### **ACADEMIC CURRICULA**

# UNDERGRADUATE / INTEGRATED POST GRADUATE DEGREE PROGRAMMES

(With exit option of Diploma)

(Choice Based Flexible Credit System)

Regulations 2021

Volume - 1

(Revised in July 2023)



# SRM INSTITUTE OF SCIENCE AND TECHNOLOGY

(Deemed to be University u/s 3 of UGC Act, 1956)
Kattankulathur, Chengalpattu District 603203,
Tamil Nadu, India



# 13. B.Tech in Biomedical Engineering with Specialization in Machine Intelligence

#### 13. (a) Mission of the Department

Mission Stmt – 1	Build on a strong foundation in Basic science and Engineering and educate the students in diverse filed of Biomedical Engineering
Mission Stmt – 2	Work towards state of art Biomedical Engineering research and development through an interdisciplinary curriculum.
Mission Stmt – 3	Apply knowledge about design in development of enabling technologies for improvement of human health

#### 13. (b) Program Educational Objectives (PEO)

PEO – 1	Develop real world biomedical devices and prototype models and test with multi-disciplinary approach.
PEO – 2	Design technologically enabled equipments that open up new areas of medical research.
PEO – 3	To impose innovative ideas for commercialization of developed products.
PEO-4	Lead and work in a team with varied expertise and meet the changing needs of the profession through life long learning.
PEO-5	To promote entrepreneurship skills in creating jobs in health care domain.

#### 13. (c) Mission of the Department to Program Educational Objectives (PEO) Mapping

	Mission Stmt – 1	Mission Stmt – 2	Mission Stmt – 3
PEO – 1	3	2	3
PEO – 2	3	3	2
PEO – 3	3	2	3
PEO – 4	3 -	3	2
PEO - 5	3	3	2

13. (d) Mapping Program Educational Objectives (PEO) to Program Outcomes (PO)

	трр	8	8		Pro	gram Óu	tcomes (	PO)	,	8		77		PSO	
	Engineering Knowledge	Problem Analysis	Design/development of solutions	Conduct investigations of complex problems	Modem Tool Usage	The engineer and society	Environment & Sustainability	Ethics	Individual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO-2	PSO - 3
PEO – 1	3	3	3	3	2	3	3	2	3	2	3	2	3	3	3
PEO – 2	3	2	3	3	3	2	2	2	3	2	3	3	3	3	3
PEO – 3	3	3	3	3	2	3	3	3	2	3	3	2	2	3	3
PEO – 4	2	3	3	3	2	2	2	2	3	2	3	2	3	2	3
PEO – 5	3	2	2	3	2	2	2	2	2	2	2	3	3	2	2

<sup>3 -</sup> High Correlation, 2 - Medium Correlation, 1 - Low Correlation

#### PSO – Program Specific Outcomes

	-01
PSO - 1	Ability to apply engineering design to offer health care solutions with consideration of safety, welfare, social, cultural and
F30 - 1	environmental factors
PSO - 2	Ability to model and analyze biological systems with ethical and professional responsibilities in Engineering situations.
PSO - 3	Ability to initiate cross disciplinary and industry collaborative research.

