

MGM University, Aurangabad – 431003

Approved Program Structure

Name of the College/Institute: Institute of Biosciences & Technology

Faculty of Basic & Applied Science

Name of the Program: B.Sc.(Hons) Biotechnology

Approved by the Board of Studies on _____

Intake: 40 students

Program Approved vide Academic Council Meeting dt _____

Item No. -----

Program Type: UG Program

Duration: **8** Semesters

Curriculum Code: **BT** (this code will change when you change the Curriculum)

Eligibility: HSC Science of 10+2 equivalent program

Proposed Fees: Rs. 65,000/

Semester I

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing					Credit		
						Internal			External			Total	Internal			External		Total	
						CA	MSE	TW	ESE	PR	CA		MSE	TW	ESE	PR			
	(Mandatory)		L	T	P	CA	MSE	TW	ESE	PR	Total	CA	MSE	TW	ESE	PR	Total		
BBT-111	English Communication Essentials	Audit	{2}	-	-	10	20	10	60	-	100	-	-	-	24	-	40	Audit	
BBT-112	Chemistry-I	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BBT-113	Biology: Concept, Connections, Investigation and applications	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BBT-114	Bacterial Biological Diversity	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BBT-115	Bioinstrumentation	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
UGL-01	Bio-Skills Lab Factory-I	Core		-	6	20	25	15	90	60	150	-	-	-	36	24	60	3	
UGL-02	Explorations in Biotechnology -I	Core		-	6	20	25	15	90	60	150	-	-	-	36	24	60	3	
UGL-03	Micro Project-I	BRP	-	-	4	10	20	10	60	40	100	-	-	-	24	16	40	2	
UNC-01	Gandhian Thoughts	Audit	{2}	-	-	10	20	10	60	-	100	-	-	-	24	-	40	Audit	
UNC-02	Universal Human Values	Audit	{1}	-		10	10	-	30	0	50	-	-	-	12	0	20	Audit	
	Total		10{4}	2	16	110	140	90	750	160	1250							20	

Semester II

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing						Credit		
						Internal			External			Total	Internal			External			Total	
						L	T	P	CA	MSE	TW		ESE	PR	CA	MSE	TW			ESE
	(Mandatory)																			
BBT-121	Microbial Physiology and metabolism	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3		
BBT-122	Chemistry-II	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3		
BBT-123	Biology: Concept, Connections, Investigation and applications	Core	4	-	-	25	25	30	120	-	200	-	-	-	48	-	80	4		
BBT-124	Biomolecules & Bioenergetics	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3		
UGL-01	Bio-Skills Lab Factory-I	Core	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3		
UGL-02	Explorations in Biotechnology -I	Core		-	8	40	40	40	120	80	200	-	-	-	48	32	80	4		
UGL-03	Micro Project-II	BRP	-	-	4	10	20	10	60	40	100	-	-	-	24	16	40	2		
UNC-01	Communication skills	Audit	{2}	-	-	10	20	10	60	-	100	-	-	-	24	-	40	Audit		
	Total		11(2)	2	18	90	120	90	720	180	1200							22		

Semester III

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing					Credit	
						Internal			External			Total	Internal			External		Total
			L	T	P	CA	MSE	TW	ESE	PR	CA		MSE	TW	ESE	PR		
	(Mandatory)																	
BBT-231	Enzymology	Minor	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	2
BBT-232	Genome maintenance and regulation	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BBT-233	Fermentation Technology	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BBT-234	Principles of Developmental Biology	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BBT-235	Basics of Immune System	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BBT-237	Seminar (Subject Base Seminar)	SBS	0	0	1	0	0	0	30	20	50	-	-	-	12	8	20	1
UGL-01	Microbial Technology Lab.	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
UGL-02	Molecular Chemistry Lab	Core	-	-	4	10	20	10	60	40	100	-	-	-	24	16	40	2
UGL-03	Mini Project	BRP	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3
UNC-01	Environmental Studies	Audit	-	-	2	10	10	-	30	20	50	-	-	-	12	8	20	1
UNC-02	Gandhian Studies	Audit	-	-	2	10	10	-	30	20	50	-	-	-	12	8	20	1
	Total		13(4)	2	15	90	140	70	690	160	1150							23

Semester IV

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing					Credit	
						Internal			External			Total	Internal			External		Total
			L	T	P	CA	MSE	TW	ESE	PR	CA		MSE	TW	ESE	PR		
	(Mandatory)																	
BBT-241	Molecular Immunology	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BBT-242	Gene Technologies	Minor	4	-	-	25	25	30	120	-	200	-	-	-	48	-	80	4
BBT-243	Advance Fermentation Technology	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BBT-244	Enzyme Engineering	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
UGL-01	Advances in Biotechnology Lab.	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
UGL-02	Advances in Microbial Technology	Core	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3
UGL-03	Mini Project	BRP	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3
BBT-246	Seminar (Subject Base Seminar)	SBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1
	Total		15	2	12	120	130	90	690	120	1150							23

