VEL TECH MULTI TECH Dr.RANGARAJAN Dr.SAKUNTHALA ENGINEERING COLLEGE

B.E Degree (Biomedical Engineering) Programme

(An Autonomous Institution affiliated to Anna University)

PROGRAM OUTCOMES

PO1 Engineering Knowledge:
To apply knowledge of mathematics, science, engineering fundamentals, problem solving skills, algorithmic analysis to solve complex engineering problems.

PO2 Problem analysis:
To analyze the problem by finding its domain and applying domain specific skills.

PO3 Design/development of solutions:
To understand the design issues of the product/software and develop effective solutions with appropriate consideration of public health and safety, cultural, societal, and environmental issues.

PO4 Conduct investigations of complex problems:
To find solutions of complex problems by conducting investigations applying suitable techniques.

PO5 Modern tool usage:
To adapt the usage of modern tools and recent software.

PO6 The engineer and society:
To contribute towards the society by understanding the impact of Engineering on global aspect.

PO7 Environment and sustainability:
To understand environment issues and design a sustainable system.

PO8 Ethics:
To understand and follow professional ethics.

PO9 Individual and team work:
To function effectively as an individual and as member or leader in diverse teams and interdisciplinary settings.

PO10 Communication:
To demonstrate effective communication at various levels.

PO11 Project Management and finance:
To apply the knowledge of Computer Engineering for development of projects, and its finance and management.

PO12 Life-Long Learning:
To keep in touch with current technologies and inculcate the practices of lifelong learning

PROGRAM SPECIFIC OUTCOMES

PSOs	PROGRAM SPECIFIC OUTCOMES
PSO1	Able to understand the mathematical and physical foundations of biomedical engineering and how these are applied in the analysis of biological systems for biomedical instruments and technological advancement for health care. (Understand)
PSO2	Able to design a variety of electronic devices and software for applications including biomedical instrumentation, physiological measurement, rehabilitation engineering and medical imaging & informatics. (Design)
PSO3	Able to meet desired needs within realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability and sustainability. (Society, Environmental, Sustainability)

REGULATIONS 2019

191BM221-INTRODUCTION TO BIOMEDICAL ENGINEERING

COURSE OUTCOMES
- Explain the fundamental concepts of different systems in anatomy and physiology
- Demonstrate the metabolism concepts.
- Demonstrate the basic ideas of health monitoring devices used in health care.
- Explain the concepts of biomaterials and idea of biomechanics used in biomedical engineering design concepts.
- Understand the ethical issues to be followed while handling Biomedical Engineering devices.

Course outcome	Mapping CO's with PO's														
CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	2	1	1	-	-	-	-	-	-	-	-	2	-	-
CO2	3	3	-	-	-	-	-	-	-	-	-	-	1	-	-
CO3	3	3	3	2	1	-	-	-	-	-	-	1	3	2	-
CO4	3	3	3	2	1	-	-	-	-	-	-	1	3	2	-

CO5	3	-	-	1	-	-	-	3	-	-	-	-	2	-	-
Average CO	3	3	3	2	1	-	-	2	-	-	-	1	3	2	-

191BM222-FUNDAMENTALS OF BIOCHEMISTRY

Course Outcome   Course Outcome Statements

CO1   Understand the basics of Eukaryotes and Prokaryotes along with their functions

CO2   Describe about classification of carbohydrates and their metabolic pathways

CO3   Understand the properties and classification of proteins with characterization techniques

CO4   Describe about classification of lipids and their metabolic pathways

CO5   Discuss Structure of Purines and Pyrimidines along with metabolism and disorder of nucleotides

Mapping CO's with PO's

CO's	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1	**3**	**-**	**2**	**2**	**1**	**2**	**-**	**-**	**-**	**-**	**-**	**1**	**3**	**1**	**-**
CO2	3	-	2	2	-	2	-	-	-	-	-	1	3	1	-
CO3	3	-	2	2	-	1	-	-	-	-	-	1	3	1	-
CO4	3	-	2	2	-	2	-	-	-	-	-	1	3	1	-
CO5	3	-	2	1	-	2	-	-	-	-	-	1	3	1	-
Average CO	3	-	2	2	-	2	-	-	-	-	-	1	3	1	-

191BM22A-BIOCHEMISTRY LAB

Course Outcomes
On the successful completion of the course, students will be able to

Course Outcome   Course Outcome Statements

CO1   Understand the Biochemistry laboratory functional components

CO2   Understand the basics principle of preparation of buffers

CO3   Have a sound knowledge of qualitative test of different biomolecules.

CO4   Understand the basics knowledge of Biochemical parameter and their

interpretation in Blood sample

CO5   Have a sound knowledge of separation technology of proteins and amino acids.