# 13. (e) Program Structure: B.Tech. in Biomedical Engineering with Specialization in Machine Intelligence

Machine	Intelligence											
	Humanities & Social Sciences							Basic Science Courses (B)			,	
including Management Courses (H)							Course	Course		Hour Wee		
Course	Course		٧	Veel	k		Code	Title	L	T	Р	С
Code	Title			T	<u>P</u>	С		Calculus and Linear Algebra	3	1	0	4
21LEH101	3 -		2	1	0	3	21CYB101J		3	1	2	5
21LEH102								Biology -Human Physiology and Anatomy	2	0	0	2
21LEH104								Advanced Calculus and Complex Analysis Physics: Electromagnetic Theory, Quantum	3	1	0	
21LEH105			2	1	0	3	21PYB101J	Mechanics, Waves and Optics	3	1	2	5
21LEH106	T Korean						21MAB201T	Transforms and Boundary Value Problems	3	1	0	4
21LEH107								Numerical Methods	3	1	0	4
21GNH101			1	0	2	2	21MAB301T	Probability and Statistics	3	1	0	4
21PDH201 21GNH401			2	0	0	3		Total Credits				32
2101111401	Total Cred	lits	2	1	U	13		Professional Core Courses (C)				
	Engineering Science Courses (S)						Course	Course		Hour		
		ŀ	Hour	s/			ļ			Wee		
Course	Course		Wee				Code	Title	L	T	<u>P</u>	C
Code	Title	L	Т	Р	(	С		Biomedical Sensors Biomedical Signals and Systems	3	0	0	3
21CSS101J	Programming for Problem Solving	3	0	2		4		Electric and Electronic Circuits	3	0	2	4
	Basic civil and Mechanical Workshop	0	0	4		2		Digital Logic for Medical Systems	2	0	2	3
	Engineering Graphics and Design	0	0	4		2 4	21BMC205J	Integrated Circuit Design for Bioinstrumentation	2	0	2	3
	Electrical and Electronics Engineering Design Thinking and Methodology	3	0	0		3		Biomedical Instrumentation	3	0	2	4
	Medical Physics	3	0	0		3		Biomaterials and Tissue Interaction	2	0	2	3
	Data science	1	1	0		2		Biomedical Signal Processing	3	0	2	4
	Total Credits	<u> </u>			_	20		Microcontrollers and its Application in Medicine Principles of Medical Imaging	3	0	0	3
	Professional Elective Courses (E)							Medical Image Processing	2	0	2	3
	(Any 6 Courses)							Biocontrol Systems	3	0	0	3
Course	Course	H	lour	s/				Biomechanics	2	0	2	3
Course	Course	١	Wee				21BMC402J	Biomedical Equipments for Clinical Applications	2	0	2	3
Code	Title	L	T	Р		C	21CSC206T	Artificial Intelligence	2	1	0	3
	Al and Machine learning for Healthcare	3	0	0		3		Total Credits				49
	Statistics and Data Science Artificial Neural Networks and Pattern	3	0	0		3		Open Elective Courses (O) (Any 3 Course	s)			
ZIDIVILZIJI	Recognition	J	U	0	'	٦	_	. ,,,,,		Hour	s/	
21BME274T	IoT and Smart Sensors	3	0	0		3	Course	Course		Wee		
	Telehealth Care Informatics	3	0	0		3	Code	Title	L	Τ	Р	С
21BME276T	Natural Language Processing for Healthcare	3	0	0		3		Fundamentals of Biomedical Engineering	3		0	3
21DME201T	Applications  Deep Learning Techniques in Medicine	2	0	0		3		Health Information Systems	3	0	0	3
21BME3011	Deep Learning Techniques in Medicine Computer Vision and Image Processing	3	0	0		3		Basics of Medical Imaging Rehabilitation Engineering	3	0	0	3
	Robotics and Smart Technologies	3	0	0		3		Quality Control for Biomedical Devices	3	0	0	3
	Brain Computer Interface	3	0	0		3		Biomechanics of Human Movement	3	0	0	3
21BME481T	Biomimetics and Bio-inspired Design	3	0	0		3		Digital Healthcare Technology	3	0	0	3
21BME482T	Biomechanical Modeling and Simulation	3	0	0	_	3		Total Credits				9
	Total Credits				1	8		Project Work, Seminar, Internship In				
	Mandatory Courses (M)	ŀ	lour	اء				Industry / Higher Technical Institutions (P)				
Course	Course		Wee				Course	Course	-	Hour		
Code	Title	L	Т	Р	(	С				Wee		
21PDM101L	Professional Skills and Practices	0	0	2		0	Code	Title			Р	C 1
	Environmental Science	1	0	0	_	0	21BMP301L	Community Connect	3	0	0	ı
	General Aptitude	0	0	2		0	21BMP302L		0	0	6	3
	Professional Ethics	1	0	0		0		Major Project	0	0	30	
	Verbal Reasoning Critical and Creative Thinking Skills	0	0	2		0 0		Major Project	0	0	20	15
	Analytical and Logical Thinking Skills	0	0	2		0	21BMP403L		0	0	10	
	Employability Skills and Practices	0	0	2		0		Total Credits				19
	Constitution of India	1	0	0		0						
	Universal Human Values – Introduction	1	0	0		0						
21LEM202T	Universal Human Values- Understanding	2	1	0		3						
	Harmony and Ethical Human Conduct											
	Indian Art Form	1	0	0		0						
	Indian Traditional Knowledge Physical and Mental Health using Yoga	0	0	2		0 0						
21GNM101L 21GNM102L		0	0	2		0						
21GNM103L		0	0	2		0						
21GNM104L		0	0	2		0						
	Total Credits				L,	3						

