ADHIYAMAAN COLLEGE OF ENGINEERING

[An Autonomous Institution Affiliated to Anna University, Chennai]

[Accredited by NAAC]

Dr.M.G.R NAGAR, HOSUR, KRISHNAGIRI (DT) – 635 130, TAMILNADU, INDIA

REGULATIONS 2018

CHOICE BASED CREDIT SYSTEM

B.E- BIOMEDICAL ENGINEERING

Vision

To produce competent and creative biomedical engineers who anticipate change, communicate and work with others effectively in a globally connected society.

Mission

M1: To pursue excellence in Biomedical Engineering by integrating engineering and medicine through education, research and innovation.

M2: To facilitate the students by introducing technologies for uplifting the society with global standards.

M3: To nurture students' skill and leadership qualities by inculcating ethical values.

The Programme defines Programme Educational Objectives, Programme Outcomes and Programme Specific Outcomes as follows:

1. PROGRAMME EDUCATIONAL OBJECTIVES (PEOs)

PEO 1 Our graduates will excel in healthcare sectors and/or higher education with the instilling profound knowledge in mathematical, scientific and engineering concepts.

PEO 2 Our graduates will be able to analyze healthcare challenges, design and development of diagnostic, therapeutic strategies with global standards, economically feasible for the welfare of society.

PEO 3 Our graduates will emerge with professionalism, ethical and social responsibilities, communication skills, team spirit and leadership as a holistic personality with life long learning attitude.

2. Program Outcomes (POs)

PO 1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO 2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO 3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO 4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO 5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO 6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO 7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO 8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO 9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO 10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions

PO 11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO 12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

3. PROGRAM SPECIFIC OUTCOMES (PSOs)

PSO1: An ability to apply advanced technology for measurement and interpretation of data acquired from biological system dealing the problems associated with the interaction between living and non-living materials and systems.

PSO2: An ability to use software tools, mathematics, science and engineering for precise diagnosis and therapeutic applications.

PSO3: An ability to build and expand their undergraduate foundations by engaging in learning opportunities throughout their careers.

4. MAPPING OF PROGRAMME EDUCATIONAL OBJECTIVE WITH PROGRAMME OUTCOMES

PROGRAMME EDUCATIONAL OBJECTIVES	PROGRAMME OUTCOMES														
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
I	3	3		1								2	2	2	1
II			3	3	3	3	3				3		3	3	
III						3	3	3	3	3	1	3	1		3

5. MAPPING OF COURSE OUTCOMES WITH PROGRAMME OUTCOMES AND PROGRAMME SPECIFIC OUTCOMES

		COURSE TITLE	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
YEAR-I	SEMESTER-I	TECHNICAL ENGLISH	2	1	2	1	2	1	2	1	2	2	1	1	2	1	1
		ENGINEERING MATHEMATICS-I	2	1	1	1	2	1	2	1	1	2	1	2	1	2	2
		ENGINEERING PHYSICS	2	1	1	1	2	1	2	1	1	2	1	2	1	2	2
		ENGINEERING CHEMISTRY	2	1	2	1	2	1	2	1	2	2	1	1	1	1	1
		PROBLEM SOLVING AND PYTHON PROGRAMMING	2	1	1	1	2	1	2	2	1	2	1	2	1	2	2
		ELECTIVE (GROUP 1)															
		ENGINEERING PHYSICS LABORATORY	2	1	2	1	2	1	2	1	2	2	1	2	1	2	2
		PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	2	1	1	1	2	1	2	2	1	2	1	2	1	2	2
	SEMESTER-II	COMMUNICATIVE ENGLISH	2	1	1	1	2	1	2	2	1	2	1	2	1	2	2
		ENGINEERING MATHEMATICS-II	2	1	2	1	2	1	2	1	2	2	1	2	1	2	2
		ENVIRONMENTAL SCIENCE AND ENGINEERING	2	1	1	1	2	1	2	1	1	2	1	2	1	2	2
		ENGINEERING GRAPHICS	2	1	1	1	2	1	2	2	1	2	1	2	1	2	2
		ELECTRIC CIRCUITS AND ELECTRON DEVICES	3	0	3	3	0	0	0	0	0	0	0	0	0	2	0
		ELECTIVE (GROUP2)															
		ENGINEERING CHEMISTRY LABORATORY	2	1	1	1	2	1	2	1	1	2	2	2	1	2	2
		ENGINEERING PRACTICE LABORATORY	2	1	2	1	2	1	2	1	2	2	1	1	1	1	1
		CIRCUITS AND DEVICES LABORATORY	3	0	3	3	0	0	0	0	0	0	0	0	0	2	0
YEAR-II	SEMESTER-III	ENGINEERING MATHEMATICS-III	3	3	3	1	1				3			3		3	
		ELECTRICAL MACHINES	2	2	3	2			2	3	3	2	2	2		3	