Course outcome CO's	Mapping CO's with PO's														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO 1	PSO 2	PSO 3
CO1	3	-	2	3	1	2	-	-	-	-	-	1	3	1	1
CO2	3	-	2	3	-	2	-	-	-	-	-	1	3	1	1
CO3	3	-	2	2	-	1	-	-	-	-	-	2	3	1	1
CO4	3	-	2	2	-	2	-	-	-	-	-	2	3	1	1
CO5	3	-	2	2	-	2	-	-	-	-	-	2	3	1	1
Average CO	3	-	2	2	-	2	-	-	-	-	-	2	3	1	1

191BM321-ANATOMY & HUMAN PHYSIOLOGY

COURSE OUTCOMES
- Explain basic structure and functions of the cell.
- Outline the physiology of respiration, and the different components of respiratory system, Physiology of muscles and joints
- Summarize the physiology of heart associated with blood pressure and Analyze how the neurons transmit the impulse and the reflex mechanism
- Explain the components involved in digestive and urinary system also the physiology
- Explain the mechanism and physiology involved in vision and hearing and understand the use of endocrine glands

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	P O7	PO 8	P O9	PO 10	PO 11	PO 12	PSO 1	PSO2	PSO3
CO 1	3	1	-	1	1	1	1	1	-	1	3	2	1	-	-
CO 2	3	1	-	1	-	1	-	1	-	-	2	2	1	-	-
CO 3	3	1	-	-	1	1	-	1	-	1	2	3	3	1	1
CO 4	3	1	-	-	-	1	1	1	1	-	2	3	1	-	-
CO 5	3	1	1	1	1	1	-	1	1	-	2	3	3	-	1
CO	3	1	1	2	1	1	1	1	1	1	2	3	2	1	1

191BM322-DIGITAL LOGIC DESIGN

OUTCOMES:
At the end of the course:
- Use digital electronics in the present contemporary world

- Design various combinational digital circuits using logic gates
- Do the analysis and design procedures for synchronous and asynchronous sequential
- circuits
- Use the semiconductor memories and related technology
- Use electronic circuits involved in the design of logic gates

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO 1	3	3	2	1	-	-	-	-	-	-	-	1	3	2	1
CO 2	3	3	3	1	-	-	-	-	-	-	-	1	3	2	1
CO 3	3	3	3	2	-	-	-	-	-	-	-	1	3	2	1
CO 4	3	2	2	1	-	-	-	-	-	-	-	1	3	2	1
CO 5	3	2	3	1	-	-	-	-	-	-	-	1	3	2	1
CO	3	3	3	1	-	-	-	-	-	-	-	1	3	2	1

191BM323-SIGNALS AND SYSTEMS

OUTCOMES:
At the end of the course
- To be able to determine if a given system is linear/causal/stable
- Capable of determining the frequency components present in a deterministic signal
- Capable of characterizing LTI systems in the time domain and frequency domain
- To be able to compute the output of an LTI system in the time and frequency domains

Cos	PO1	PO2	PO3	PO4	PO5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	3	3	3	3	3	2	-	-	-	-	-	2	3	3	3
CO 2	3	3	3	3	3	2	1	1	-	1	2	3	3	3	3
CO 3	3	2	3	3	2	2	2	2	-	-	-	2	3	2	3
CO 4	3	3	2	3	2	1	2	-	-	-	2	2	3	3	3
CO 5	3	3	3	3	2	1	3	2	2	-	-	3	3	3	3
CO	3	3	3	3	2	2	2	2	2	1	2	2	3	3	3

191BM324-BIOSENSORS & INSTRUMENTATION

COURSE OUTCOMES
The students would be able to
- To analyze the performance of sensor and evaluate the various types of sensors
- To apply a rigorous engineering design principles and methodology to design the signal conditioning amplifiers for resistive transducesrs
- To demonstrate the various capacitive and Inductive transducers
- To articulate various photoelectric transducers

- To elucidate various detection devices

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO 1	3	3	3	3	2	2	1	1	1	1	1	3	3	1	2
CO 2	3	3	3	3	2	2	1	1	1	1	1	3	3	1	2
CO 3	3	3	3	3	2	2	1	1	1	1	1	3	3	1	2
CO 4	3	3	3	3	2	2	1	1	1	1	1	3	2	1	2
CO 5	3	3	3	3	2	2	1	1	1	1	1	3	3	1	2
CO	3	3	3	3	2	2	1	1	1	1	1	3	3	1	2

191CS-321   DATA STRUCTURES

OUTCOMES:
- Describe the basics of C programming language
- Apply the concepts of functions, pointers, structures and unions for the given application
- Analyze and implement linear data structure operations in C
- Analyze and evaluate non linear data structure for the given application
- Apply the hashing concepts an choose the appropriate sorting algorithm for an application

Cos	PO1	PO 2	PO 3	PO 4	PO 5	PO 6	PO7	PO8	PO9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO 1	3	2	3	3	3	-	-	-	-	-	-	-	3	3	-
CO 2	3	3	2	3	3	-	-	-	-	-	-	-	3	3	-
CO 3	3	3	3	3	3	3	-	-	-	-	3	3	3	3	2
CO 4	3	3	3	3	3	3	-	-	-	-	3	3	3	3	2
CO 5	3	3	3	3	3	3	-	-	-	-	3	3	3	3	2
CO	3	3	3	3	3	3	-	-	-	-	3	3	3	3	2

191MA301-LINEAR ALGEBRA AND NUMERICAL METHODS

COURSE OUTCOME

After successful completion of the course, students should be able to:
- Explain the fundamental concepts of advanced algebra and their role in modern mathematics and applied contexts.
- Demonstrate accurate and efficient use of advanced algebraic techniques.
- Demonstrate their mastery by solving non - trivial problems related to the concepts and by proving simple theorems about the statements proven by the text.
- Have a fundamental knowledge of the basic solutions of equations and eigen value problems.