## 13. (f) Program Articulation: B.Tech. in Biomedical Engineering with Specialization in Machine Intelligence

	Machine Intelligence															
							gram L				mes (	PLO)				
					Jo	Grad	duate	Attrib	outes		1	ı —			PSO	т —
Course Code	Course Name	Engineering Knowledge	Problem Analysis	Design/development of	investigations	Modern Tool Usage	The engineer and society	Environment & Sustainability	Ethics	ndividual & Team Work	Communication	Project Mgt. & Finance	Life Long Learning	PSO - 1	PSO - 2	PSO - 3
21BMC101J	Biomedical sensors	1	1	1	1	-	-	-	-	-	-	-	-	1	1	1
21BMC202T	Biomedical signals and systems	2	1	1	1	-	-	-	-	-	-	-	-	1	1	2
21BMC203J	Electric and Electronic circuits	3	1	1	1	-	-	-	-	-	-	1	-	2	1	-
21BMC204J	Digital logic for Medical systems	1	2	1	1	1	-	-	-	-	-	-	1	1	1	1
21BMC205J	Integrated circuit Design for Bioinstrumentation	1	1	1	1	1	-	-	-	-	-	-	1	1	1	1
		2	1	-	1	2	1	-	-	-	-	-	-	1	1	1
21BMC207J	Biomaterials and Tissue Interaction	1	-	-	-	-	-	-	2	-	-	-	-	1	1	1
21BMC301J	Biomedical signal processing	2	1	1	1	1	-	-	-	-	-	-	-	1	-	1
	Microcontrollers and its application in medicine	2		1	-	1	-	-	-	-	-	-	-	1	-	1
	Principles of medical imaging	1	1	- 1	1	1	-	-	-	-	-	-	-	1	1	-
21BMC304J	Medical image processing	3	1	1	1	2		-	-	-	-	-	-	1	-	1
	Biocontrol systems	2	1	-	2	- 1	- 4	-	-	-	-	-	-	1	1	1
21BMC401J	Biomechanics	2	1	-	1	1	-	- 1	-	-	-	-	-	1	1	1
21BMC402J	Biomedical equipments for clinical applications	2	1	1	-	-	-		-	1	-	-	1	1	1	-
21BME271T	Al and Machine learning for healthcare															
21BME272T	Statistics and Data science															
21BME273T	Artificial Neural Networks and Pattern Recognition									7						
21BME274T	IOT and Smart Sensors															
21BME275T	Telehealth care Informatics		- 34													
21BME276T	Natural language processing for healthcare applications															
21BME381T	Deep learning Techniques in Medicine					H										
2 <mark>1BME382</mark> T	Computer vision and Image Processing	11														
21BME383T	Robotics and Smart Technologies					-	77					-				
	Brain computer Interface															
21BME481T	Biomimetics and Bio-inspired Design						. 77						1			
21BME482T	Biomechanical modeling and Simulation															
21BMO121T	Fundamentals of Biomedical Engineering	2	-	1		-	-		- 1	-	-	-	-	1	1	-
21BMO122T	Health Information Systems	1	1	1	-	1			1	-	-	-	1	1	-	1
21BMO123T	Basics of Medical Imaging	1	1	- 1	1	-	1	-	-	-	-	-	-	1	-	-
2 <mark>1BMO12</mark> 4T	Rehabilitation Engineering	1	1	1	1	1	1	-	-	-	-	-	-	1	1	1
21BMO125T	Quality control for biomedical devices	- 1	1	-	1	-	-	-	-	-	- 1	2	-	1	1	-
	Biomechanics of Human Movement	1	1	1	-	-	-	-	-	1	-	-	1	-	-	-
21BMO127T	Digital healthcare Technology	1	-	1	-	-	-	-	-	-	-	1	-	1	1	-

