

SAHRDAYA COLLEGE OF ENGINEERING AND TECHNOLOGY, KODAKARA

Department of Biomedical Engineering

Academic Year: 2021 - 2022

S4 BME

MAT202	Probability Distributions, Transforms and Numerical methods	4	Ms.Jemcy
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CO1	To analyze suitable random phenomena by understanding the concept of discrete and continuous probability distributions.
CO2	To apply statistical inferences concerning characteristics of a population based on attributes of samples drawn from the population.
CO3	To apply numerical techniques in interpolation, definite integral evaluation and in finding roots of equation
CO4	To solve linear system of equations, ordinary differential equations and curve fitting using numerical methods.

BMT202	MICROCONTROLLERS AND INTERFACING	4	Ms.Supriya
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CO1	To describe the architecture of the 8051 and PIC microcontrollers .
CO2	To develop simple programs for computational control using target microcontrollers
CO3	To understand interfacing of different devices and peripheral chips to commonly used microcontrollers.
CO4	To design simple microcontroller based system for various biomedical applications

BMT204	ELECTRICAL AND ELECTRONICS INSTRUMENTATION	4	Dr.Finto
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CO1	To understand and quantify different types of errors present in measuring a quantity
CO2	To familiarize with measurement of different electrical quantities using electromechanical indicating instruments, bridge circuits and motor components.
CO3	To design, set up and analyze different electronic circuits used in biomedical applications
CO4	Outline various electronic recording and measuring devices

BMT206	BIOPHYSICS	4	Dr.Yuvraj
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CO1	Understand the mechanism of cell potentials, generation and propagation of neural impulses.
CO2	To study about the generation and characteristics of various bio potentials and their principles of acquisition.
CO3	To study about skin impedance and various electrodes used for the acquisition of signals.
CO4	To explore the basic engineering principles of diagnostic equipment & to gain knowledge about the different types of radiation and their applications.

HUT200	PROFESSIONAL ETHICS	2	Mr.Jis Paul
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CO1	Understand the core values that shape the ethical behavior of a professional
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CO2	Explain the role and responsibility in technological development by keeping personal ethics and legal ethics.
CO3	Solve moral and ethical problems through exploration and assessment by established experiments.
CO4	Apply the knowledge of human values and social values to contemporary ethical values and global issues.

MCN 202	CONSTITUTION OF INDIA	NIL	Ms.Lavina
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CO1	Understand the background of our constitution and show national and patriotic spirit as responsible citizens of the country.
CO2	Utilize the fundamental rights and duties
CO3	Understand the working of state and central legislature, executive and judiciary
CO4	Utilize the special provisions given by the constitution and to understand the role of statutory institutions

BML202	MICROCONTROLLER AND INTERFACING LAB	2	Ms.Supriya,Ms.Arathy,Ms.Lavina
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CO1	Develop simple assembly level programs for 8051 Microcontrollers
CO2	Demonstrate proficiency in Embedded C programming for PIC microcontroller using MPLAB IDE.
CO3	Design simple computational systems using target Microcontrollers
CO4	Design and implement systems with peripheral control using target Microcontrollers

BML204	BIOMEDICAL ELECTRONICS LAB	2	Ms.Reshma,Ms.Sony
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CO1	Familiarize with basic biomedical instruments
CO2	Design and set up op-amp based and other electronic circuits used in biomedical equipment.
CO3	Design and set up circuits using biomedical transducers
CO4	Able to measure, test and troubleshoot electronic circuits

S6 BME

BMT302	BIOMECHANICS	4	Ms.Reshma
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CO1	To demonstrate an understanding of statics, kinematics and kinetics in human movement
CO2	To demonstrate and understanding of how changes of movement patterns and techniques will influence the load on human tissues during movement
CO3	To identify, analyze, and solve various biomechanical problems.
CO4	To quantitatively analyze the properties of biological materials and model the human organs.