- Acquire skills in handling situations involving first and second order differential equations.

Cos	PROGRAM OUTCOMES (POs)
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PO3
CO1	3	2	-	-	-	-	-	-	-	-	-	1	1	-	-
CO2	3	2	-	-	-	-	-	-	-	-	-	1	1	-	-
CO3	3	3	-	-	-	-	-	-	-	-	-	1	1	-	-
CO4	3	-	-	-	3	-	-	-	-	-	-	1	1	-	-
CO5	3	-	-	-	3	-	-	-	-	-	-	-	1	-	-

191BM32B-DIGITAL DESIGN LABORATORY

OUTCOMES:
- At the end of the course , the students can able to
- Design multiplexer , encoder using logic gates.
- Design shift registers using flip flops
- Acquire knowledge in PSPICE

CO-PO & PSO Mapping
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	-	-	-	-	-	-	-	2	3	2	2
CO2	3	3	3	2	-	-	-	-	-	-	-	2	3	2	2
CO3	3	3	3	2	-	-	-	-	-	-	-	2	3	2	2
CO	3	3	3	2	-	-	-	-	-	-	-	2	3	2	2

191BM32A-ANATOMY AND HUMAN PHYSIOLOGY LABORATORY
OUTCOMES:
- At the end of the course , the students can able to
- Identification and enumeration of blood cells
- Enumeration of haematological parameters
- Analysis of special sensory organs test

CO-PO & PSO Mapping
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3

CO1	3	-	1	1	2	-	-	-	-	1	-	2	3	1	1
CO2	3	-	2	1	1	-	-	1	1	-	-	2	3	1	1
CO3	3	2	-	-	-	2	-	-	-	-	-	2	3	1	1
CO	3	2	2	1	2	2	-	1	1	1	-	2	3	1	1

191CS32A-DATA STRUCTURES IN C LABORATORY

OUTCOMES:
- State the functions to implement linear and non-linear data structure operations.
- Identify appropriate linear / non-linear data structure operations for solving a given problem.
- Practice the use of tree and graph data structure operations.
- Analyze appropriate hash functions that result in a collision free scenario for data storage and retrieval.
- Construct appropriate sorting and searching functions based on the application

CO-PO & PSO Mapping															
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO1	3	3	3	2	-	1	1	1	1	2	-	3	3	2	3
CO2	3	3	3	2	-	1	1	1	1	2	-	3	3	2	3
CO3	3	3	3	2	-	1	1	1	1	2	-	3	3	2	3
CO4	3	3	3	2	-	1	1	1	1	2	-	3	3	2	3
CO5	3	3	3	2	-	1	1	1	1	2	-	3	3	2	3
CO	3	3	3	2	-	1	1	1	1	2	-	3	3	2	3

191MA401-PROBABILITY AND RANDOM PROCESSES

Course Outcomes
- Demonstrate and apply the basic probability axioms and concepts in their core areas.
- Apply the concepts of probability distributions in an appropriate place of science and Engineering.
- Calculate the relationship of two dimensional random variables using correlation techniques and to study the properties of two dimensional random variables.
- Estimate the functions of time when the probability measure is associated through random process.
- Evaluate the concept of spectral density functions

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	2	-	-	-	-	-	-	-	-	-	1	1	-	-
CO 2	3	2	-	-	-	-	-	-	-	-	-	1	1	-	-
CO 3	3	3	-	-	-	-	-	-	-	-	-	1	1	-	-
CO 4	3	-	-	-	3	-	-	-	-	-	-	1	1	-	-
CO 5	3	-	-	-	3	-	-	-	-	-	-	-	1	-	-
CO	3	2	-	-	3	-	-	-	-	-	-	1	1	-	-

191BM421-BIOMEDICAL INSTRUMENTATION

OUTCOMES:
At the end of the course, the student should be able to:
- Differentiate different bio potentials and its propagations.
- Illustrate different electrode placement for various physiological recordings
- Design bio amplifier for various physiological recordings
- Explain various technique for non-electrical physiological measurements
- Demonstrate different biochemical measurement techniques.

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	2	1	1	-	-	-	-	-	-	-	-	1	2	-	-
CO 2	3	2	1	1	1	-	-	-	-	-	-	2	2	1	-
CO 3	3	3	2	1	1	1	1	-	-	-	-	2	3	2	1
CO 4	3	3	2	1	1	1	1	-	-	-	-	2	3	2	1
CO 5	3	3	2	1	1	1	1	-	-	-	-	2	3	2	1
CO	3	3	2	1	1	1	1	-	-	-	-	2	3	2	1

191BM422-BIOMECHANICS

OUTCOMES:
At the end of the course, the student should be able to:
- Differentiate the concept of kinetics and kinematics.
- Analyse the stress and strain relationship in bone growth.

- Analyse the concepts of motion in joints.
- Perform biomechanical analysis of spine.
- Outline the principles of biomechanics in ergonomics

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	2	1	1	2	1	1	-	-	-	-	2	3	2	-
CO 2	3	2	1	1	3	1	1	1	-	-	-	2	3	2	1
CO 3	3	2	1	1	3	1	1	1	-	-	-	2	3	2	1
CO 4	3	2	1	1	3	1	1	1	-	-	-	2	3	2	1
CO 5	3	2	1	1	3	1	1	2	-	-	-	2	3	2	1
CO	3	2	1	1	3	1	1	2	-	-	-	2	3	2	1

191BM423-BIO-SIGNAL PROCESSING

OUTCOMES:
At the end of the course, the student should be able to:
- Analyse the origin and nature of biosignals.
- Apply the concept of filtering in biosignal analysis.
- Detect ORS complex in ECG signals and to perform rhythm analysis.
- Perform Fourier domain analysis using transforms.
- Outline the principles of signal processing.