# 13. (g) Implementation Plan: B.Tech. in Biomedical Engineering with Specialization in Machine Intelligence

	Semester – I						Semester – II				
Code	Course Title		Hou Wee		С	0 - 4 -	O Title		lour		(
		L	T	Р		Code	Course Title	1	//ee	P	-
	Communicative English	2			3	21LEH102T	Chinese				
21MAB1011	Calculus and Linear Algebra Physics: Electromagnetic Theory, Quantum	3	1		4	21LEH103T	French				
21PYB101J	Mechanics, Waves and Optics	3	1	2	5	21LEH104T		_			
21MES102L		0	0	4	2	21LEH105T		- 2	1	0	
	Electrical and Electronics Engineering	3			4	21LEH106T	·				
	Biomedical Sensors	2			3	21LEH107T					
21CYM101T	Environmental Science	1	0	0	0		Philosophy of Engineering	1	0	2	t
21PDM101L	Professional Skills and Practices	0	0	2	0		Advanced Calculus and Complex Analysis	3	1	0	
21LEM101T	Constitution of India	1	0	0	0			_	-	-	╁
	Total Credit	•			21	21CYB101J		3	1	2	-
							Programming for Problem Solving	3	0	2	
						21BTB104T	Biology-Human Physiology and Anatomy	2	0	0	
				П		21MES101L	Basic Civil and Mechanical Workshop	0	0	4	
						21PDM102I	General Aptitude	0	0	2	T
		А		7			Physical and Mental Health using Yoga	1	U	_	╁
							,				
	1.7					21GNM102L 21GNM103L		0	0	2	
						21GNM103L 21GNM104L		1			
						210111111111111111111111111111111111111	Total Credits	3			
	1	Ħ	П								
	Semester – III						Semester – IV				
		H	Hour	s/					lour		
Code	Course Title	١	Wee	k	С	Code	Course Title		Wee		
		L	T	Р				L	T	Р	L
	Transforms and Boundary Value Problems	3	1	0	4		Numerical Methods	3	1	0	
	Biomedical Signals and Systems	3		0	3	21CSE206T	Artificial Intelligence	2	1	0	L
	Electric and Electronic Circuits	3	0	2	4	21BMC205J	Integrated Circuit Design for	2	0	2	
	Digital Logic for Medical Systems	2	0	2	3		Dioinotiumentation				╀
	Social Engineering	2	0	0	2		Biomedical Instrumentation	3	0	2	ŀ
	Medical Physics Professional Ethics	3	0	0	3		Biomaterials and Tissue Interaction	2	0	2	+
	Verbal Reasoning	0	0	2	0	Ε	Professional Elective – I				L
	Universal Lluman Values Understanding		1			21DCS201P	Design Thinking and Methodology	1	0	4	
		2	1	0	3	21DDM2021	Critical and Creative Thinking Skills	_	0	2	
21LEM202T	Harmony and Ethical Human Conduct			1		Z II DIVIZUZL	Ontical and Oreative Thinking Okilis	0	0		
21LEM202T	Harmony and Ethical Human Conduct Total Credits				22	Z II DIWIZUZE	Total Credits		U		
21LEM202T	Harmony and Etnical Human Conduct				22	ZII DIVIZOZE			U		
21LEM202T	Harmony and Etnical Human Conduct Total Credits				22	ZTI DIWIZOZE	Total Credits				
21LEM202T	Harmony and Etnical Human Conduct		Hour		22	Z II DIWZOZE		3			
	Total Credits  Semester – V	ŀ	Hour				Total Credits Semester – VI	3 	lour	s/	
Code	Harmony and Etnical Human Conduct Total Credits	ŀ	Hour Wee	k	<b>22</b>	Code	Total Credits	3 		s/	
Code	Total Credits  Semester – V	ŀ	Wee T			Code	Total Credits Semester – VI	F 1	lour Wee	s/ k	
Code	Semester – V  Course Title	F V	Wee T	k P	С	Code 21CSS303T	Semester – VI  Course Title	F L	lour Wee	s/ k	