BMT304	THERAPEUTIC EQUIPMENTS	4	Dr.Yuvraj
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CO1	To describe the working principle of therapeutic devices for cardiac assistance
CO2	To analyze life-support equipments and current stimulated therapeutic equipment in clinical field
CO3	To analyze the working of drug delivery systems and dialysis machine.
CO4	Describe specialized instruments to view and operate on the internal

	organs and vessels
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BMT306	PRINCIPLES OF MEDICAL IMAGING	4	Dr.Jeethu
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CO1	To understand basic medical imaging modalities and their operating principles
CO2	To compare and realize the interaction of ionizing and nonionizing radiations with tissue and how they can bring specificity on medical imaging.
CO3	To understand processing of the medical images and the instrumentation modules used
CO4	To analyze different applications of imaging modalities in medical field

BMT312	CONTROL SYSTEMS(ELECTIVE 1)	3	Dr.Remya
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CO1	Characterize a control system in Laplace domain and model it in simpler forms.
CO2	Employ time domain analysis to predict and investigate transient and steady state performance parameters of the system for standard test signals.
CO3	Formulate different types of analysis in frequency domain to explain the nature of stability of the system.
CO4	Develop and analyze state space models

BMT372	COMMUNICATION TECHNIQUES(ELECTIVE 2)	3	Mr.Jis Paul
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CO1	Explain different types of electronic communication systems and the role of
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	modulation and multiplexing in facilitating signal transmission.
CO2	Discuss different digital communication techniques
CO3	Describe transmitter and receiver configurations and the circuits in radio transmission systems.
CO4	Classify widely used wireless communication technologies and apply it for biomedical scenarios

HUT300	INDUSTRIAL ECONOMICS & FOREIGN TRADE	3	Ms.Vini
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CO1	To understand the problem of scarcity of resources and consumer behavior and to evaluate the impact of government policies on the general economic welfare.
CO2	To apply the decisions regarding volume of output and to evaluate the social cost of production.
CO3	To analyze the functional requirement of a firm under various competitive conditions.
CO4	To analyze the overall performance of the economy, and the regulation of economic fluctuations and its impact on various sections in the society and also global economic policies on the business opportunities of a firm.

BMT308	COMPREHENSIVE COURSE WORK	1	Dr.Yuvraj
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CO1	Explain the core concepts in the courses listed in the prerequisite section
CO2	Interpret questions asked and answer them with confidence
CO3	Practice the comprehensive knowledge gained in basic courses in the field of Biomedical Engineering to build confidence for appearing for a competitive examination

CO4	To recall the fundamentals and comprehend knowledge make strong in basic principles.
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BML332	BIOMEDICAL EQUIPMENT DISSECTION LAB	2	Dr.Remya,Mr.Jibin,Ms.Lavina
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CO1	Analyze patient safety, equipment performance and calibration of Biomedical Equipment's by using standard test equipment and simulators
CO2	Apply engineering dissection to learn product design and architecture of a Medical device
CO3	Identify the functional roles of mechanical/electromechanical units in a medical device through dissection and familiarize the vocabulary of medical systems.
CO4	Familiarize standardized protocols for installation, maintenance and regulatory control of Biomedical Engineering systems in a hospital workflow through field visits

BMD334	MINI PROJECT	2	Dr.Jeethu,Mr.Jis Paul
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CO1	Identify the technical & design aspects of the project with a systematic approach
CO2	Interpret, refine & improve the technical aspects for engineering projects
CO3	Associate with a team as an effective team player for the development of technical projects
CO4	Report effectively the project related activities & findings

BM402	BIOMECHANICS AND DESIGN OF MEDICAL DEVICES	3	Mr.Jibin
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CO1	To understand the underlying principles and concepts of biomechanics.
CO2	To identify, analyze, and solve biomechanical problems
CO3	To apply the concepts of biomechanics in systematically analyzing complex human movements
CO4	To quantitatively analyze the properties of biological materials and model the human organs.

BM404	PRINCIPLES OF RADIOLOGY AND RADIO DIAGNOSIS	3	Ms.Sony
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CO1	Identify the importance of various components to improvement the performance of the X-ray Radiology equipments
CO2	Analyze the basic instrumentation incorporated in the design of X-ray Radiography and Radiotherapy equipment
CO3	Assess the different X-ray Radiology techniques and their application in Radio-diagnostics and Radiotherapy
CO4	Investigate the different methods by which the ionising radiation like X-ray can be safely utilized for the benefit of mankind

BM464	RELIABILITY ENGINEERING	3	Ms.Arathy
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CO1	To understand the fundamental concepts of reliability
CO2	To analyze the reliability of products and systems
CO3	To apply the concepts of reliability in improving the engineering design
CO4	To analyze the failure data of engineering systems

BM492	PROJECT	6	Mr.Jibin,Dr.Remya
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CO1	Demonstrate sound technical knowledge in the domain of the selected project topic
CO2	Develop the skills of independent and collaborative learning and acquire the knowledge and awareness to carry out cost-effective and environmental friendly designs
CO3	Gain the expertise to use new tools for the design and development
CO4	Develop the ability to write good technical report and to make oral presentation of the work carried out
CO5	Develops ability to demonstrate a product developed