

Curriculum of B.Tech in Biomedical Engineering Programme (1st-8th Semester)

1st Year, 1st Semester

Subject Type	Subject Code	Subject Name	Contact Hours L:T:P	Total Credits	Contact Hours/Week
THEORY:					
BS	M 101	MATHEMATICS-I	3:1:0	4	4
BS	CH 101	CHEMISTRY	3:1:0	4	4
ES	EE101	BASIC ELECTRICAL ENGINEERING	3:1:0	4	4
ES	ME 101	ENGINEERING MECHANICS	3:1:0	4	4
HS	HU 101	PROFESSIONAL COMMUNICATION	2:0:0	2	2
PRACTICAL:					
BS	CH191	CHEMISTRY LAB	0:0:3	2	3
ES	EE 191	BASIC ELECTRICAL ENGINEERING LAB	0:0:3	2	3
ES	ME 191	ENGINEERING DRAWING & GRAPHICS LAB	0:0:3	2	3
HS	HU191	LANGUAGE LAB & SEMINAR PRESENTATION	0:0:2	1	2
SESSIONAL:					
HS	XC 181	EXTRA CURRICULAR ACTIVITY (NSS/NCC)	0:0:2	1	2
TOTAL: TEN			14:4:13	26	31

1st Year, 2nd Semester

Subject Type	Subject Code	Subject Name	Contact Hours L:T:P	Total Credits	Contact Hours/Week
THEORY:					
BS	M 201	MATHEMATICS-II	3:1:0	4	4
BS	PH 201	PHYSICS-I	3:1:0	4	4
ES	EC 201	BASIC ELECTRONICS ENGINEERING	3:1:0	4	4
ES	CS 201	COMPUTER FUNDAMENTALS & PRINCIPLE OF COMPUTER PROGRAMMING	3:1:0	4	4
ES	ME 201	ENGINEERING THERMODYNAMICS & FLUID MECHANICS	3:1:0	4	4
PRACTICAL:					
BS	PH 291	PHYSICS LAB-I	0:0:3	2	3
ES	CS 291	COMPUTER PROGRAMING LAB	0:0:3	2	3
ES	EC 291	BASIC ELECTRONICS ENGINEERING LAB	0:0:3	2	3
ES	ME 291	WORKSHOP LAB	0:0:3	2	3
SESSIONAL:					
MC	MC281	SOFT SKILL DEVELOPMENT	0:0:2	0	2 units
TOTAL: TEN			15:5:14	28	34

BME-Semester III

Subject Type	Subject Code	Subject Name	Contact hrs/week				Credits
			L	T	P	Total	
	THEORY						
BS	M(BME) 301	MATHEMATICS-III	3	1	0	4	4
PC	BME 301	ENGINEERING PHYSIOLOGY & ANATOMY	3	1	0	4	4
PC	BME 302	BIOPHYSICAL SIGNALS & SYSTEMS	3	1	0	4	4
ES	EE(BME) 303	CIRCUIT THEORY & NETWORKS	2	0	0	2	2
ES	EC(BME) 304	ANALOG ELECTRONIC CIRCUITS	2	0	0	2	2
	PRACTICAL						
PC	BME 391	ENGINEERING PHYSIOLOGY & ANATOMY LABORATORY	0	0	3	3	2
PC	BME 392	BIOPHYSICAL SIGNALS & SYSTEMS LABORATORY	0	0	3	3	2
ES	EE(BME) 393	CIRCUITS & NETWORKS LABORATORY	0	0	2	2	1
ES	EC(BME) 394	ANALOG ELECTRONIC CIRCUITS LABORATORY	0	0	2	2	1
	SESSIONAL						
MC	MC381	TECHNICAL SKILL DEVELOPMENT	0	0	2 Units	2 Units	0
		TOTAL	13	3	12	28	22