Code 21MAB301T 21BMC301J	Semester – V  Course Title  Probability and Statistics	L 3 3	T 1 0 0	P 0 2	C 4 4 4 4	Code  21CSS303T 21BMC304J	Semester – VI  Course Title  Data Science	F 1	Hour Wee	s/ k P	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging	L 3 3	T 1 0 0	P 0 2 2 2	C 4 4 4 3	Code  21CSS303T 21BMC304J 21BMC305T E	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III	F L 1 2	Hour Wee	s/ k P 0	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II	L 3 3	T 1 0 0	P 0 2 2 2	C 4 4 4 3 3 3 3	Code  21CSS303T 21BMC304J 21BMC305T E E	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV	L 1 2 3	Hour Wee	s/ k P 0 2	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E O	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Professional Elective – II  Open Elective – I	L 3 3 3 3	T 1 0 0 0	P 0 2 2 0	C 4 4 4 3 3 3 3 3 3	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC	H	Hourn Weee	s/ k P 0 2 0	
Code 21MAB301T 21BMC301J 21BMC303T 21BMC303T E 0 21PBM303T	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Analytical and Logical Thinking Skills	L 3 3 3 3 3 0	T 1 0 0 0 0 0 0	P 0 2 2 2 0	C 4 4 4 3 3 3 3 0 0	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP303T	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project	L 1 2 3	Hourn Weee	s/ k P 0 2	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L 21LEM301T	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form	L 3 3 3 3 0	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 2 2 0 0 2 2 0 0	C 4 4 4 3 3 3 3 0 0 0	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP303T 21BMP302L 0	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II	H 1 2 3 3 0 0	Hourn Weee T 1 0 0	s/ k P 0 2 0 0 6	
Code  1MAB301T 1BMC301J 1BMC302J 1BMC303T E 0 1PDM301L 11LEM301T	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect	L 3 3 3 3 1 0	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 2 2 0 0 2 0 0	C 4 4 4 3 3 3 0 0 0 1	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices	H	Hour Wee T 1 0 0	s/ k P 0 2 0	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L 21LEM301T	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form	L 3 3 3 3 1 0	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 2 2 0 0 2 2 0 0	C 4 4 4 3 3 3 3 0 0 0	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge	L 1 1 2 3 3 0 0 1 1	Hourn Weee T 1 0 0	s/ k P 0 2 0 0 6	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L 21LEM301T	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect	L 3 3 3 3 1 0	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 2 2 0 0 2 2 0 0	C 4 4 4 3 3 3 0 0 0 1	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices	L 1 1 2 3 3 0 0 1 1	Hour Wee T 1 0 0	s/ k P 0 2 0	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect	L 3 3 3 3 1 0	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 2 2 0 0 2 2 0 0	C 4 4 4 3 3 3 0 0 0 1	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge	L 1 1 2 3 3 0 0 1 1	Hour Wee T 1 0 0	s/ k P 0 2 0	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits	L 3 3 3 3 1 0	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 2 2 0 0 2 2 0 0	C 4 4 4 3 3 3 0 0 0 1	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits	L 1 1 2 3 3 0 0 1 1	Hour Wee T 1 0 0	s/ k P 0 2 0	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect	L 3 3 3 3 