

**Centre for Health Science and Technology,
JIS Institute of Advanced Studies and Research Kolkata
Syllabus for M.Sc. Medical Biotechnology & Bioinformatics
Academic Year 2019 – 2021**

SEMESTER 1

	Course Code	Course*	Credits
Core Courses	PBB1001	Introduction to Bioinformatics	3
	PBB1002	Cell and Molecular Biology	2
	PBB1003	Biochemistry of Macromolecules	2
	PBB1004	Structural Bioinformatics	3
Labs	PBB1101	LAB: Biochemistry and Molecular Biology	3
	PBB1102	LAB: Programming Languages – Python and R	3
CBCS Course	PDS1001	Probability and Statistics	4
Total			20
Sessional	PBB1501	Seminar/Skill-Ex	2

SEMESTER 2

	Course Code	Course*	Credits
Core Courses	PBB2001	Phylogenetics and Evolution of Virulence & Drug Resistance	2
	PBB2002	Medical Microbiology and Immunology	2
	PBB2003	Next-generation Sequencing Data Analysis: Genomics and Transcriptomics	2
	PBB2004	Genetics and Diseases	3
	PBB2005	Proteomics and Metabolomics	2
	PBB2006	Molecular Dynamics Simulation and Docking	3
Lab	PBB2101	LAB: Medical Microbiology and Immunology	2
CBCS Course	PDS2007	Database Design	4
Total			20
Sessional	PBB2501	Seminar/Skill-Ex	2

SEMESTER 3

	Course Code	Course*	Credits
Core Courses	PBB3001	Systems Biology and Biological Networks	2
	PBB3002	Metagenomics and Microbiome	2
	PBB3003	Big Data in Bioinformatics	2
	PBB3004	Medical Genomics and Computer-aided Drug Design	2
	PBB3005	Genetic Engineering and Synthetic Biology	2
	PBB3006	Pharmacoinformatics	3
	PBB3007	Career Development and Entrepreneurship	2
	PBB3008	Intellectual Property Rights	2
	PBB3009	Research Methodology	3
Total			20
Sessional	PBB3501	Seminar/Skill-Ex	2

SEMESTER 4

	Course Code	Course	Credits
Final Project	PBB4001	Thesis with Oral Presentation and Viva Voce	20
Sessional	PBB4501	Seminar/Skill-Ex	2

***Any of the theory courses may include practical modules as necessary.**