Year	Semester	Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
		HUMAN ANATOMY AND PHYSIOLOGY	2				2	3					3	3	3	2	1
		SENSORS AND MEASUREMENTS	2	2	2	2		3			2		2		3	3	3
		MEDICAL PHYSICS	3		2	1		2			2		2		2	1	2
		FUNDAMENTALS OF DATA STRUCTURES IN C			3	2	3					3				2	1
		HUMAN ANATOMY AND PHYSIOLOGY LABORATORY	3		2	3				1					3	3	1
		SENSORS AND MEASUREMENTS LABORATORY	1	1	1	1									2	3	1
		FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY			3		3			3						2	1
	SEMESTER-IV	PROBABILITY AND RANDOM PROCESSES			3	3	2	1									
	SEMESTER-IV	ANALOG INTEGRATED CIRCUITS	3	2	3	2		2				2	2	2	2	3	1
	SEMESTER-IV	DIGITAL LOGIC DESIGN	3	2	3	2										3	1
	SEMESTER-IV	PATHOLOGY AND MICROBIOLOGY	3	3	3			1		2	2	2	2	2	3	2	1
	SEMESTER-IV	BIOCHEMISTRY	3	2		1		1							3	1	1
	SEMESTER-IV	SIGNALS, SYSTEMS AND ANALYSIS	3	3	1	2									1	3	1
	SEMESTER-IV	INTEGRATED CIRCUITS LABORATORY	3	3	3	3										3	2
	SEMESTER-IV	PATHOLOGY AND MICROBIOLOGY LABORATORY		2	2		2			2	2				2	2	
	SEMESTER-IV	BIOCHEMISTRY LABORATORY	3	3	2	3				3					2	2	3
YEAR-III	SEMESTER-V	BIOMEDICAL INSTRUMENTATION	3		3	2	1								2	3	1
YEAR-III	SEMESTER-V	DIGITAL SIGNAL PROCESSING AND BIOMEDICAL APPLICATIONS	3	3		3	2									3	1
YEAR-III	SEMESTER-V	MICROPROCESSOR AND MICROCONTROLLER SYSTEM DESIGN	1	3	3	3	2									3	2
YEAR-III	SEMESTER-V	BIO CONTROL SYSTEMS	3	3	3	3	3				3			3	2	3	1
YEAR-III	SEMESTER-V	ANALOG AND DIGITAL COMMUNICATION	3	2	2	2		2	2		3	3	2		2		2
YEAR-III	SEMESTER-V	**OPEN ELECTIVE-I**															
YEAR-III	SEMESTER-V	BIOMEDICAL INSTRUMENTATION LAB	3	3	3		3				3			3	3	3	3
YEAR-III	SEMESTER-V	MICROPROCESSOR AND MICROCONTROLLER LAB	3	1	3	3	2							3		3	2
YEAR-III	SEMESTER-V	DIGITAL SIGNAL PROCESSING LAB	1	1	2	3	3		2			2	2		3	1	2
YEAR-III	SEMESTER-VI	DIAGNOSTIC EQUIPMENT	3		2		3	2							3	2	1
YEAR-III	SEMESTER-VI	THERAPEUTIC EQUIPMENT	3		2		3	2							3	2	1