0 1	T	P 0 2 2 0 0 2 2 0 2	C 4 4 4 3 3 3 0 0 0 1	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge	L 1 2 3 3 0 0 1 1 5 5	Hour Wee T 1 0 0 0 0 0 0 0	s/ k P 0 2 0	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L 21LEM301T	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits	L 3 3 3 3 3 0 1 0 0	T 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P 0 2 2 0 0 2 2 0 2	C 4 4 4 3 3 3 0 0 0 1	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits	H	Hour Wee T 1 0 0	s/ k P 0 2 0 6	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L 21LEM301T 21GNP301L	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits  Semester – VII  Course Title	L 3 3 3 3 3 0 1 0 0	T	P 0 2 2 0 0 2 2 0 2	C 4 4 4 4 3 3 3 0 0 0 1 222	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L 21LEM302T  Code	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits  Semester – VIII  Course Title	H	Hour Wee T 1 0 0 0 0 0 0 0 0 0	s/ k P 0 2 0 6	
Code 21MAB301T 21BMC301J 21BMC302J 21BMC303T E 0 21PDM301L 21LEM301T 21GNP301L	Semester - V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective - II Open Elective - I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits  Semester - VII  Course Title  Behavioral Psychology	L 3 3 3 3 3 0 1 0 0	T	P	C 4 4 4 4 3 3 3 0 0 0 1 222	Code  21CSS303T 21BMC304J 21BMC305T E 21BMP303T 21BMP302L O 21PDM302L 21LEM302T  Code  21BMP401L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits  Semester – VIII  Course Title  Major Project	H	Hour Wee	s/ k P 0 2 2 0 0 6 6 2 2 0 0 s/ k P P 30	
Code 21MAB301T 21BMC301J 21BMC303T E 0 21PDM301L 21LEM301T 21GNP301L	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – II Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits  Semester – VII  Course Title  Behavioral Psychology Professional Elective – V	L 3 3 3 3 3 3 0 1 0 0 1 0 0	T	P	C 4 4 4 4 3 3 3 3 0 0 0 1 1 22 2 2 2 2 2 2 2 2 2 2 2 2 2	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L 21LEM302T  Code  21BMP401L 21BMP402L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits  Semester – VIII  Course Title  Major Project Major Project	H	Hour Wee	s/ k P 0 2 2 0 0 6 6 2 0 0 s/ k P	
Code 21MAB301T 21BMC301J 21BMC303T E O 0 21PDM301L 21LEM301T 21LEM301T Code 21GNH401T E E E	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits  Semester – VII  Course Title  Behavioral Psychology Professional Elective – V Professional Elective – V Professional Elective – VI	H   1   1   1   1   1   1   1   1   1	Wee T 1 0 0 0 0 0 T Hourier	P	C 4 4 4 4 3 3 3 3 0 0 0 1 1 22 C C C 3 3 3 3 3 3 3	Code  21CSS303T 21BMC304J 21BMC305T E 21BMP303T 21BMP302L O 21PDM302L 21LEM302T  Code  21BMP401L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits  Semester – VIII  Course Title  Major Project Major Project	H	Hour Wee T O O O O O O O O O O O O O O O O O O	s/ k P 0 2 2 0 0 6 6 2 2 0 0 s/ k P P 30	