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	1	-	1	1	-	-	-	-	-	-	2	2	-	-
CO 2	3	2	2	2	2	1	1	-	-	-	-	2	3	2	-
CO 3	3	2	2	2	2	2	1	-	-	-	-	2	3	2	1
CO 4	3	2	2	2	2	2	1	-	-	-	-	2	3	2	1
CO 5	3	2	2	2	2	2	1	-	-	-	-	2	3	2	1
CO 6	3	2	2	2	2	2	1	-	-	-	-	2	3	2	1

191BM424-PATHOLOGY AND MICROBIOLOGY

OUTCOMES
At the end of the course, the student should be able to:
- Explain the different pathological conditions in cell.
- Discuss the concepts of inflammation.
- Explain the concepts of tumors and carcinogenesis.
- Describe the different culture techniques.
- Explain the techniques involved in pathophysiology.

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	-	3	1	2	-	1	-	3	-	-	-	-	1	1	2
CO 2	3	1	-	2	3	1	-	1	3	2	-	3	1	-	-
CO 3	1	1	2	3	3	3	2	3	3	-	-	-	1	1	1
CO 4	1	3	1	-	2	3	1	3	-	3	3	3	1	-	1
CO 5	1	2	2	2	-	-	1	3	3	1	-	-	2	2	1
CO 6	2	3	2	3	3	3	2	3	3	3	3	3	2	2	2

191BM425-BIOETHICS & INTELLECTUAL PROPERTY RIGHTS (IPRs)
OUTCOMES
At the end of the course, the student should be able to:
- Apply bioethics in health care
- Discuss the nature of genetically modified organisms
- Outline the concepts of regulatory mechanisms for GMO's
- Explain the concepts of Intellectual property rights
- Describe the concept of Biosafety

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	-	-	-	2	-	1	1	3	-	1	-	1	1	-	-
CO 2	-	-	-	2	-	1	1	3	-	1	-	1	1	-	-
CO 3	-	-	-	2	-	1	1	3	-	1	-	1	1	-	-
CO 4	-	-	-	2	-	1	1	3	-	1	-	1	1	-	-
CO 5	-	-	-	2	-	1	1	3	-	1	-	1	1	-	-
CO	-	-	-	2	-	1	1	3	-	1	-	1	1	-	-

191BM42A-PATHOLOGY AND MICROBIOLOGY LABORATORY

Course Outcomes:
- Student can perform practical experiments on tissue processing, cryoprocessing, staining Processes etc.

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	2	3	3	1	2	-	-	2	2	-	-	2	3	2	1
CO	2	3	3	1	2	-	-	2	2	-	-	2	3	2	1

191BM42B-BIO-DIGITAL SIGNAL PROCESSING LABORATORY

OUTCOMES:
At the end of the course, the student should be able to:
- Carryout basic signal processing operations
- Demonstrate their abilities towards MATLAB based implementation of various DSP systems. Analyze the architecture of a DSP Processor
- Design and Implement the FIR and IIR Filters in DSP Processor for performing filtering operation over real-time signals
- Design a DSP system for various applications of DSP

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	2	2	1	1	-	-	-	-	-	-	1	3	2	-
CO 2	3	2	2	2	2	-	-	-	-	-	-	2	3	2	-
CO 3	3	3	3	2	3	1	1	-	-	-	-	2	3	2	1
CO 4	3	3	3	2	3	1	1	-	-	-	-	2	3	2	1
CO	3	3	3	2	3	1	1	-	-	-	-	2	3	2	1

191HS40A-READING AND WRITING SKILLS LABORATORY

COURSE OUTCOMES:
Co1: Student will be an active listener so as to respond accurately and effectively
Co2: Students becomes confident enough to present anything successfully
Co3: Student becomes free for making queries and answer to queries without hesitation.

Co4: Student learns to write effectively and be able to draft letters, E-mails impressively.
Co5: Student understands the dynamics of GD and so participates in GDs confidently

Cos	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	-	-	-	-	-	-	-	2	3	3	-	3	1	-	-
CO 2	-	-	-	-	-	-	-	2	3	3	-	3	1	-	-
CO 3	-	-	-	-	-	-	-	2	3	3	-	3	1	-	-
CO 4	-	-	-	-	-	-	-	2	3	3	-	3	1	-	-
CO 5	-	-	-	-	-	-	-	2	3	3	-	3	1	-	-
CO	-	-	-	-	-	-	-	2	3	3	-	3	1	-	-

191BM521-DIAGNOSTIC AND THERAPEUTIC EQUIPMENT

COURSE OUTCOMES:
At the end of the course, the student should be able to:
- Discuss the various equipment used in ICU and applications of telemetry.
- Explain the types of diathermy and its applications.
- Express the basics of ultrasound and its application in medicine
- Discuss the various extracorporeal and special diagnostic devices used in hospitals
- Outline the importance of patient safety against electrical hazard

