & preservation of microorganisms Sterilization techniques	Skill development, Employability Entrepreneurship Useful in industries as well as in research processes
	Genetics	RJSUBT105	Fundamentals of genetics Microbial genetics Population Genetics	Skill development Understanding the basic concepts
	DNA Replication and mutations	RJSUBT106	DNA Replication Mutation and DNA repair Chromosome and gene mutations	Skill development Understand the basic concepts
	Communication and soft skills development	RJSUBT107	English language & Communication skills, Computer basics, Web page designing Word, Spreadsheets & Presentations	Skill development Employability
	Practical	RJSUBTP101 RJSUBTP102 RJSUBTP103		Experimental skills Observation skill Analytical skills Interpretation skills Writing skills

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<b>FYBSc Biotech</b>	Biomolecules	RJSUBT201	Carbohydrates Amino acids and Proteins Lipids and nucleic acids	Skill development in Biochemistry
	Physical chemistry	RJSUBT202	Analytical techniques Chemical kinetics Redox reactions	Skill development, Employability in Analytical Chemistry
	Physiology	RJSUBT203	Enzymology Plant physiology Animal physiology	Skill development in Plant and Animal Physiology
	Environmental sciences	RJSUBT204	Renewable sources of energy Environmental concerns Bioremediation	Skill development, Employability, Entrepreneurship in Environmental sciences
	Tissue culture and ecology	RJSUBT205	Animal tissue Culture Plant Tissue Culture Ecology	Skill development, Employability, Entrepreneurship in ATC and PTC
	Basic Immunology and Biostatistics	RJSUBT206	Innate Immunity Acquired immunity and antigens Biostatistics	Skill development, Employability in Immunology and Statistics
	Good Laboratory Practices & Biosafety	RJSUBT207	Introduction to Safety Good laboratory practices & Biosafety guidelines, Sterile pharmaceutical products Factory and hospital hygiene	Skill development, Employability in GLP and GMP
	Practical	RJSUBTP201 RJSUBTP202 RJSUBTP203		Experimental skills Observation skill Analytical skills Interpretation skills Writing skills

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<b>SYBSc Biotech</b>	Biophysics	RJSUBT301	Microscopy and spectroscopy, Osmosis and adsorption, Electrophoretic Techniques	Skill development, Employability in R&D, Pathology lab, sales and marketing and QA/QC, and Entrepreneurship
	Green Chemistry	RJSUBT302	Organic Chemistry, Thermodynamics, Green Chemistry	Skill development by gaining understanding of fundamentals of thermodynamics, green and organic chemistry
	Immuno-technology	RJSUBT303	Complement system, Immune Cell Receptors, Immunotechnology	Skill development, employability in R&D, Pathology lab, sales and marketing and QA/QC, and Entrepreneurship
	Cell Biology and Cytogenetics	RJSUBT304	Cytoskeleton, Cell Membrane, Cytogenetics	Skill development, Employability Employability in Genetic counseling, Pathology lab and R&D
	Gene expression and regulation	RJSUBT305	Transcription, Translation, Regulation of gene expression	Skill development in molecular processes of protein synthesis and regulation of gene expression
	Bioprocess Technology	RJSUBT306	Microorganisms in Industrial processes, Preclinical studies Fermentor and process control	Skill development, Employability in R&D and fermentation industry, Pharmaceutical industries and Entrepreneurship
	Entrepreneurship development	RJSUBT307	Introduction to Entrepreneurship Development, Market Research, Setting-up of an Enterprise and Planning	Entrepreneurship, Employability in sales and marketing
	Practical	RJSUBTP301 RJSUBTP302 RJSUBTP303		Experimental skills Observation skill Analytical skills Interpretation skills Writing skills