Year	Semester	Course															
		RADIOLOGICAL EQUIPMENT	3	2	2	2	3	2				2	2	3	2	1	
		BIOMATERIALS & ARTIFICIAL ORGANS	3	2	2			1						2	3	1	
		PROFESSIONAL ELECTIVE – I															
		OPEN ELECTIVE – II															
		DIAGNOSTIC AND THERAPEUTIC EQUIPMENT LAB	3		2		3	2			2			3	3	2	
		EMPLOYABILITY SKILLS LAB				1	2			3	3	3				3	3
		HOSPITAL TRAINING	3	2		2		3		2	2	2	1	2	2	3	1
YEAR-IV	SEMESTER-VII	MEDICAL OPTICS	3		2	2	3		2	3		3	3	2	3	1	3
		DIGITAL IMAGE PROCESSING	3	2	2	3	3	2	2	2	3		2	2	3	1	2
		BIOMECHANICS	3	2	3	3	2	3						2	3	1	
		MEDICAL INFORMATICS	3		2			2		2		3	3		2	1	
		PROFESSIONAL ELECTIVE – II															
		PROFESSIONAL ELECTIVE – III															
		DIGITAL IMAGE PROCESSING LAB	3	3	2	2	3									3	2
		MINI PROJECT	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
		INTERPERSONAL SKILLS/LISTENING & SPEAKING				1	2			3	3	3	3				3
	SEMESTER-VIII	HOSPITAL ENGINEERING & MANAGEMENT	1				2		2	2	2	1				2	3
		PROFESSIONAL ELECTIVE – IV															
		PROFESSIONAL ELECTIVE – V															
		PROJECT WORK	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

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CHOICE BASED CREDIT SYSTEM
B.E- BIOMEDICAL ENGINEERING

CURRICULA AND SYLLABI FOR SEMESTER I TO VIII

SEMESTER I

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	118ENT01	TECHNICAL ENGLISH	HSMC	2	0	0	2	2
2.	118MAT02	ENGINEERING MATHEMATICS-I	BSC	3	0	0	3	3
3.	118PHT03	ENGINEERING PHYSICS	BSC	2	0	0	2	2
4.	118CYT04	ENGINEERING CHEMISTRY	BSC	3	0	0	3	3
5.	118PPT05	PROBLEM SOLVING AND PYTHON PROGRAMMING	ESC	3	0	0	3	3
6.	118ESE0X	**ELECTIVE (GROUP1)**	ESC	3	0	0	3	3
PRACTICALS								
7.	118PHP07	ENGINEERING PHYSICS LABORATORY	BSC	0	0	2	2	1
8.	118PPP08	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	ESC	0	0	2	2	1
			TOTAL	16	0	4	20	18

ELECTIVE (GROUP 1)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	118ESE01	BASIC CIVIL AND MECHANICAL ENGINEERING	ESC	3	0	0	3	3
2.	118ESE05	BASIC MECHANICAL ELECTRICAL AND INSTRUMENTATION ENGINEERING	ESC	3	0	0	3	3
3.	118ESE06	BASIC ELECTRICAL ELECTRONICS AND INSTRUMENTATION ENGINEERING	ESC	3	0	0	3	3
4.	118ESE07	BIOLOGY FOR ENGINEERS	ESC	3	0	0	3	3

SEMESTER II

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	218ENT01	COMMUNICATIVE ENGLISH	HSMC	2	0	2	4	3
2.	218MAT02	ENGINEERING MATHEMATICS-II	BSC	3	1	0	4	4
3.	218GET03	ENVIRONMENTAL SCIENCE AND ENGINEERING	HSMC	2	0	0	2	2
4.	218EGT04	ENGINEERING GRAPHICS	ESC	2	0	4	6	4
5.	218EDT05	ELECTRIC CIRCUITS AND ELECTRON DEVICES	PCC	3	0	0	3	3
6.	218BSE0X	**ELECTIVE (GROUP2)**	BSC	2	0	0	2	2
PRACTICALS								
7.	218CYP07	ENGINEERING CHEMISTRY LABORATORY	BSC	0	0	2	2	1
8.	218EPP08	ENGINEERING PRACTICE LABORATORY	ESC	0	0	2	2	1
9.	218CDP09	CIRCUITS AND DEVICES LABORATORY	PCC	0	0	2	2	1
			TOTAL	14	1	12	27	21

ELECTIVE (GROUP 2)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	218BSE03	CHEMISTRY FOR TECHNOLOGISTS	BSC	2	0	0	2	2
2.	218BSE04	ENERGY STORAGE DEVICES AND FUEL CELLS	BSC	2	0	0	2	2
3.	218BSE07	PHYSICS OF SEMICONDUCTOR	BSC	2	0	0	2	2
4.	218BSE08	PHYSICS FOR ELECTRONICS ENGINEERING	BSC	2	0	0	2	2

