

5-year Dual Degree M. Tech in Biological Engineering Curriculum

Semester I

No.	Title	L	T	P	C	Cat.
MA1010	Calculus I – Functions of One Variable	3	0	0	3	SMA
PH1010	Physics I	3	0	0	3	SPH
CY 1010	Chemistry: Structure, Bonding & Reactivity	4	0	0	4	SCY
ID1100	Concepts in Engineering Design	2	0	0	2	BET
CS1100/M E1100	Computational Engineering/Thermodynamics	3	0	0	3	BET
BT1010	Introduction to Biological Sciences and Engineering	2	0	0	2	PMT
WS1010	Workshop I	0	0	6	4	BES
PH1030	Physics Laboratory I	0	0	3	2	SPH
CY1030	Chemistry Laboratory I	0	1	3	3	SCY
	Total	17	1	12	26	

Semester II

No.	Title	L	T	P	C	Cat.
MA1020	Calculus II – Functions of Several Variables	3	0	0	3	SMA
PH1020	Physics II	3	0	0	3	SPH
CS1100/M E1100	Computational Engineering/Thermodynamics	3	0	0	3	BET
EE1100	Basic Electrical Engineering	3	0	0	3	BET
BT1020	Material and Energy Balances	4	0	0	4	PMT
ME1050	Engineering Drawing	1	0	3	3	BES
WS1020	Workshop II	0	0	3	2	BES
PH1040	Physics Lab. II	0	0	3	2	SPH
	Total	17	0	9	23	

Semester III

No.	Title	L	T	P	C	Cat.
ID1200	Ecology and Environment	2	0	0	2	BET
HS	Humanities I (Elective)	3	0	0	3	HSS
MA	Mathematics III (Elective)	3	0	0	3	SMA
AM1100	Engineering Mechanics	3	1	0	4	BET
BT2010	Microbiology	3	0	0	3	PMT
BT2030	Biochemistry	3	0	0	3	PMT
BT2111	Microbiology and Biochemistry Laboratory	0	0	6	4	PML
	Total	17	1	6	22	

Semester IV

No.	Title	L	T	P	C	Cat.
HS	Humanities II (Elective)	3	0	0	3	HSS
MA	Mathematics IV (Elective)	3	0	0	3	SMA
BT2020	Computational Techniques in Biosystems	2	0	3	4	PMT
BT2021	Principles of Cell and Molecular Biology	3	0	0	3	PMT
BT2041	Biological Rate Processes	4	0	0	4	PMT
BT2061	Thermodynamics of Biological Systems	4	0	0	4	PMT
BT2121	Genetic Engineering Laboratory	0	0	6	4	PML
	Total	19	0	9	25	

Semester V

No.	Title	L	T	P	C	Cat.
	Minor Elective I (Core)	3	0	0	3	MNS
BT3011	Transport Phenomena in Biological Systems	4	0	0	4	PMT
BT3031	Biosensors and Instrumentation	3	0	0	3	PMT
BT3051	Data Structures and Algorithms for Biology	2	0	3	4	PMT
BT3071	Bioreactor Design and Analysis	3	0	0	3	PMT
BT3110	Biomolecular Analysis Laboratory	0	0	6	4	PML
	Total	15	0	9	21	

Semester VI

No.	Title	L	T	P	C	Cat.
	Minor Elective II (Core)	3	0	0	3	MNS
	Free Elective I	3	0	0	3	*
BT3020	Structural Biology	3	0	0	3	PMT
BT3021	Downstream Processing	3	0	0	3	PMT
BT3041	Analysis and Interpretation of Biological Data	3	0	0	3	PMT
BT	Professional Elective I	3	0	0	3	PMT
BT3121	Bioprocess Engineering Laboratory	0	0	5	3	PML
	Total	18	0	5	21	
BT3900	Industrial Training (Summer)	0	0	0	2	PIT

Semester VII

No.	Title	L	T	P	C	Cat.
HS	Humanities III (Elective)	3	0	0	3	HSS
	Minor III (Elective)	3	0	0	3	MNS
	Free Elective II	3	0	0	3	*
BT4010	Bioinformatics	3	1	0	4	PMT
BT5011	Biomaterials Engineering	3	0	0	3	PMT
BT	Professional Elective II	3	0	0	3	PMT
BT4110	Computational Biology Laboratory	0	0	6	4	PML
	Total	18	1	6	23	

Semester VIII

No.	Title	L	T	P	C	Cat.
HS	Professional Ethics (Pass/Fail)	2	0	0	2	HPF
IL4920	Industrial Lecture (Pass/Fail)	1	0	0	1	PIL
BT5021	Metabolic Engineering	3	0	0	3	PMT
BT4020	Introduction to Research Methodology	1	0	0	1	PMT
BT	Professional Elective III	3	0	0	3	PMT
BT	Professional Elective IV	3	0	0	3	PMT
BT	Self Study (Elective)	3	0	0	3	PSS
BT4121	Biomaterials Laboratory	0	0	5	3	PML
BT4921	Project	0	0	0	2	PMP
	Total	16	0	5	21	

Semester IX

No.	Title	L	T	P	C	Cat.
BT	Professional Elective V	3	0	0	3	PMT
BT	Professional Elective VI	3	0	0	3	PMT
BT5911	Project	0	0	0	6	PMP
	Total	6	0	0	12	

Semester X

No.	Title	L	T	P	C	Cat.
BT5921	Project	0	0	0	12	PMP
BT5941	Comprehensive Viva Voce	0	0	0	2	PMP
	Total	0	0	0	14	

Total = 26+23+22+25+21+23+23+17+16+14 = 210

L - Lecture; T - Tutorial; P - Practical; C - Credits

For Category codes, look at Credit requirements file