BME-Semester IV

Subject Type	Subject Code	Subject Name	Contact hrs/week				Credits
			L	T	P	Total	
	THEORY						
HS	HU 401	ENVIRONMENTAL SCIENCE	2	0	0	2	2
BS	PH(BME) 401	PHYSICS-II	3	1	0	4	4
ES	EC(BME) 401	DIGITAL ELECTRONIC CIRCUITS	2	0	0	2	2
PC	BME 402	BIOMECHANICS	3	1	0	4	4
PC	BME 403	BIOMATERIALS	3	1	0	4	4
	PRACTICAL						
BS	PH(BME) 491	PHYSICS-II LABORATORY	0	0	3	3	2
ES	EC(BME) 491	DIGITAL ELECTRONIC CIRCUITS LABORATORY	0	0	2	2	1
PC	BME 492	BIOMECHANICS & BIOMATERIALS LABORATORY	0	0	3	3	2
	SESSIONAL						
HS	HU 481	TECHNICAL REPORT WRITING LANGUAGE PRACTICE	0	0	2	2	1
		TOTAL	13	3	10	26	22

BME-Semester V

Subject Type	Subject Code	Subject Name	Contact hrs/week				Credits
			L	T	P	Total	
	THEORY						
PC	BME 501	BIOMEDICAL INSTRUMENTATION	3	1	0	4	4
PC	BME 502	BIOSENSORS & TRANSDUCERS	3	0	0	3	3
PC	BME 503	BIOMEDICAL DIGITAL SIGNAL PROCESSING	3	1	0	4	4
PC	BME 504	MEDICAL IMAGING TECHNIQUES	3	1	0	4	4
PE-I	CS(BME) 505A	DATA STRUCTURE & ALGORITHM	3	0	0	3	3
	EE(BME) 505B	CONTROL ENGINEERING					
	BT(BME) 505C	BIONANOTECHNOLOGY					
PE-II	EE(BME) 506A	ELECTRONIC MEASUREMENT AND INSTRUMENTATION	3	0	0	3	3
	IT(BME) 506B	INFORMATION SECURITY					
	CS(BME) 506A	DATA BASE MANAGEMENT SYSTEM					
	PRACTICAL						
PC	BME 591	BIOMEDICAL INSTRUMENTATION LABORATORY	0	0	3	3	2
PC	BME 592	BIOSENSORS & TRANSDUCERS LABORATORY	0	0	3	3	2
PC	BME 593	BIOMEDICAL DIGITAL SIGNAL PROCESSING LABORATORY	0	0	3	3	2
PE-I	CS(BME) 595A	DATA STRUCTURE & ALGORITHM LABORATORY	0	0	3	3	2
	EE(BME) 595B	CONTROL ENGINEERING LABORATORY					
	BT(BME) 595C	BIONANOTECHNOLOGY LABORATORY					
	SESSIONAL						
	BME 582	MINI PROJECT	0	0	3	3	2
MC	MC 581	GROUP DISCUSSION PRACTICE	0	0	2 Units	2 Units	0
		TOTAL	18	3	17	38	31