SEMESTER III

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	318MAT01	ENGINEERING MATHEMATICS-III	BSC	3	1	0	4	4
2.	318BMT02	ELECTRICAL MACHINES	ESC	3	0	0	3	3
3.	318BMT03	HUMAN ANATOMY AND PHYSIOLOGY	PCC	3	0	0	3	3
4.	318BMT04	SENSORS AND MEASUREMENTS	PCC	3	0	0	3	3
5.	318BMT05	MEDICAL PHYSICS	PCC	3	0	0	3	3
6.	318BMT06	FUNDAMENTALS OF DATA STRUCTURES IN C	ESC	3	0	0	3	3
PRACTICALS								
7.	318BMP07	HUMAN ANATOMY AND PHYSIOLOGY LABORATORY	PCC	0	0	2	2	1
8.	318BMP08	SENSORS AND MEASUREMENTS LABORATORY	PCC	0	0	2	2	1
9.	318BMP09	FUNDAMENTALS OF DATA STRUCTURES IN C LABORATORY	ESC	0	0	2	2	1
			TOTAL	**18**	**1**	**6**	**25**	**22**

SEMESTER IV

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	418MAT01	PROBABILITY AND RANDOM PROCESSES	BSC	3	1	0	4	4
2.	418BMT02	ANALOG INTEGRATED CIRCUITS	PCC	3	0	0	3	3
3.	418BMT03	DIGITAL LOGIC DESIGN	PCC	3	0	0	3	3
4.	418BMT04	PATHOLOGY AND MICROBIOLOGY	PCC	3	0	0	3	3
5.	418BMT05	BIOCHEMISTRY	PCC	3	0	0	3	3
6.	418BMT06	SIGNALS, SYSTEMS AND ANALYSIS	PCC	3	0	0	3	3

PRACTICALS

S. No.	Course Code	Course Title	Category	L	T	P	Total Contact Periods	Credits
7.	418BMP07	INTEGRATED CIRCUITS LABORATORY	PCC	0	0	2	2	1
8.	418BMP08	PATHOLOGY AND MICROBIOLOGY LABORATORY	PCC	0	0	2	2	1
9.	418BMP09	BIOCHEMISTRY LABORATORY	PCC	0	0	2	2	1
			TOTAL	18	1	6	25	22

SEMESTER V

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	518BMT01	BIOMEDICAL INSTRUMENTATION	PCC	3	0	0	3	3
2.	518BMT02	DIGITAL SIGNAL PROCESSING AND BIOMEDICAL APPLICATIONS	PCC	3	0	0	3	3
3.	518BMT03	MICROPROCESSOR AND MICROCONTROLLER SYSTEM DESIGN	PCC	3	0	0	3	3
4.	518BMT04	BIO CONTROL SYSTEMS	PCC	3	0	0	3	3
5.	518BMT05	ANALOG AND DIGITAL COMMUNICATION	PCC	3	0	0	3	3
6.		OPEN ELECTIVE – I	OEC	3	0	0	3	3
PRACTICALS								
7.	518BMP07	BIOMEDICAL INSTRUMENTATION LAB	PCC	0	0	2	2	1
8.	518BMP08	MICROPROCESSOR AND MICROCONTROLLER LAB	PCC	0	0	2	2	1
9.	518BMP09	DIGITAL SIGNAL PROCESSING LAB	PCC	0	0	2	2	1
			TOTAL	18	0	6	24	21

OPEN ELECTIVE – I

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	518EIO01	VIRTUAL INSTRUMENTATION	OEC	3	0	0	3	3

2.	518CIO05	JAVA PROGRAMMING	OEC	3	0	0	3	3
3.	518BTO11	MEDICAL CODING	OEC	3	0	0	3	3
4.	518ITO05	C# AND .NET FRAMEWORK	OEC	3	0	0	3	3

SEMESTER VI

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	618BMT01	DIAGNOSTIC EQUIPMENT	PCC	3	0	0	3	3
2.	618BMT02	THERAPEUTIC EQUIPMENT	PCC	3	0	0	3	3
3.	618BMT03	RADIOLOGICAL EQUIPMENT	PCC	3	0	0	3	3
4.	618BMT04	BIOMATERIALS AND ARTIFICIAL ORGANS	PCC	3	0	0	3	3
5.	618BMEXX	PROFESSIONAL ELECTIVE – I	PEC	3	0	0	3	3
6.		OPEN ELECTIVE – II	OEC	3	0	0	3	3
PRACTICALS								
7.	618BMP07	DIAGNOSTIC AND THERAPEUTIC EQUIPMENT LABORATORY	PCC	0	0	2	2	1
8.	618BMP08	EMPLOYABILITY SKILLS LABORATORY	EEC	0	0	2	2	1
9.	618BMP09	HOSPITAL TRAINING	EEC	0	0	2	2	1
			TOTAL	18	0	6	24	21