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	2	2	2	-	2	2	2	-	-	-	3	3	2	2
CO 2	3	3	3	2	-	2	2	2	-	-	-	3	3	3	3
CO 3	3	3	2	2	-	2	2	2	-	-	-	3	3	3	2
CO 4	3	3	3	2	-	2	2	2	-	-	-	3	3	3	3
CO 5	3	2	2	-	-	2	1	1	-	-	-	2	3	2	1
CO	3	2	2	2	-	2	2	2	-	-	-	3	3	3	2

191BM522- HOSPITAL MANAGEMENT

OUTCOMES:
At the end of the course, the student should be able to:
- Explain the principles of Hospital administration.
- Identify the importance of Human resource management.
- List various marketing research techniques
- Identify Information management systems and its uses
- Explain safety procedures followed in hospitals.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	-	-	-	-	-	1	1	2	1	-	2	1	-	-	2
CO 2	-	-	-	-	-	1	1	1	2	-	3	1	-	-	2
CO 3	-	-	-	-	-	1	1	1	2	-	3	1	-	-	2
CO 4	-	-	-	-	-	1	1	3	2	-	3	1	-	-	2
CO 5	-	-	-	-	-	3	2	3	1	-	2	1	-	-	2

191BM523-CONTROL SYSTEMS IN MEDICINE

OUTCOMES
Upon completion of this subject, the student will be able to:
- Explain the need for mathematical modeling of various systems, representation of systems in block diagrams and signal flow graphs and are introduced to biological control systems
- Analyze the time response of various systems and discuss the concept of system stability
- Analyze the frequency response characteristics of various systems using different charts
- Explain the concept of modeling basic physiological systems
  Comprehend the application aspects of time and frequency response analysis in physiological control systems

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	3	-	-	2	-	-	-	-	-	-	-	-	-	-
CO 2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO 3	3	2	3	-	-	-	-	-	-	-	-	-	-	-	-
CO 4	3	3	3	3	-	-	-	-	-	-	-	-	-	-	-
CO 5	3	3	3	3	2	-	-	-	-	-	-	-	2	2	3
CO	3	3	3	3	2	-	-	-	-	-	-	-	2	2	3

191BM524-BIOMATERIALS & ARTIFICIAL ORGANS

OUTCOMES:
Students will be able to
- To know about artificial organs evaluation process and procedure for transplantation of organs
- To apply a engineering principles for designing an implants

- To design an implantable device based on their various wear and tear properties
- To apply ideas on designing blood interfacing implants
- To design and develop implantable devices and organs on dentistry, maxillofacial and craniofacial

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	-	3	-	-	2	3	1	2	-	-	3	3	3	3
CO 2	3	-	3	1	-	3	2	1	2	-	-	3	3	3	3
CO 3	3	-	3	1	-	2	3	2	1	-	-	3	3	3	3
CO 4	3	-	2	-	-	2	2	1	1	-	-	3	3	2	2
CO 5	2	-	3	-	-	3	3	1	2	-	-	3	3	3	2

191BM52A-MICROPROCESSORS AND MICROCONTROLLERS
 COURSE OUTCOMES:
At the end of the course, the students should be able to:
- Execute programs based on 8086 microprocessor.
- Explain the bus structures used in microprocessor.
- Design and interface I/O circuits.
- Design and implement 8051 microcontroller based systems
- Design Memory Interfacing circuits.

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	3	-	-	2	-	-	-	-	-	-	-	-	-	-
CO 2	3	3	3	-	-	-	-	-	-	-	-	-	-	-	-
CO 3	3	2	3	-	-	-	-	-	-	-	-	-	2	2	3
CO 4	3	3	3	3	-	-	-	-	-	-	-	-	2	2	3
CO 5	3	3	3	3	2	-	-	-	-	-	-	-	2	2	3
CO	3	3	3	3	2	-	-	-	-	-	-	-	2	2	3

191BM52A-MICROPROCESSORS AND MICROCONTROLLERS LABORATORY
OUTCOMES:
At the end of the course, the student should be able to:
Write ALP Programmes for fixed and Floating Point and Arithmetic operations
- Interface different I/Os with processor
- Generate waveforms using Microprocessors
- Execute Programs in 8051
- Explain the difference between simulator and Emulator

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	2	2	1	-	-	-	-	1	1	1	-	1	2	-	-
CO 2	2	2	1	-	-	-	-	1	1	2	-	1	2	-	-
CO 3	2	3	2	-	-	-	-	1	1	1	-	1	2	-	-

CO 4	2	3	2	-	-	-	-	1	1	1	-	1	2	-	-
CO	2	3	2	-	-	-	-	1	1	1	-	1	2	-	-

191BM52B-DIAGNOSTIC AND THERAPEUTIC EQUIPMENT LABORATORY
OUTCOMES:
At the end of the lab, the student should be able to:
- Measure different bioelectrical signals using various methods
- Assess different non-electrical parameters using various methodologies
- Illustrate various diagnostic and therapeutic techniques
- Examine the electrical safety measurements
- Analyze the different bio signals using suitable tools.

COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO 1	2	2	1	-	-	-	-	1	1	1	-	1	2	1	-
CO 2	2	2	1	-	-	-	-	1	1	2	-	1	2	1	-
CO 3	2	3	2	-	-	-	-	1	1	1	-	1	2	1	-
CO 4	2	3	2	-	-	-	-	1	1	1	-	1	2	1	-
CO	2	3	2	-	-	-	-	1	1	1	-	1	2	1	-

191BM533- BIOMETRIC SYSTEMS

OUTCOMES:
At the end of the course, the student should be able to:
- Demonstrate knowledge engineering principles underlying biometric systems.
- Understand the different technologies involved in fingerprint recognition.
- Design Basic face recognition system
- Understand the concepts and design basic voice recognition system
- Analyze concept of fusion used in biometric applications

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	2	1	1	1	1	-	2	1	1	-	2	3	2	2
CO 2	3	2	3	1	1	1	-	2	1	1	-	2	3	3	2
CO 3	3	2	3	3	2	2	-	2	1	1	-	2	3	3	2
CO 4	3	2	3	3	2	2	-	2	1	1	-	2	2	2	2
CO 5	3	3	3	3	3	2	-	2	1	1	-	2	3	3	2
CO	3	2	3	2	2	2	-	2	1	1	-	2	3	3	2

191BM624-RADIOLOGICAL EQUIPMENTS

OUTCOMES:
At the end of this course, the student should be able to
- Describe the working principle of X ray machine and its application.

- Illustrate the principle computed tomography.
- Interpret the technique used for visualizing various sections of the body using magnetic
- resonance imaging
- Demonstrate the applications of radio nuclide imaging.
- Outline the methods of radiation safety.

Cos	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
CO 1	3	3	-	-	-	-	-	-	-	-	-	1	2	-	-
CO 2	3	3	1	3	-	-	-	-	-	-	-	1	2	-	-
CO 3	3	3	2	1	-	-	-	-	-	-	-	1	2	1	-
CO 4	3	3	-	2	-	-	-	-	-	-	-	1	2	-	-
CO 5	3	2	-	-	-	1	-	1	-	-	-	1	2	-	1
CO	3	3	2	3	-	1	-	1	-	-	-	1	2	1	1

191BM623- MEDICAL INFORMATICS

OUTCOMES:
At the end of the course, the student should be able to:
- Discuss about health informatics and different ICT applications in medicine.
- Explain the function of Hospital Information Systems
- Analyze medical standards
- Explain about the bioinformatics database

Discuss the recent trends and virtual reality concepts in informatics

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	-	-	-	1	1	1	1	-	-	-	-	1	-	-
CO 2	3	-	-	-	2	1	1	1	-	-	-	-	1	1	1
CO 3	3	-	-	-	-	1	-	-	-	-	-	-	1	-	-
CO 4	3	-	-	-	-	1	-	-	-	-	-	-	1	-	-
CO 5	3	-	-	-	-	1	-	-	-	-	-	-	1	-	-
CO	3	-	-	-	2	1	1	1	-	-	-	-	1	1	1

191BM621-ADVANCED MICROCONTROLLER AND ITS APPLICATIONS

OUTCOMES:
At the end of the course, the student should be able to:
- Explain the architecture ,memory organization and programming of PIC microcontroller
- Develop an embedded C program using the internal functional blocks of PIC microcontroller for the given requirement.
- Explain the peripherals and interfacing of controller.
- Implement assembly language programming by ARM processor.

- Explain the architecture and instruction set of ARM processor

Cos	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
CO 1	3	1	1	1	1	-	-	-	-	-	-	2	2	1	-
CO 2	3	3	3	2	3	-	-	-	-	-	-	2	3	2	-
CO 3	3	1	1	1	1	-	-	-	-	-	-	2	2	1	-
CO4	3	3	3	3	3	-	-	-	-	-	-	2	3	2	-
CO5	3	1	1	1	1	-	-	-	-	-	-	2	2	1	-
CO	3	2	2	2	2	-	-	-	-	-	-	2	2	2	-

191BM622-COMMUNICATION SYSTEMS

OUTCOMES:
At the end of the course, the student should be able to:
- Apply Analog communication techniques in biotelemetry.
- Apply digital communication techniques.
- Analyze source and error control coding.
- Utilize multiple access techniques.
- Explain the techniques involved in Biotelemetry.

Cos	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
CO 1	3	2	3	1	-	2	-	-	-	-	-	2	2	1	-
CO 2	3	3	3	2	-	2	-	-	-	-	-	2	3	2	-
CO 3	3	1	1	1	-	2	-	-	-	-	-	2	2	1	-
CO4	3	3	3	3	-	2	-	-	-	-	-	2	3	2	-
CO5	3	1	1	1	-	2	-	-	-	-	-	2	2	1	-
CO	3	2	2	2	-	2	-	-	-	-	-	2	2	2	-

191BM62A-COMMUNICATION SYSTEMS LAB

OUTCOMES:
At the end of the course, the student should be able to:
- Apply modulation and demodulation techniques in biotelemetry.
- Apply digital communication techniques.
- Analyze Line coding schemes

Cos	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
CO 1	3	2	3	1	-	2	-	-	-	-	-	2	2	1	-
CO 2	3	3	3	2	-	2	-	-	-	-	-	2	3	2	-
CO 3	3	1	1	1	-	2	-	-	-	-	-	2	2	1	-
CO	3	2	2	2	-	2	-	-	-	-	-	2	2	2	-

191HS60A-COMMUNICATION SKILLS LABORATORY

OUTCOME:

At the end of the semester the students will be able to:

CO1: To be totally learner-centric with minimum teacher intervention as the course revolves around practice.

