

Intake:	2020 onwards	Specialization:	Biomedical Engineering							
Details of the Curriculum			Stream:	Medical Instrumentation and Signals						
Module Code	Module Name	Category C/E/O	Time allocation [Hours/Week]		Credits offered		Norm		Evaluation %	
			Lecture	Lab / Tute	GPA	NGPA	GPA	NGPA	CA	WE
Semester 1			Specialization requirement				15.0			
CE1023	Fluid Mechanics	C	2	2/4	2.0		15.0		20	80
CS1033	Programming Fundamentals	C	2	2	3.0				20	80
EE1040	Electrical Fundamentals	C	2	2/4	2.0				20	80
MA1014	Mathematics	C	5/2	1	3.0				20	80
ME1033 ✓	Mechanics	C	2	2/4	2.0				20	80
MT1022	Properties of Materials	C	2	2/4	2.0				20	80
EL1030	Language Skills Enhancement [S1 & S2]	C	-	2	1.0				100	0
			Total		15.0	0.0	15.0	0.0		
Semester 2			Specialization requirement				23.0			
MA1024	Methods of Mathematics	C	5/2	1	3.0		23.0		30	70
EN1014	Electronic Engineering	C	3	2	4.0				40	60
EN1054	Introduction to Telecommunications Engineering	C	3	2	4.0				50	50
EN1020	Circuits, Signals, and Systems	C	2	2	3.0				40	60
EN1094	Laboratory Practice	C	-	4	2.0				100	0
EN1971	Communication Skills	C	1	2	2.0				100	0
EL1030	Language Skills Enhancement [S1 & S2]	C	-	2	1.0				100	0
BM1190	Engineering Design Project	C	2	4	4.0				100	0
			Total		23.0	0.0	23.0	0.0		
Semester 3			Specialization requirement				20.0			
MA2014	Differential Equations	C	2	-	2.0		17.0		30	70
MA2024	Calculus	C	2	-	2.0				30	70
BM2012	Anatomy and Physiology for Engineers [S3 & S4]	C	1	2	2.0				100	0
EN2014	Electronic Circuits and Analysis	C	3	-	3.0				40	60
EN2031	Fundamentals of Computer Organization and Design	C	2	2	3.0				50	50
EN2063	Signals and Systems	C	3	-	3.0				40	60
EN2091	Laboratory Practice and Projects	C	-	4	2.0		100	0		
EN2533	Robot Design and Competition	E	1	4	3.0		3.0		70	30
BM2210	Biomedical Device Design	E	1	4	3.0				70	30
EN2130	Communication Design Project	E	1	4	3.0				70	30
			Total		26.0	0.0	20.0	0.0		
Semester 4			Specialization requirement				20.0			
MA2034	Linear Algebra	C	2	-	2.0		17.0		30	70
BM2012	Anatomy and Physiology for Engineers [S3 & S4]	C	1	2	2.0				100	0
BM2102	Modelling and Analysis of Physiological Systems	C	2	2	3.0				60	40
EN2111	Electronic Circuit Design	C	3	2	4.0				40	60
EN2143	Electronic Control Systems	C	2	2	3.0				40	60
EN2160	Electronic Design Realization	C	2	2	3.0				70	30
CS2023	Data Structures and Algorithms	E	2	2	3.0		3.0		40	60
CS2833	Modular Software Development	E	2	2	3.0				50	50
EE2024	Electrical Machines in Power Systems	E	2	2	3.0				30	70
ME1823	Fundamentals of Engineering Thermodynamics and Applications	E	5/2	2/2	3.0				30	70
			Total		29.0	0.0	20.0	0.0		
Semester 5			Specialization requirement				18.0			
MA3014	Applied Statistics	C	2	-	2.0		9.0		30	70
BM3880	Engineer and Society [S5 & S6]	C	-	2	1.0				100	0
BM3110	Electronic Instrumentation	C	2	2	3.0				50	50
BM3122	Medical Imaging	C	2	2	3.0				50	50
BM3500	Biomechanics	E	2	2	3.0		6.0		50	50
EN3580	Electromagnetics	E	3	2	4.0				50	50
EN3551	Digital Signal Processing	E	2	2	3.0				40	60
EN3013	Analog Circuit Design	E	2	2	3.0				50	50
EN3021	Digital System Design	E	2	2	3.0				50	50
EN3150	Pattern Recognition	E	2	2	3.0				70	30
EN3160	Image Processing and Machine Vision	E	2	2	3.0				40	60
EN3251	Internet of Things	E	2	2	3.0				100	-
EN3563	Robotics	E	2	2	3.0		3.0		50	50
EE2074	Electric Motors in Industry	E	2	2	3.0				30	70