Semester V

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing					Credit		
						Internal			External			Total	Internal			External		Total	
						L	T	P	CA	MSE	TW		ESE	PR	CA	MSE			TW
(Mandatory)			L	T	P	CA	MSE	TW	ESE	PR	Total	CA	MSE	TW	ESE	PR	Total		
BBT-351	Bioprocessing: Cell Culture & Scale up	Core	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	2	
BBT-352	Introduction to bioinformatics	Minor	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	2	
BBT-353	System Biology	Core	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	2	
BBT-354	Biomanufacturing process science & Experiment Designing	Core	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	2	
BBT-355	Academic Tutorials-V	AT	-	2	-	10	20	10	60	-	100	-	-	-	24	-	40	2	
UGL-01	Microbial Processing lab.	Core	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3	
UGL-02	Introduction to Biomanufacturing Lab.	Core	-	-	4	10	20	10	60	40	100	-	-	-	24	16	40	2	
UGL-03	Mini Project	BRP	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3	
BBT-356	Seminar (Subject Base Seminar)	SBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1	
BBT-357	Foregin Language	SCC	6	-	0	20	20	20	90	0	150	-	-	-	36	0	60	3	
	Total		15	2	16	130	140	50	660	120	1100							22	

Semester VI

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing					Credit		
						Internal			External			Total	Internal			External		Total	
						L	T	P	CA	MSE	TW		ESE	PR	CA	MSE			TW
(Mandatory)																			
BBT-361	Synthetic Biology	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BBT-362	RNA Technology	Minor	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	2	
BBT-363	Exponential Biotechnologies-1 (Nanoscience, Bioelectronics)	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BBT-364	Design Biomanufacturing, facilities, critical utilities, process & equipment	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BBT-365	Academic Tutorials-VI	AT	-	2	-	10	20	10	60	-	100	-	-	-	24	-	40	2	
UGL-01	Biological Lab.	Core	-	-	4	10	20	10	60	40	100	-	-	-	24	16	40	2	
UGL-02	Biomanufacturing Lab.	Core	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3	
UGL-03	Open Elective: Genome Editing	SOE	-	-	4	10	20	10	60	-	100	-	-	-	24	-	40	2	
UGL-04	Mini Project	BRP	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3	
BBT-366	Seminar (Research Paper Based)	RBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1	
	Total		12	2	20	110	130	80	720	160	1200							24	

Semester VII

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing					Credit		
						Internal			External			Total	Internal			External		Total	
						L	T	P	CA	MSE	TW		ESE	PR	CA	MSE			TW
(Mandatory)																			
BBT-471	Exponential Biotechnologies-2 (Biosensors, 3D Bio-printing)	Core	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	2	
BBT-472	Biotechnology Application (Biofertilizer, Biopesticide, Bioinsecticides and plant Tissue culture)	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BBT-473	Excitable cells: the foundation of neurosciences	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
UGL-01	Bio industrial Lab.	Core	-	-	2	-	-	-	30	20	50	-	-	-	12	8	20	1	
UGL-02	Open Elective: Introduction to Bioengineering	SOE	-	-	6	20	25	15	90	60	150	-	-	-	36	24	60	3	
UGL-03	Excitable Lab.	Core	-	-	6	10	20	10	60	40	100	-	-	-	24	16	40	2	
UGL-04	Major Project	BRP	-	-	14	45	45	50	210	140	350	-	-	-	84	56	140	7	
BBT-474	Seminar (Research Paper Based)	RBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1	
	Total		9	-	28	70	70	40	660	260	1100							22	

Semester VIII

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing					Credit		
						Internal			External			Total	Internal			External		Total	
						L	T	P	CA	MSE	TW		ESE	PR	CA	MSE			TW
(Mandatory)																			
BBT-481	Bioethics, Biosafety & IPR	SOE	2	-	-	20	20	-	60	-	100	-	-	-	24	-	40	2	
UGL-01	Practical Based on Research Methodology	SOE	-	-	4	10	20	10	60	40	100	-	-	-	24	16	40	2	
UGL-02	Big Idea	BRP	-	-	22	80	90	50	330	220	550	-	-	-	132	88	220	11	
BBT-482	Seminar (Research Paper Based)	RBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1	
	Total		3	-	26	30	30	-	480	260	800							16	

L- Lecture, T-Tutorial, P-Practical, CA- Continuous Assessment, MSE- Mid Semester Examination, ESE- End Semester Examination, PR-Practical, TW-Term Work