BME-Semester VI

Subject Type	Subject Code	Subject Name	Contact hrs/week				Credits
			L	T	P	Total	
	THEORY						
PC	BME 601	ANALYTICAL & DIAGNOSTIC EQUIPMENTS	3	1	0	4	4
PC	BME 602	BIOPHYSICS & BIOCHEMISTRY	3	1	0	4	4
PC	BME 603	MODELLING OF PHYSIOLOGICAL SYSTEMS	3	1	0	4	4
PC	BME 604	ADVANCED IMAGING SYSTEMS	3	0	0	3	3
PE-III	EC(BME) 605A	COMMUNICATION SYSTEMS	3	0	0	3	3
	BT(BME) 605B	BIOHEAT AND MASS TRANSFER					
	BT(BME) 605C	TISSUE ENGINEERING					
OE-I	EE(BME) 606A	MICROPROCESSORS & MICROCONTROLLERS	3	0	0	3	3
	EC(BME) 606B	VLSI & EMBEDDED SYSTEM					
	IT(BME) 606C	SOFT-COMPUTING					
	PRACTICAL						
PC	BME 691	BIOMEDICAL EQUIPMENT LABORATORY	0	0	3	3	2
PE-III	EC(BME) 695A	COMMUNICATION SYSTEMS LABORATORY	0	0	3	3	2
	BT(BME) 695B	BIOHEAT AND MASS TRANSFER LABORATORY					
	BT(BME) 695C	TISSUE ENGINEERING LABORATORY					
OE-I	EE(BME) 696A	MICROPROCESSORS & MICROCONTROLLERS LABORATORY	0	0	3	3	2
	BC(BME) 696B	VLSI & EMBEDDED SYSTEM LABORATORY					
	IT(BME) 696C	SOFT-COMPUTING LABORATORY					
	SESSIONAL						
	BME 681	DESIGN LAB	0	0	6	6	3
	BME 682	HOSPITAL TRAINING (2 Weeks)	0	0	0	0	2
		TOTAL	18	3	15	36	32

BME-Semester VII

Subject Type	Subject Code	Subject Name	Contact hrs/week				Credits
			L	T	P	Total	
	THEORY						
HS	HU 701	ENGINEERING ECONOMICS & MANAGEMENT	2	0	0	2	2
PC	BME 701	THERAPEUTIC EQUIPMENTS	3	1	0	4	4
PE-IV	BME 702A	MEDICAL IMAGE PROCESSING	3	0	0	3	3
	BME 702B	BIOTELEMETRY & TELEMEDICINE					
	BME 702C	BIOINFORMATICS					
OE-II	BME 703A	BIOLOGICAL CONTROL SYSTEMS	3	0	0	3	3
	BME 703B	MEDICAL ROBOTICS & AUTOMATION					
	BME 703C	BIOMEMS					
	PRACTICAL						
PC	BME 791	MEDICAL INSTRUMENTS & SYSTEMS LABORATORY	0	0	3	3	2
PE-IV	BME 792A	MEDICAL IMAGE PROCESSING LABORATORY	0	0	3	3	2
	BME 792B	BIOTELEMETRY & TELEMEDICINE LABORATORY					
	BME 792C	BIOINFORMATICS LABORATORY					
	SESSIONAL						
	BME 781	PROJECT I	0	0	6	6	3
	BME 782	INDUSTRIAL TRAINING (4 Weeks)	0	0	0	0	2
MC	MC 781	TECHNICAL SEMINAR PRESENTATION	0	0	3	3	0
		TOTAL	11	1	15	27	21

BME-Semester VIII

Subject Type	Subject Code	Subject Name	Contact hrs/week				Credits
			L	T	P	Total	
	THEORY						
HS	HU 801	VALUES & ETHICS IN PROFESSION	2	0	0	2	2
PE-V	BME 801A	ARTIFICIAL ORGAN & REHABILITATION ENGINEERING	3	0	0	3	3
	BME 801B	LASERS & OPTICS IN MEDICINE					
	BME 801C	BIOMEDICAL HAZARDS & SAFETY					
OE-III	BME802A	DRUG DELIVERY SYSTEM	3	0	0	3	3
	BME802B	HOSPITAL ENGINEERING & MANAGEMENT					
	BME 802C	RADIOTHERAPY & NUCLEAR MEDICINE					
	SESSIONAL						
	BME881	PROJECT II	0	0	12	12	6
	BME882	GRAND VIVA	0	0	0	0	2
		TOTAL	8	0	12	20	16

HS	Humanities and Social Sciences	PC	Professional -Core
BS	Basic Sciences	PE	Professional -Electives
ES	Engineering Sciences	OE	Open Electives