PROFESSIONAL ELECTIVE – I

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	618BME05	MEDICAL SAFETY AND QUALITY ASSURANCE	PEC	3	0	0	3	3
2.	618BME06	BIO SIGNAL PROCESSING	PEC	3	0	0	3	3
3.	618BME07	CLINICAL ENGINEERING	PEC	3	0	0	3	3
4.	618BME08	PHYSIOLOGICAL MODELLING	PEC	3	0	0	3	3
5.	618BME09	BIOTELEMETRY	PEC	3	0	0	3	3

OPEN ELECTIVE – II

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	418CIT05/ 618BMO01	COMPUTER NETWORKS	OEC	3	0	0	3	3
2.	618CST06/ 618CSO07	BIG DATA ANALYTICS	OEC	3	0	0	3	3
3.	618ECT02/ 618ECO09	VLSI DESIGN	OEC	3	0	0	3	3
4.	718CST03/ 618CSO10	CLOUD COMPUTING	OEC	3	0	0	3	3

SEMESTER VII

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	718BMT01	MEDICAL OPTICS	PCC	3	0	0	3	3
2.	718BMT02	DIGITAL IMAGE PROCESSING	PCC	3	0	0	3	3
3.	718BMT03	BIOMECHANICS	PCC	3	0	0	3	3
4.	718BMT04	MEDICAL INFORMATICS	PCC	3	0	0	3	3
5.	718BMEXX	PROFESSIONAL ELECTIVE – II	PEC	3	0	0	3	3
6.	718BMEXX	PROFESSIONAL ELECTIVE – III	PEC	3	0	0	3	3
PRACTICALS								
7.	718BMP07	DIGITAL IMAGE PROCESSING LABORATORY	PCC	0	0	2	2	1
8.	718BMP08	MINI PROJECT	EEC	0	0	2	2	1
9.	718BMP09	INTERPERSONAL SKILLS/LISTENING & SPEAKING	EEC	0	0	2	2	1
			TOTAL	**18**	**0**	**6**	**24**	**21**

PROFESSIONAL ELECTIVE – II

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	718BME05	BIOSENSORS AND TRANSDUCERS	PEC	3	0	0	3	3
2.	718BME06	PATTERN RECOGNITION AND NEURAL NETWORKS	PEC	3	0	0	3	3
3.	718BME07	EMBEDDED SYSTEMS	PEC	3	0	0	3	3
4.	718BME08	REHABILITATION ENGINEERING	PEC	3	0	0	3	3
5.	718BME09	ICU & OPERATION THEATRE EQUIPMENT	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE – III

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	718BME10	HOSPITAL WASTE MANAGEMENT	PEC	3	0	0	3	3
2.	718BME11	INTELLECTUAL PROPERTY RIGHTS	PEC	3	0	0	3	3
3.	718BME12	TOTAL QUALITY MANAGEMENT	PEC	3	0	0	3	3
4.	718BME13	DISASTER MANAGEMENT & MITIGATION	PEC	3	0	0	3	3
5.	718BME14	PROFESSIONAL ETHICS AND HUMAN VALUES	PEC	3	0	0	3	3

SEMESTER VIII

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	818BMT01	HOSPITAL ENGINEERING AND MANAGEMENT	PCC	3	0	0	3	3
2.	818BMEXX	PROFESSIONAL ELECTIVE – IV	PEC	3	0	0	3	3

3.	818BMEXX	PROFESSIONAL ELECTIVE – V	PEC	3	0	0	3	3
PRACTICALS								
4.	818BMP04	PROJECT WORK	EEC	0	0	18	18	9
			TOTAL	**9**	**0**	**18**	**27**	**18**

