



**VIT**<sup>®</sup>  
**BHOPAL**

**School of Biosciences, Engineering & Technology (SBET)**

**Curriculum**

**of**

**Integrated M.Sc in Biotechnology**

**(2020-2025)**

Proposed Structure:	Programme Core (PC)	Programme Elective (PE)	University Core (UC)	University Elective (UE)	Total
		70	62	66	12

PROGRAM CORE				70 Credits
CHY1003	Biochemistry		LTP	4
BIOXXX	Cell Biology		LT	3
BIOXXX	Biodiversity and Conservation Biology		LT	3
BIOXXX	Genetics		LT	3
BIO3024	Microbiology		LT	3
BIO2001	Human Physiology		LT	3
BIO2002	Molecular Biology and genetic engineering		LTP	4
BIOXXX	Research Methodology		LT	3
BIOXXX	Analytical Techniques		LTP	4
BIO3002	Immune Engineering		LTP	4
BIOXXX	Bioinformatics		LTP	4
BIO3010	Biosafety, bioethics and IPR		LT	2
BIOXXX	Microbial Genetics		LT	3
BIOXXX	Bioprocess Technology		LT	3
BIOXXX	Genomics		LT	3
BIOXXX	Proteomics		LT	3
BIO1101	Physiology Of Cells And Tissues		LT	3
BIOXXX	Microbial and Biochemical techniques		LP	3
BIO3001	Computational Biology and Analytics		LP	3
BIO3022	Stem Cells and Regenerative Medicine		LT	3
BIO3020	Personalized Medicine		LT	3
BIOXXX	Plant physiology and breeding techniques		LT	3
			Credits	70

PROGRAM ELECTIVE			62 Credits
BIOXXX	Environmental Biotechnology	LT	3
BIOXXX	Pharmaceutical Biotechnology	LT	3
BIOXXX	Industrial Biotechnology	LT	3
BIOXXX	Vaccinology	LT	3
BIOXXX	Epidemiology	LT	3
BIOXXX	Nutrition and Health	LT	3
BIO3021	Forensic Biology	LT	3
PHY2011	Biophysics	LT	3
BIOXXX	Advanced Biochemistry	LT	3
BIOXXX	Developmental Biology	LT	3
BIOXXX	Plant Biotechnology	LTP	4
BIOXXX	Molecular Endocrinology	LT	3
BIOXXX	Aquatic Biotechnology	LT	3
BIOXXX	Neurobiology	LT	3
BIOXXX	Environmental Genetics	LT	3
BIOXXX	Protein Engineering	LT	3
BIOXXX	Molecular Modelling and Drug Design	LTP	4
BIO3014	Cancer Biology	LT	3
BIOXXX	Animal Biotechnology	LT	3
BIOXXX	Gene Therapy	LT	3
BIOXXX	Enzyme Technology	LT	3
BIOXXX	Food Biotechnology	LT	3
BIOXXX	Medical Biotechnology	LT	3
BIOXXX	System Biology	LT	3
BIO1103	Cell and Tissue Culture Techniques	LT	3
BOXXX	Plant Tissue Culture	LTP	4
BIO3013	Drug Design and Delivery	LT	3
PHY3001	Bio Optics	LT	3
BIO1001	Introduction to Bioengineering	LT	3

BIO2003	Biomaterials	LT	3
EEE3100	Bio signals and Image Processing	LTP	4
EEE1001	Electric Circuits and Systems	LTP	4
		Credits	62

University Core			66 Credits
CHY1002	Environmental Science	LT	3
-	Applied Chemistry	LTP	4
PHY1001	Engineering Physics	LTP	4
MAT3015	Biostatistics	LT	4
MAT1002	Calculus for Bioengineers	LT	4
CSE1021	Introduction to Problem Solving and Programming	LTP	4
MAT1032	Bridge Course - Mathematics	LT	0
-	Programming in Java	LP	3
ENG1001	Communication for Technical Professionals	LP	3
HUM1001	Ethics and Values	LT	2
ENG2001	Technical Writing & Composition	LT	2
HUM1108	Swachh Bharat	PJ	2
EXC1001	Extracurricular Activity	PJ	2
SST1001	Soft Skills for Engineers - I	P	1
SST2001	Soft Skills II	P	1
HUM1013	Indian Culture And Heritage	LT	3
DSN2098	Project Exhibition I	PJ	1
DSN2099	Project Exhibition II	PJ	1
-	Science, Engineering & Technology Project	PJ	2
-	Summer Internship (2+2)	PJ	4
-	Comprehensive Exam	PJ	2
-	Masters Thesis	PJ	16
		Total Credits	66

University Elective			12 Credits
	International Business	LT	3
MGT2003	Technology Entrepreneurship	LT	3
	Biophysical Chemistry	LT	3
	Bio Sustainability	LP	3
	Foundations of data science	LP	3
CSA2001	Fundamentals of AI and ML	LT	3
MAT2101	Applications of Differential Equations	LT	3
CHY2007	Modelling and simulation of Biological systems	LT	3
MAT3011	Transform Techniques	LT	3