



MSc Course Curriculum

Semester I

Course Code	Subject Name	L	T	P	C	Instructor(s)	Slot
BB 521	Biochemistry and Bioenergetics	2	1	0	6	PV Balaji	
BB 405	Molecular Biology	2	1	0	6	S Nair	
BB 402	Cell Biology	2	1	0	6	SK Ghosh	
BB 553	Bioinformatics	1	0	4	6	P Bhaumik	
BB 523	Mathematical and Numerical Methods for Biologists	2	1	0	6	A Kunwar	
BB 421	Genetics [FH]	3	0	0	3	S Kumar	
BB 525	Biological Thermodynamics and Kinetics [SH]	2	1	0	3	A Kumar	
Total number of credits: 36							
Total number of contact hours: 20 h (16 h theory + 4 h lab) per week							

Semester II

Code	Subject Name	L	T	P	C	Instructor(s)	Slot

First Half							
BB 520	Analytical Biochemistry	2	1	0	3	P Phale	2
BB 522	Microbiology	2	1	0	3	A Banerjee	8
BB 524	Genetic Engineering	3	0	0	3	A Banerjee	5
BB 526	Biomolecular Spectroscopy	2	1	0	3	A Kumar	9
BB 412	Genomics and Proteomics	3	0	0	3	K Kondabagil	6
Total number of credits: 15							
Total number of contact hours: 15 h theory per week							
Second Half							
BB 528	Lab: iLab: Integrated Biochemistry, Microbiology, Genetic Engineering and Biophysics laboratory	0	0	30	15	AKumar, ABanerjee, PPhale, SKGhosh, KKondabagil	-
Total number of credits: 15							
Total number of contact hours: 30 h lab per week							

Semester III

Code	Subject Name	L	T	P	C	Instructor(s)	Slot
BB 505	Molecular Immunology	2	1	0	6		
BB 527	Molecular Enzymology [FH]	2	1	0	3		
BB 529	Research Methodology and Scientific Communication Skills [SH]	3	0	0	3		
	Elective I [one full semester course or two half semester courses] (Department or Institute Elective)				6/8		
	Elective II [one full semester course or two half semester courses] (Department or Institute Elective)				6/8		
BB 519	Project Proposal Presentation and Dissertation	0	0	0	10		

Total number of credits: 34 to 38

Total number of contact hours: 12-18 h (10-12 h theory + 0-8 h lab) per week depending upon the Elective one chooses

Elective I & II

Code	Subject Name	L	T	P	C	Instructor(s)	Slot
BB 531	Plant Biotechnology	2	0	4	8		
BB 533	Animal Biotechnology	3	0	0	3		
BB 535	Environmental Biotechnology	3	0	0	6		
BB 648	Protein Engineering	2	1	0	6		
BB 537	Virology	3	0	0	6		
BB 414	Molecular Diagnostics	3	0	0	3		
BB 601	Introduction to Bionanotechnology	3	0	0	3		
BB 633	Movement neuroscience [FH]	3	0	0	3		
BB 645	Drug Discovery and Development [FH]	3	0	0	3		
BB 705	Fundamental Concepts in Developmental Biology	3	0	0	6		
BB 530	Biodesign	3	0	0	6		
BB 539	Applied Microbiology [FH]	0	0	8	4		
BB 706	Fundamental and Practical Aspects of Microscopy	3	0	0	6		

Semester IV

Course Code	Subject Name	L	T	P	C	Instructor(s)	Slot
	Elective III [one full semester course or two half semester courses] (Department or Institute Elective)				6		
	Elective IV [one full semester course or two half semester courses] (Department				6		

	or Institute Elective)						
BB 592	Project Stage II	0	0	0	28		–
Total number of credits: 40 Total number of contact hours: (4-6 h theory and 0-4 h lab) per week depending upon the Elective one chooses							

Elective III & IV

Code	Subject Name	L	T	P	C	Instructor(s)	Slot
BB 454	Programming for Bioinformatics	1	0	4	6		–
BB 400	Molecular Biophysics	2	1	0	6	PV Balaji	2
BB 532	Molecular Mycology	3	0	0	6		–
BB 611	Cell Cycle and Epigenetics	3	0	0	6	SK Ghosh	6
BB 642	Protein Crystallography	3	0	0	6	P Bhaumik	3B+LX
BB 626	Modeling Biological Systems and Processes	3	0	0	6		–
BB 638	Topics in Evolution	3	0	0	6		–
BB 629	Applied Immunology	3	0	0	6		–
BB 643	NMR in Biological Systems	3	0	0	6		
BB 606	Cellular Electricity: Physics and Modelling	3	0	0	6		–
BB 623	Mechanisms of Bacterial Pathogenesis	2	1	0	6	A Banerjee	14
BB 612	Cell Mechanics and Mechanobiology	3	0	0	6	S Sen	1
BB 640	Biologics [SH]	3	0	0	3	A Kumar	9
BB 534	Advanced Enzymology	3	0	0	6		–
BB 536	cryo-Electron Microscopy	3	0	0	6	SK	6
BB 616	Cellular and Tissue Engineering	3	0	0	6	P Tayalia	7
BB 650	Advanced Structural Biology	3	0	0	6		–
BB 658	Principles of Tissue Engineering [FH]	3	0	0	3	P Tayalia	7
BB 530	Biodesign	3	0	0	6		–
BB 628	Molecular Cell Signalling	3	0	0	6		–

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