Code 21MAB301T 21BMC301J 21BMC303T E 0 21PDM301L 21LEM301T 21GNP301L	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits  Semester – VII  Course Title  Behavioral Psychology Professional Elective – V Professional Elective – V Biomechanics	L 3 3 3 3 3 3 0 1 0 0 1 0 0	T	P	C 4 4 4 4 3 3 3 3 0 0 0 1 1 22 2 2 2 2 2 2 2 2 2 2 2 2 2	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L 21LEM302T  Code  21BMP401L 21BMP402L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits  Semester – VIII  Course Title  Major Project Major Project	H	Hour Wee T O O O O O O O O O O O O O O O O O O	s/ k P 0 2 2 0 0 6 6 2 0 0 ss/ k P P 30 20	
Code 21MAB301T 21BMC301J 21BMC303T E O O 21PDM301L 21LEM301T 21CMP301L Code 21GNH401T E E E	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits  Semester – VII  Course Title  Behavioral Psychology Professional Elective – V Professional Elective – V Biomechanics Biomedical Equipments for Clinical	H   1   1   1   1   1   1   1   1   1	Wee T 1 0 0 0 0 0 T Hourier	P	C 4 4 4 4 3 3 3 3 0 0 0 1 1 22 C C C 3 3 3 3 3 3 3	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L 21LEM302T  Code  21BMP401L 21BMP402L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits  Semester – VIII  Course Title  Major Project Major Project	H	Hour Wee T O O O O O O O O O O O O O O O O O O	s/ k P 0 2 2 0 0 6 6 2 0 0 ss/ k P P 30 20	
Code  11MAB301T 11BMC301J 11BMC3037 E 0 11PDM301L 11LEM301T 11GNP301L 11GNP401T E E 11BMC401J 11BMC402J	Semester - V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective - II Open Elective - I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits  Semester - VII  Course Title  Behavioral Psychology Professional Elective - V Professional Elective - V Biomechanics Biomedical Equipments for Clinical Applications	L 3 3 3 3 3 0 1 0	T	P	C 4 4 4 4 3 3 3 3 0 0 0 1 1 222	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L 21LEM302T  Code  21BMP401L 21BMP402L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits  Semester – VIII  Course Title  Major Project Major Project	H	Hour Wee T O O O O O O O O O O O O O O O O O O	s/ k P 0 2 2 0 0 6 6 2 0 0 ss/ k P P 30 20	
Code  1MAB301T 1BMC301J 1BMC303T E 0 11PDM301L 1LEM301T 1GNP301L  Code 1GNH401T E E 1BMC401J	Semester – V  Course Title  Probability and Statistics Biomedical Signal Processing Microcontrollers and its Application in Medicine Principles of Medical Imaging Professional Elective – II Open Elective – I Analytical and Logical Thinking Skills Indian Art Form Community Connect  Total Credits  Semester – VII  Course Title  Behavioral Psychology Professional Elective – V Professional Elective – V Biomechanics Biomedical Equipments for Clinical	H   1   2   2   2   2   2   2   2   2   2	T	P	C 4 4 4 4 3 3 3 3 0 0 0 1 1 22 2 2 2 2 2 2 2 2 2 2 2 2 2	Code  21CSS303T 21BMC304J 21BMC305T E E 21BMP303T 21BMP302L O 21PDM302L 21LEM302T  Code  21BMP401L 21BMP402L	Semester – VI  Course Title  Data Science Medical Image Processing Biocontrol Systems Professional Elective – III Professional Elective – IV MOOC Project Open Elective – II Employability Skills and Practices Indian Traditional Knowledge  Total Credits  Semester – VIII  Course Title  Major Project Major Project	H	Hour Wee T O O O O O O O O O O O O O O O O O O	s/ k P 0 2 2 0 0 6 6 2 0 0 ss/ k P P 30 20	

#Students have to register either 21BMP401L or 21BMP402L and 21BMP403L both in eighth semester