

Institute of Biosciences And Technology (MGMU)

B.Tech. Biomedical Engineering

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		MS E	TW	ESE	PR				
	(Mandatory)		L	T	P	CA	MSE	TW	ESE	PR	Total	CA	MS E	TW	ESE	PR	Total			
BTM 111	Engineering Graphics	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3		
BTM 112	Chemistry For Biology	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3		
BTM 113	Physics For Biology	Core	2	-	-	10	20	10	60	0	100	-	-	-	24	-	24	2		
BTM 114	Biology Concept, Connection and Innovation	Minor	2	-	-	10	20	10	60	0	100	-	-	-	24	-	24	2		
BTM 115	Basic Electronics	Minor	2	-	-	10	20	10	60	0	100	-	-	-	24	-	24	2		
UGL-01	Electronics and Graphics Lab	Core	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3		
UGL-02	Biochemistry Lab	Core	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3		
UGL-03	Micro Project	BRP	-	-	4	-	-	-	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		
BTM-117	English Communication Essentials	Audit	{2}	-	-	10	20	10	60	-	100	-	-	-	24	-	40	Audit		
	Total		10(5)	0	16	100	150	90	750	160	1250	-	-	-	300	64	332	20		

Semester II																		
Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing						Credit
						Internal			External			Total	Internal			External		
			L	T	P	CA	MSE	TW	ESE	PR	CA		MS E	TW	ESE	PR	Total	
	(Mandatory)																	
BTM 121	Numerical And Computational Fundamentals- I	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BTM 122	Physiology of Microbes and Introduction to Immunology	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BTM 123	Molecular Biology and Biochemistry	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BTM 124	Cell Genetics And Evolution	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	24	2
BTM 125	Basic Electrical Engineering	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	24	2
UGL-01	Microbiology Lab	Core	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3
UGL-02	Bio-Computational Lab	Core	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3
UGL-03	Micro Project	BRP	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3
UNC-01	Communication skills	Audit	{2}	-	-	10	20	10	60	-	100	-	-	-	24	-	40	Audit
	Total		13	0	18	90	120	90	720	180	1200	-	-	-	288	72	268	22

Semester III																		
Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing						Credit
						Internal			External			Total	Internal			External		
			L	T	P	CA	MSE	TW	ESE	PR	CA		MSE	TW	ESE	PR	Total	
	(Mandatory)																	
BTM 231	Numerical And Computational Fundamentals- II	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BTM 232	Organization of Cell- I	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BTM 233	Immunology	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BTM 234	Gene Expression and Gene Regulation	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BTM 235	Enzymo, Metabolism And Biomaterial	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	24	2
UGL-01	Bio-Computational Lab	Core	-	-	6	0	0	0	90	60	150	-	-	-	36	24	60	3
UGL-02	Cell Lab	Core	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3
UGL-03	Mini Project	BRP	-	-	6	0	0	0	90	60	150	-	-	-	36	24	60	3
UNC-01	Environmental Studies	Audit	{2}	-	-	10	20	10	60	-	100	-	-	-	24	-	40	Audit
UNC-02	Gandhian Studies	Audit	{2}	-	-	10	20	10	60	-	100	-	-	-	24	-	40	Audit
	Total		14	0	18	110	140	110	810	180	1350	-	-	-	324	72	284	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
	(Mandatory)																		
BTM 241	Numerical And Computational Fundamentals- III	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BTM 242	Biomedical Basis of Diseases	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BTM 243	Organization of Cell -II	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BTM 244	Recombinant DNA Technology	Minor	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3	
BTM 245	Introduction To Python	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2	
BTM 246	Bioelectronic Devices And Circuits	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	24	2	
UGL-01	Bio-Computational Lab	Core	-	-	6	0	0	0	90	60	150	-	-	-	36	24	60	3	
UGL-02	Biosciences Lab.	Core	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3	
UGL-03	Mini Project	BRP	-	-	4	-	-	-	60	40	100	-	-	-	24	16	40	2	
	Total		16	0	16	100	120	100	720	160	1200	-	-	-	288	64	224	23	