PROFESSIONAL ELECTIVE – IV

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	818BME02	NANOTECHNOLOGY	PEC	3	0	0	3	3
2.	818BME03	CELL BIOLOGY AND TISSUE ENGINEERING	PEC	3	0	0	3	3
3.	818BME04	ASSIST DEVICES	PEC	3	0	0	3	3
4.	818BME05	BIOMEMS	PEC	3	0	0	3	3
5.	818BME06	INTERNET OF THINGS IN MEDICAL APPLICATIONS	PEC	3	0	0	3	3

PROFESSIONAL ELECTIVE – V

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	818BME07	ADVANCED MEDICAL INSTRUMENTATION	PEC	3	0	0	3	3
2.	818BME08	BRAIN COMPUTER INTERFACE AND APPLICATIONS	PEC	3	0	0	3	3
3.	818BME09	MEDICAL ROBOTICS	PEC	3	0	0	3	3
4.	818BME10	WEARABLE SYSTEMS	PEC	3	0	0	3	3
5.	818BME11	BIOMETRICS	PEC	3	0	0	3	3

B.E. BIOMEDICAL ENGINEERING

HSM COURSES (HSMC)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	118ENT01	TECHNICAL ENGLISH	HSMC	2	0	0	2	2
2.	218ENT01	COMMUNICATIVE ENGLISH	HSMC	2	0	2	4	3
3.	218GET03	ENVIRONMENTAL SCIENCE AND ENGINEERING	HSMC	2	0	0	2	2

BASIC SCIENCE COURSES (BSC)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	118MAT02	ENGINEERING MATHEMATICS-I	BSC	3	0	0	3	3
2.	118PHT03	ENGINEERING PHYSICS	BSC	2	0	0	2	2
3.	118CYT04	ENGINEERING CHEMISTRY	BSC	3	0	0	3	3
4.	118PHP07	ENGINEERING PHYSICS LABORATORY	BSC	0	0	2	2	1
5.	218MAT02	ENGINEERING MATHEMATICS-II	BSC	3	1	0	4	4
6.	218CYP07	ENGINEERING CHEMISTRY LABORATORY	BSC	0	0	2	2	1
7.	318MAT01	ENGINEERING MATHEMATICS-III	BSC	4	1	0	5	4
8.	418MAT01	PROBABILITY AND RANDOM PROCESSES	BSC	3	1	0	4	4

BASIC SCIENCE COURSES (BSC)-ELECTIVES

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
5.	218BSE03	CHEMISTRY FOR TECHNOLOGISTS	BSC	2	0	0	2	2
6.	218BSE04	ENERGY STORAGE DEVICES AND FUEL CELLS	BSC	2	0	0	2	2

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	TOTAL CONTACT PERIODS	CREDITS
7.	218BSE07	PHYSICS OF SEMICONDUCTOR	BSC	2	0	0	2	2
8.	218BSE08	PHYSICS FOR ELECTRONICS ENGINEERING	BSC	2	0	0	2	2

ENGINEERING SCIENCE COURSES (ESC)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
THEORY								
1.	118PPT05	PROBLEM SOLVING AND PYTHON PROGRAMMING	ESC	3	0	0	3	3
2.	118PPP08	PROBLEM SOLVING AND PYTHON PROGRAMMING LABORATORY	ESC	0	0	2	2	1
3.	218EGT04	ENGINEERING GRAPHICS	ESC	2	0	4	6	4
4.	218EPP08	ENGINEERING PRACTICE LABORATORY	ESC	0	0	2	2	1
5.	318BMT02	ELECTRICAL MACHINES	ESC	3	0	0	3	3
6.	318BMT06	FUNDAMENTALS OF DATA STRUCTURES IN C	ESC	3	0	0	3	3
7.	318BMP09	FUNDAMENTALS OF DATA STRUCTURES IN C	ESC	0	0	2	2	1

ENGINEERING SCIENCE COURSES (ESC)-ELECTIVES

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
5.	118ESE01	BASIC CIVIL AND MECHANICAL ENGINEERING	ESC	3	0	0	3	3
6.	118ESE05	BASIC MECHANICAL ELECTRICAL AND INSTRUMENTATION ENGINEERING	ESC	3	0	0	3	3
7.	118ESE06	BASIC ELECTRICAL ELECTRONICS AND INSTRUMENTATION ENGINEERING	ESC	3	0	0	3	3
8.	118ESE07	BIOLOGY FOR ENGINEERS	ESC	3	0	0	3	3