Credit points evaluation for B.Tech (BME) Programme(JISCE)
Total Credit: 198

Humanities and Social Sciences including Management (HS)					
Course Code	Credits	Total Credits	Range of Total credits (%) as per AICTE		Assigned Credits (for Total=198) for Autonomy syllabus(%)
			Min.	Max.	
HU191	1	11	5	10	5.6
XC181	1				
HU101	2				
HU 301	2				
HU 481	1				
HU 701	2				
HU 801	2				

Basic Sciences including Mathematics, Physics, Chemistry, Biology (BS)					
Course Code	Credits	Total Credits	Range of Total credits (%) as per AICTE		Assigned Credits (for Total=198) for Autonomy syllabus(%)
			Min.	Max.	
M 101	4	30	15	20	15.2
CH 101	4				
CH191	2				
M 201	4				
PH 201	4				
PH 291	2				
M(BME) 301	4				
PH(BME) 401	4				
PH(BME) 491	2				

Engineering Sciences (ES)					
Course Code	Credits	Total Credits	Range of Total credits (%) as per AICTE norms		Assigned Credits (for Total=198) for Autonomy syllabus(%)
			Min.	Max.	
EE101	4	39	15	20	19.7
ME 101	4				
EE 191	2				
ME 191	2				
EC 201	4				
CS 201	4				
ME 201	4				
EC 291	2				
ME 291	2				
CS 291	2				
EE(BME) 302	2				
EC(BME) 303	2				
EE(BME) 392	1				
EC(BME) 393	1				
EC(BME) 401	2				
EC(BME) 491	1				

Professional Subjects-Core (PC)					
Course Code	Credits	Total Credits	Range of Total credits (%) as per AICTE norms		Assigned Credits (for Total=198) for Autonomy syllabus(%)
			Min.	Max.	
BME 301	4	66	30	40	33.3
BME 391	2				
BME 401	4				
BME 402	4				
BME 403	4				
BME 491	2				
BME 492	2				
BME 501	4				
BME 502	3				
BME 503	4				
BME 504	4				
BME 591	2				
BME 592	2				
BME 593	2				
BME 601	4				
BME 602	4				
BME 603	4				
BME 604	3				
BME 691	2				
BME 701	4				
BME 791	2				

Professional Subjects – Electives (PE)					
Course Code	Credits	Total Credits	Range of Total credits (%) as per AICTE norms		Assigned Credits (for Total=198) for Autonomy syllabus(%)
			Min.	Max.	
CS(BME) 505A	3	21	10	15	10.6
EE(BME) 505B					
BT(BME) 505C					
EE(BME) 506A	3				
IT(BME) 506B					
CS(BME) 506A					
CS(BME) 595A	2				
EE(BME) 595B					
BT(BME) 595C					
EC(BME) 605A	3				
BT(BME) 605B					
BT(BME) 605C					
EC(BME) 695A	2				
BT(BME) 695B					
BT(BME) 695C					
BME 702A	3				
BME 702B					
BME 702C					
BME 792A	2				
BME 792B					
BME 792C					
BME 801A	3				
BME 801B					
BME 801C					

Open Subjects- Electives (OE)					
Course Code	Credits	Total Credits	Range of Total credits (%) as per AICTE norms		Assigned Credits (for Total=198) for Autonomy syllabus(%)
			Min.	Max.	
EE(BME) 606A	3	11	5	10	5.6
EC(BME) 606B					
IT(BME) 606C					
EE(BME) 696A	2				
BC(BME) 696B					
IT(BME) 696C					
BME 703A	3				
BME 703B					
BME 703C					
BME802A	3				
BME802B					
BME 802C					

Project Work, Seminar and/or Internship in Industry

Course Code	Credits	Total Credits	Range of Total credits (%) as per AICTE norms		Assigned Credits (for Total=198) for Autonomy syllabus(%)
			Min.	Max.	
BME 582	2	20	10	15	10.1
BME 681	3				
BME 682	2				
BME 781	3				
BME 782	2				
BME881	6				
BME882	2				