CO2: Suitable audio/video samples from Podcast/YouTube to be used for illustrative purposes.

CO3: Portfolio approach for writing to be followed. Learners are to be encouraged to blog, tweet, text and email employing appropriate language.

CO4:GD/Interview/Role Play/Debate could be conducted off the laboratory (in a regular classroom) but learners are to be exposed to telephonic interview and video conferencing.

CO5: Learners are to be assigned to read/write/listen/view materials outside the classroom as well for graining proficiency and better participation in the class.

Cos	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
CO 1	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO 2	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO 3	-	-	-	-	-	-	-	-	1	3	3	-	-	-	-
CO 4	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO 5	-	-	-	-	-	-	-	-	-	3	-	-	-	-	-
CO	-	-	-	-	-	-	-	-	1	3	3	-	-	-	-

191BM633-TELEHEALTH TECHNOLOGY

OUTCOMES:

The students will be able to

- Apply multimedia technologies in telemedicine
- Explain protocols behind encryption techniques for secure transmission of data
- Apply telehealth in healthcare.
- Use telehealth technology to provide more efficient access and appropriate systems for patients when referring to specialists and allied health professionals
- Implement an efficient and cost-effective telehealth service within your practice workflow

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	2	2	3	3	2	3	2	3	1	3	3	2	3	2
CO 2	2	2	2	3	2	2	2	2	2	3	2	3	2	3	2
CO 3	2	3	3	2	2	3	3	3	2	3	1	2	2	2	2
CO 4	3	3	3	2	3	3	1	1	2	3	2	2	2	3	2
CO 5	2	2	1	2	3	3	2	3	2	3	3	3	2	2	2
CO	2	2	2	2	2	2	2	2	2	3	2	3	2	3	2

191 ME546- RENEWABLE ENERGY SOURCES
OUTCOMES:
• Understanding the physics of solar radiation.
• Ability to classify the solar energy collectors and methodologies of storing solar energy.
• Knowledge in applying solar energy in a useful way.
• Knowledge in capturing and applying other forms of energy sources like wind, biogas and geothermal energies.

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	-	-	-	-	3	3	3	3	-	1	1	2	-	1
CO 2	3	-	-	-	-	3	3	3	3	-	1	1	2	-	1
CO 3	3	-	-	-	-	3	3	3	3	-	1	1	2	-	1
CO4	3	-	-	-	-	3	3	3	3	-	1	1	2	-	1
CO	3	-	-	-	-	3	3	3	3	-	1	1	2	-	1

REGULATIONS 2017

BM8701-DIAGNOSTIC AND THERAPEUTIC EQUIPMENTS

OUTCOMES:
At the end of the course, the student should be able to:
• Discuss the various equipment used in ICU and applications of telemetry.
• Explain the types of diathermy and its applications.
• Express the basics of ultrasound and its application in medicine
• Discuss the various extracorporeal and special diagnostic devices used in hospitals
• Outline the importance of patient safety against electrical hazard

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	3	3	3	3	2	3	1	2	1	0	3	3	3	1
CO 2	3	3	3	3	3	2	3	1	2	1	0	3	3	3	1
CO 3	3	3	3	3	3	2	3	1	2	1	0	3	3	2	2
CO 4	3	3	3	3	3	2	3	1	2	1	0	3	3	3	2
CO 5	3	3	3	3	3	2	3	1	2	1	0	3	3	2	2
CO	3	3	3	3	3	2	3	1	2	1	0	3	3	3	2

EC8093 DIGITAL IMAGE PROCESSING
OUTCOMES: At the end of the course, the students should be able to:
• Know and understand the basics and fundamentals of digital image processing, such as digitization, sampling, quantization, and 2D-transforms
• Operate on images using the techniques of smoothing, sharpening and enhancement.
• Understand the restoration concepts and filtering techniques.
• Learn the basics of segmentation, features extraction, compression and recognition methods for color models.

- Implement the automated computerized image processing algorithms

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1
CO 2	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1
CO 3	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1
CO 4	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1
CO 5	3	2	2	2	2	2	2	1	1	1	1	2	3	3	1
CO	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1

BM8702 RADIOLOGICAL EQUIPMENTS

OUTCOMES:
At the end of this course, the student should be able to
- Describe the working principle of X ray machine and its application.
- Illustrate the principle computed tomography.
- Interpret the technique used for visualizing various sections of the body using magnetic resonance imaging
- Demonstrate the applications of radio nuclide imaging.
- Outline the methods of radiation safety.

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	3	3	3	3	3	3	1	2	1	0	3	3	3	2
CO 2	3	3	3	3	3	3	3	2	2	1	0	3	3	3	2
CO 3	3	3	3	3	3	3	3	1	2	1	0	3	3	3	2
CO 4	3	3	3	3	3	3	3	2	2	1	0	3	3	3	2
CO 5	3	3	3	3	3	3	3	1	2	1	0	3	3	3	2
CO	3	3	3	3	3	3	3	2	2	1	0	3	3	3	2

BM8703 REHABILITATION ENGINEERING

OUTCOMES

Students will be able to
- Gain adequate knowledge about the needs of rehabilitations and its future development.
- Have an in depth idea about Engineering Concepts in Sensory & Motor rehabilitation.
Apply the different types of Therapeutic Exercise Technique to benefit the society.
- Design and apply different types Hearing aids, visual aids and their application in biomedical field and hence the benefit of the society.
- Gain in-depth knowledge about different types of models of Hand and arm replacement.