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<b>SYBSc Biotech</b>	Intermediary metabolism	RJSUBT401	Carbohydrate, Amino Acid, Nucleotide and lipid metabolism, Electron transport system	Skill development, by gaining understanding of metabolic pathways and Oxidative phosphorylation
	Applied chemistry	RJSUBT402	Drugs & biosimilars, Molecular spectroscopy, Polymers and Nanomaterial	Skill development in spectroscopic techniques, nanomaterials and Employability in sales and marketing, QA/QC and Pharma industry.
	Medical Microbiology	RJSUBT403	Host Parasite Relationship , Gram positive infectious agents, Gram negative infectious agents	Skill development in understanding of epidemiology, virulence factors Employability in Diagnostics field
	Biotechnology and health care	RJSUBT404	Disease prevention, Disease diagnosis Disease treatment	Skill development, Employability in Pathology laboratory, R & D and epidemiology
	Bioinformatics and Biostatistics	RJSUBT405	Introduction to Computers and Biological Database  BLAST and Sequence Alignment, Biostatistics	Skill development, Employability in R&D and Bioinformatics
	Molecular diagnostics	RJSUBT406	Basics of molecular Diagnostics, Nucleic Acid Amplification Methods, Molecular Biology based Diagnostics	Skill development, Employability in Pathology laboratory, epidemiology, R&D genetics
	Research methodology	RJSUBT407	Research Methodology and Research Problem, Research Design and Data Collection, Interpretation and Report Writing	Skill development, Employability in epidemiology, editing and advertising
	Practical	RJSUBTP401, RJSUBTP402 RJSUBTP403		Experimental skills Observation skill Analytical skills Interpretation skills Writing skills

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Class	Course Code	Course Name	Topic focusing on Employability/ Entrepreneurship/skill development	Employability/Entrepreneurship/Skill development
<b>TYBSc Biotech</b>	Embryology and cancer biology	RJSUBT501	Cell Cycle, Cell Signaling, Developmental Biology, Cancer Biology	Skill development & Employability in R&D (medicine) and pathology Lab
	Virology and bioanalytical techniques	RJSUBT502	Virology, Chemotherapeutic Drugs, Spectroscopy, Bioanalytical techniques	Skill development & Employability in sales and marketing, Pathology Lab, R&D
	Molecular Biology	RJSUBT503	Tools in molecular biology, Gene sequencing and editing, Transgenic animals, Transgenic plants	Skill development, entrepreneurship & Employability in R&D
	Applied biotechnology	RJSUBT504	Marine biotechnology & Cosmetics, Food biotechnology, Plant biotechnology, Patent and IPR	Skill development, entrepreneurship & Employability in fermentation industry and regulatory affairs, R&D
	Microbiology, Hematology and Clinical Pathology	RJSUACMT501	Bacteriology, Mycology and Parasitology, Hematology, Clinical Pathology	Skill development & Employability in path lab, epidemiology and R&D
	Practical	RJSUBTP501 RJSUBTP502 RJSUACMT501		Experimental skills Observation skill Analytical skills Interpretation skills Writing skills

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<b>TYBSc Biotech</b>	Bio-chemistry	RJSUBT601	Carbohydrate metabolism, Lipid Metabolism , Endocrinology, Nutrition	Skill development & Employability in R & D, hospitals and QA/QC
	Industrial Micro-biology	RJSUBT602	Milk and milk products, Fermentation process, Downstream processing, QA-QC	Skill development & entrepreneurship & Employability in fermentation / pharma industry
	Pharmacology & Neuro-chemistry	RJSUBT603	Principles of Pharmacology, Drug Absorption and Distribution, Toxicology, Neuro-chemistry	Skill development & Employability in pharma industry, QA/QC
	Environmental Biotech	RJSUBT604	Industrial effluent treatment, Solid waste treatment, Wastewater treatment, Biofertilizers and Biopesticides	Skill development, entrepreneurship & Employability in R&D (environment)
	Techniques and Automation in MLT	RJSUACMT601	Diagnostic microbiology, Automation and newer approaches in MLT, Clinical Biochemistry, Organ Function Tests	Skill development & Employability in pathology laboratory
	Practical	RJSUBTP601 RJSUBTP602 RJSUACMT601		Experimental skills Observation skill Analytical skills Interpretation skills Writing skills