PROFESSIONAL CORE COURSES (PCC)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
5.	218EDT05	ELECTRIC CIRCUITS AND ELECTRON DEVICES	PCC	3	0	0	3	3
6.	218CDP09	CIRCUITS AND DEVICES LABORATORY	PCC	0	0	2	2	1
7.	318BMT03	HUMAN ANATOMY AND PHYSIOLOGY	PCC	3	0	0	3	3
8.	318BMT04	SENSORS AND MEASUREMENTS	PCC	3	0	0	3	3
9.	318BMT05	MEDICAL PHYSICS	PCC	3	0	0	3	3
10.	318BMP07	HUMAN ANATOMY AND PHYSIOLOGY LABORATORY	PCC	0	0	2	2	1
11.	318BMP08	SENSORS AND MEASUREMENTS	PCC	0	0	2	2	1
12.	418BMT02	ANALOG INTEGRATED CIRCUITS	PCC	3	0	0	3	3
13.	418BMT03	DIGITAL LOGIC DESIGN	PCC	3	0	0	3	3
14.	418BMT04	PATHOLOGY AND MICROBIOLOGY	PCC	3	0	0	3	3
15.	418BMT05	BIOCHEMISTRY	PCC	3	0	0	3	3
16.	418BMT06	SIGNALS, SYSTEMS AND ANALYSIS	PCC	3	0	0	3	3
17.	418BMP07	INTEGRATED CIRCUITS LABORATORY	PCC	0	0	2	2	1
18.	418BMP08	PATHOLOGY AND MICROBIOLOGY	PCC	0	0	2	2	1
19.	418BMP09	BIOCHEMISTRY LABORATORY	PCC	0	0	2	2	1
20.	518BMT01	BIOMEDICAL INSTRUMENTATION	PCC	3	0	0	3	3
21.	518BMT02	DIGITAL SIGNAL PROCESSING AND BIOMEDICAL APPLICATIONS	PCC	3	0	0	3	3
22.	518BMT03	MICROPROCESSOR AND MICROCONTROLLER SYSTEM DESIGN	PCC	3	0	0	3	3
23.	518BMT04	BIO CONTROL SYSTEMS	PCC	3	0	0	3	3
24.	518BMT05	ANALOG AND DIGITAL COMMUNICATION	PCC	3	0	0	3	3

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	L	T	P	TOTAL CONTACT PERIODS	CREDITS
25.	518BMP07	BIOMEDICAL INSTRUMENTATION LABORATORY	PCC	0	0	2	2	1
26.	518BMP08	MICROPROCESSOR AND MICROCONTROLLER LABORATORY	PCC	0	0	2	2	1
27.	518BMP09	DIGITAL SIGNAL PROCESSING LABORATORY	PCC	0	0	2	2	1
28.	618BMT01	DIAGNOSTIC EQUIPMENT	PCC	3	0	0	3	3
29.	618BMT02	THERAPEUTIC EQUIPMENT	PCC	3	0	0	3	3
30.	618BMT03	RADIOLOGICAL EQUIPMENT	PCC	3	0	0	3	3
31.	618BMT04	BIOMATERIALS & ARTIFICIAL ORGANS	PCC	3	0	0	3	3
32.	618BMP07	DIAGNOSTIC AND THERAPEUTIC EQUIPMENT LABORATORY	PCC	0	0	2	2	1
33.	718BMT01	MEDICAL OPTICS	PCC	3	0	0	3	3
34.	718BMT02	DIGITAL IMAGE PROCESSING	PCC	3	0	0	3	3
35.	718BMT03	BIOMECHANICS	PCC	3	0	0	3	3
36.	718BMT04	MEDICAL INFORMATICS	PCC	3	0	0	3	3
37.	718BMP07	DIGITAL IMAGE PROCESSING LABORATORY	PCC	0	0	2	2	1
38.	818BMT01	HOSPITAL ENGINEERING & MANAGEMENT	PCC	3	0	0	3	3

PROFESSIONAL ELECTIVE COURSES (PEC)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
39.	618BME05	MEDICAL SAFETY & QUALITY ASSURANCE	PEC	3	0	0	3	3
40.	618BME06	BIO SIGNAL PROCESSING	PEC	3	0	0	3	3
41.	618BME07	CLINICAL ENGINEERING	PEC	3	0	0	3	3