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	3	-	-	-	2	3	1	2	-	-	3	3	-	-
CO 2	3	3	3	3		2	2	1	1	-	-	3	3	2	2
CO 3	3	2	3	3	-	2	3	1	1	-	-	3	3	1	2
CO 4	3	2	2	3	2	1	2	1	2	-	-	3	3	2	2
CO 5	3	3	3	3	-	1	3	1	2	-	-	3	3	2	2
CO	3	3	3	3	2	2	3	1	2	-	-	3	3	3	3

EC8762 DIGITAL IMAGE PROCESSING LABORATORY
OUTCOMES
At the end of the course, the student should be able to:
• Perform enhancing operations on the image using spatial filters and frequency domain filters.
• Use transforms and analyse the characteristics of the image.
• Perform segmentation operations in the images.
• Estimate theefficiency of the compression technique on the images.
 • Apply image processing technique to solve real health care problems.

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1
CO 2	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1
CO 3	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1
CO 4	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1
CO 5	3	2	2	2	2	2	2	1	1	1	1	2	3	3	1
CO	3	2	2	2	2	2	2	1	1	1	1	2	3	2	1

MD8751 HOSPITAL TRAINING

OUTCOMES:
At the end of the course, the student should be able to:
 • Advocate a patient-centred approach in healthcare
• Communicate with other health professionals in a respectful and responsible manner
 • Recognize the importance of inter-professional collaboration in healthcare.
 • Propose a patient-centred inter-professional health improvement plan based upon the patient's perceived needs
 • Use the knowledge of one's own role and those of other professions to address the healthcare needs of populations and patients served.

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO 2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

CO 3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO 4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO 5	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

GE8071 DISASTER MANAGEMENT

OUTCOMES:
The students will be able to
• Differentiate the types of disasters, causes and their impact on environment and society
• Assess vulnerability and various methods of risk reduction measures as well as mitigation.
 • Draw the hazard and vulnerability profile of India, Scenarious in the Indian context,
Disaster damage assessment and management.

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	3	-	-	-	-	3	3	3	3	-	-	1	2	-	2
CO 2	3	-	-	-	-	3	3	3	3	-	-	1	2	-	2
CO 3	3	-	-	-	-	3	3	3	3	-	-	1	2	-	2
CO	3	-	-	-	-	3	3	3	3	-	-	1	2	-	2

OCY751   WASTE WATER TREATMENT

OUTCOMES:
•Will have knowledge about adsorption and oxidation process.
•Will gain idea about various methods available for water treatment.
•Will appreciate the necessity of water and acquire knowledge of preliminary treatment.

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO 3
CO 1	1	-	-	-	-	3	3	3	3	-	-	1	2	-	2
CO 2	1	-	-	-	-	3	3	3	3	-	-	1	2	-	2
CO 3	1	-	-	-	-	3	3	3	3	-	-	1	2	-	2
CO	1	-	-	-	-	3	3	3	3	-	-	1	2	-	2

BM8073 BIOMETRIC SYSTEMS
OUTCOMES:
At the end of the course, the student should be able to:
• Demonstrate knowledge engineering principles underlying biometric systems.
• Understand the different technologies involved in fingerprint recognition.
• Design Basic face recognition system
• Understand the concepts and design basic voice recognition system
• Analyze concept of fusion used in biometric applications

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CO 1	3	2	1	1	1	1	-	2	1	1	-	2	3	2	2
CO 2	3	2	3	1	1	1	-	2	1	1	-	2	3	3	2
CO 3	3	2	3	3	2	2	-	2	1	1	-	2	3	3	2
CO 4	3	2	3	3	2	2	-	2	1	1	-	2	2	2	2
CO 5	3	3	3	3	3	2	-	2	1	1	-	2	3	3	2
CO	3	2	3	2	2	2	-	2	1	1	-	2	3	3	2

BM8076 ELECTRICAL SAFETY AND QUALITY ASSURANCE

Students would be able to
- Demonstrate various techniques to shield patient from electrical hazardous
- Develop knowledge on medical safety standards
- Gain knowledge on safety measures to be followed in hospitals
- Insight into the procedures used in quality control
- Implement the various methods to monitor and assess quality in healthcare

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO 1	3	3	3	3	3	2	3	1	2	2	3	3	3	3	3
CO 2	3	3	3	3	3	2	2	1	1	1	3	3	3	3	2
CO 3	3	2	3	3	2	2	3	1	1	1	2	3	3	3	3
CO 4	3	2	2	3	2	1	2	1	2	2	2	3	2	2	2
CO 5	3	3	3	3	2	1	3	2	2	2	3	3	3	3	3
CO	3	3	3	3	2	2	3	1	2	2	3	3	3	3	3

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BM8811 PROJECT WORK

OUTCOMES:
- On Completion of the project work students will be in a position to take up any challenging practical problems and find solution by formulating proper methodology

Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO1	PSO2	PSO3
CO 1	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
CO	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3