Semester V																		
Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing						Credit
						Internal			External			Total	Internal			External		
			L	T	P	CA	MSE	TW	ESE	PR	CA		MSE	TW	ESE	PR	Total	
	(Mandatory)																	
BTM 351	Numerical And Computational Fundamentals- IV	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 352	Digital Electronics And Microprocessor	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 353	Introduction to Organ Design	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 354	Sensor and Sensor Circuits	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 355	Advanced Python	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 356	Academic Tutorials-V	AT	-	2	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 357	Seminar (Subject Base Seminar)	SBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1
UGL-01	Programming Lab	Core	-	-	6	0	0	0	60	40	100	-	-	-	24	16	40	2
UGL-02	System Lab	Core	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3
UGL-03	Mini Project	BRP	-	-	4	-	-	-	60	40	100	-	-	-	24	16	40	2
BTM 358	Foregin Language	SCC	2	-	-	10	20	10	60	-	100	-	-	-	24	-	24	2
	Total		13	2	16	80	150	70	660	140	1100	-	-	-	264	56	424	22

Semester VI																		
Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing						Credit
						Internal			External			Total	Internal			External		
			L	T	P	CA	MSE	TW	ESE	PR	CA		MSE	TW	ESE	PR	Total	
	(Mandatory)																	
BTM 361	Stem Cell and Cancer Biology	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	-	60	3
BTM 362	Introduction to Organ Design	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 363	Medical Devices, Image processing and analysis	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 364	Human Brain Structure and Function	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 365	Data Science with Python	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM 366	Academic Tutorials-VI	AT	-	2	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM-367	Seminar (Research Paper Based)	RBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1
UGL-01	BioScience Lab.	Core	-	0	6	-	-	-	90	60	150	-	-	-	36	24	60	3
UGL-02	Programming Lab.	Core	-	-	6	-	-	-	90	60	150	-	-	-	36	24	60	3
UGL-03	Open Elective- Biosensors, Industrial Chemistry, Biomedical Instrumentation	SOE	-	-	4	10	20	10	60	-	100	-	-	-	24	-	40	2
UGL-04	Mini Project	BRP	-	-	4	-	-	-	60	40	100	-	-	-	24	16	40	2
	Total		12	2	20	90	150	80	720	160	1200	-	-	-	288	64	420	24

Semester VII

Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing						Credit		
						Internal			External			Total	Internal			External			Total	
						CA	MSE	TW	ESE	PR	CA		MS E	TW	ESE	PR				
	(Mandatory)		L	T	P															
BTM 471	Kidney Biology and Biofluid Mechanics	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	0	60	3		
BTM 472	Biological Control System Analysis	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2		
BTM 473	Artificial Organ Development	Core	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2		
BTM 474	Biomining and MATLAB	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2		
BTM-475	Seminar (Research Paper Based)	RBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1		
UGL-01	Biological Data analysis Lab.	Core	-	-	4	-	-	-	60	40	100	-	-	-	24	16	40	2		
UGL-02	Bioinformatics and MATLAB	Core	-	-	2	-	-	-	30	20	50	-	-	-	12	8	20	1		
BTM-476	Open Elective - 1- Neuroscience 2- Management Information System 3- Project Management	SOE	-	-	4	10	20	10	60	-	100	-	-	-	24	-	40	2		
UGL-03	CoreProject	BRP	-	-	14	-	-	-	210	140	350	-	-	-	84	56	140	7		
	Total		10		24	70	110	60	660	200	1100	-	-	-	264	80	440	22		

Semester VIII																		
Course code*	Course Title	Type	Teaching Scheme			Evaluation Scheme						Minimum Passing						Credit
						Internal			External			Total	Internal			External		
			L	T	P	CA	MSE	TW	ESE	PR	CA		MSE	TW	ESE	PR	Total	
	(Mandatory)																	
BTM-481	Bioartificial Organ Manufacturing Technology	Core	3	-	-	20	20	20	90	-	150	-	-	-	36	0	60	3
BTM-482	Liver Anatomy And Function	Minor	2	-	-	10	20	10	60	-	100	-	-	-	24	-	40	2
BTM-483	Seminar (Research Paper Based)	RBS	1	-	-	10	10	-	30	-	50	-	-	-	12	-	20	1
UGL-01	Big Idea	BRP	-	-	20	-	-	-	300	200	500	-	-	-	120	80	200	10
	Total		6		20	40	50	30	480	200	800	-	-	-	192	80	320	16

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

BTM- B. Tech. Biomedical Engineering, OEC- Open Elective Courses, UGL-Undergraduate Laboratory, UNC- Undergraduate Non credit

Director