MN3043	Business Economics and Financial Accounting	E	3	-	3.0				30	70
MN3053	Industrial Management and Marketing	E	3	-	3.0				30	70

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		Total	46.0	0.0	18.0	0.0			
Industrial Training		Specialization requirement	6.0						
BM3991	Industrial Training	C			6.0		6.0	100	0
		Total	0.0	6.0	0.0	6.0			
Semester 6		Specialization requirement	9.0						
BM3880	Engineer and Society [S5 & S6]	C	1	2	2.0		4.0	100	0
BM3181	Seminar and Scientific Communication	C	1	2	2.0			100	0
HM-1	Humanities Elective 1	E	2	-	2.0		2.0	100	0
BM3210	Self Initiated Innovation	E	-	6	3.0			100	0
EN3260	Industrial Electronics and Automation	E	2	2	3.0			50	50
EN3111	Electronic Devices	E	2	2	3.0			50	50
EN3224	Electronic Manufacturing Systems	E	2	2	3.0			50	50
EN3270	Internet of Things Systems Engineering	E	2	2	3.0			50	50
EN3330	Introduction to Engineering Optimization	E	2	2	3.0			70	30
EN3340	Random Signals and Processes	E	2	2	3.0			50	50
EN3350	Software Design Competition	E	-	6	3.0			100	0
		Total	30.0	0.0	9.0	0.0			
Semester 7		Specialization requirement	17.0						
BM4201	Project [S7 & S8]	C	-	8	4.0		9.0	100	0
BM4112	Medical Electronics and Instrumentation	C	2	2	3.0			50	50
BM4180	Technical and Scientific Writing	C	1	2	2.0			100	0
BM4152	Biosignal Processing	E	2	2	3.0			70	30
BM4302	Medical Image Processing	E	2	2	3.0			70	30
BM4322	Genomic Signal Processing	E	2	2	3.0			50	50
CH4140	Biotechnology	E	2	2	3.0			40	60
MA3014	Experimental Design and Quality Control	E	3	-	3.0			30	70
EN4604	Digital IC Design	E	2	2	3.0			40	60
EN4214	Power Electronics	E	2	2	3.0			50	50
EN4440	Embedded Systems Engineering	E	2	2	3.0			100	0
EN4470	Probabilistic System Analysis	E	2	2	3.0			60	40
EN4394	Applied Information Theory	E	2	2	3.0			40	60
EN4640	Statistical Signal Processing	E	2	2	3.0			60	40
EN4554	Deep Learning for Vision	E	2	2	3.0			60	40
EN4594	Autonomous Systems	E	2	2	3.0			50	50
MN4063	Organizational Behaviour and Management	E	2	-	2.0			30	70
MN4133	Consumer and Industrial Marketing	E	2	-	2.0			30	70
		Total	52.0	0.0	17.0	0.0			
Semester 8		Specialization requirement	11.0						
BM4201	Project [S7 & S8]	C	-	12	6.0		6.0	100	0
EN4021	Advanced Digital Systems	E	2.0	2	3.0			100	0
EN4650	Computer Systems Architecture	E	2.0	2	3.0			70	30
EN4480	Advanced Power Electronic Design	E	2.0	2	3.0			50	50
EN4660	Advanced Electronic Control Systems	E	2.0	2	3.0			60	40
EN4421	Advanced Signal Processing	E	2.0	2	3.0			50	50
EN4720	Security in Cyber-Physical Systems	E	2.0	2	3.0			100	-
EN4574	Advanced Pattern Recognition	E	2.0	2	3.0			60	40
EN4730	Convex Engineering Design	E	2.0	2	3.0			70	30
EN4584	Advances in Computer Vision	E	2.0	2	3.0			60	40
EN4431	Analog IC Design	E	2.0	2	3.0			50	50
MN4123	Human Resource Management and Industrial Relations	E	2.0	-	2.0			30	70
MN4043	Technology Management	E	2.0	-	2.0			30	70
MN4151	Project Management	E	2.0	-	2.0			30	70
MN4093	Management Skills Development	E	2.0	-	2.0			30	70
MN4113	Production and Operations Management	E	2.0	-	2.0			30	70
		Total	46	0	11.0	0.0			
Grand Total			267.0	6.0	133.0	6.0			
Total credit requirement for the Specialization						139.0			
Faculty/Specialization Electives beyond the specialization requirements [refer faculty electives table]*						11.0			
TOTAL CREDIT REQUIREMENT FOR GRADUATION						150.0			