42.	618BME08	PHYSIOLOGICAL MODELLING	PEC	3	0	0	3	3
43.	618BME09	BIOTELEMETRY	PEC	3	0	0	3	3
44.	718BME05	BIOSENSORS AND TRANSDUCERS	PEC	3	0	0	3	3
45.	718BME06	PATTERN RECOGNITION AND NEURAL NETWORKS	PEC	3	0	0	3	3
46.	718BME07	EMBEDDED SYSTEMS	PEC	3	0	0	3	3
47.	718BME08	REHABILITATION ENGINEERING	PEC	3	0	0	3	3
48.	718BME09	ICU & OPERATION THEATRE EQUIPMENT	PEC	3	0	0	3	3
49.	718BME10	HOSPITAL WASTE MANAGEMENT	PEC	3	0	0	3	3
50.	718BME11	INTELLECTUAL PROPERTY RIGHTS	PEC	3	0	0	3	3
51.	718BME12	TOTAL QUALITY MANAGEMENT	PEC	3	0	0	3	3
52.	718BME13	DISASTER MANAGEMENT & MITIGATION	PEC	3	0	0	3	3
53.	718BME14	PROFESSIONAL ETHICS AND HUMAN VALUES	PEC	3	0	0	3	3
54.	818BME02	NANOTECHNOLOGY	PEC	3	0	0	3	3
55.	818BME03	CELL BIOLOGY AND TISSUE ENGINEERING	PEC	3	0	0	3	3
56.	818BME04	ASSIST DEVICES	PEC	3	0	0	3	3
57.	818BME05	BIOMEMS	PEC	3	0	0	3	3
58.	818BME06	INTERNET OF THINGS IN MEDICAL APPLICATIONS	PEC	3	0	0	3	3
59.	818BME07	ADVANCED MEDICAL INSTRUMENTATION	PEC	3	0	0	3	3
60.	818BME08	BRAIN COMPUTER INTERFACE AND APPLICATIONS	PEC	3	0	0	3	3
61.	818BME09	MEDICAL ROBOTICS	PEC	3	0	0	3	3
62.	818BME10	WEARABLE SYSTEMS	PEC	3	0	0	3	3
63.	818BME11	BIOMETRICS	PEC	3	0	0	3	3

OPEN ELECTIVE COURSES (OEC)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
5.	518EIO01	VIRTUAL INSTRUMENTATION	OEC	3	0	0	3	3
6.	518CIO05	JAVA PROGRAMMING	OEC	3	0	0	3	3
7.	518BTO11	MEDICAL CODING	OEC	3	0	0	3	3
8.	518ITO05	C# AND .NET FRAMEWORK	OEC	3	0	0	3	3
9.	418CIT05/ 618CIO06	COMPUTER NETWORKS	OEC	3	0	0	3	3
10.	618CST06/ 618CSO07	BIG DATA ANALYTIC	OEC	3	0	0	3	3
11.	618ECT02/ 618ECO09	VLSI DESIGN	OEC	3	0	0	3	3
12.	718CST03/ 618CSO10	CLOUD COMPUTING	OEC	3	0	0	3	3

EMPLOYABILITY ENHANCEMENT COURSES (EEC)

S. No.	COURSE CODE	COURSE TITLE	CATEGORY	PERIODS PER WEEK			TOTAL CONTACT PERIODS	CREDITS
				L	T	P		
1.	618BMP08	EMPLOYABILITY SKILLS LAB	EEC	0	0	2	2	1
2.	618BMP09	HOSPITAL TRAINING	EEC	0	0	2	2	1
3.	718BMP08	MINI PROJECT	EEC	0	0	2	2	1
4.	718BMP09	INTERPERSONAL SKILLS/LISTENING & SPEAKING	EEC	0	0	2	2	1
5.	818BMP04	PROJECT WORK	EEC	0	0	18	18	9

SUMMARY

S.No	SUBJECT AREA	CREDITS PER SEMESTER								TOTAL CREDITS
		I	II	III	IV	V	VI	VII	VIII	
	Name of the Programme: B.E. Biomedical Engineering									
1	HSMC	2	5							7
2	BSC	9	7	4	4					24
3	ESC	7	5	7						19
4	PCC		4	11	18	18	13	13	3	80
5	PEC						3	6	6	15
6	OEC					3	3			6
7	EEC						2	2	9	13
Total		**18**	**21**	**22**	**22**	**21**	**21**	**21**	**18**	**164**