Department of Biomedical Engineering

S.E. SEM III (R2016): Course Outcomes

BMC301 – Applied Mathematics-III

Learners will be able to:	
BMC301.1	Explain Laplace transform, and inverse Laplace transform
BMC301.2	Apply Laplace transform to solve differential equations
BMC301.3	Explain Fourier series expansion
BMC301.4	Explain vector differentiation, integration and apply these concepts for irrotational and solenoidal force fields
BMC301.5	Explain the properties of Bessel function
BMC301.6	Follow methods of Cauchy theory of analytic function and bilinear transformations also apply for orthogonal trajectories

BMC 302 - Basics of Human Physiology

Learners will be able to:	
BMC302.1	Explain the basic concepts of cell and cell physiology
BMC302.2	Describe the various anatomical parts of Cardiovascular and respiratory system and state their physiological functions.Will also know about basics of ECG and spirometer.
BMC302.3	Know different components of blood and its composition. Describe various anomalies, blood transfusion concepts and steps of wound healing.
BMC302.4	State different parts of digestive and urinary system, understand their physiological performance.
BMC302.5	Describe parts of Nervous system and the working of brain and nervous system. Also explain the working of special senses- Eyes and Ears
BMC302.6	Explain the anatomy and physiology of human reproductive system. Also can state the actions of various endocrine glands.

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BMC 303- Electrical Network Analysis and Synthesis

Learners will be able to:	
BMC303.1	Apply number of powerful engineering circuit analysis techniques to simplify networks.
BMC303.2	Use network theorems to analyse complex network under different conditions.
BMC303.3	Determine the graphical solution to electrical network
BMC303.4	Distinguish between different one port and two port network parameters
BMC303.5	Analyse time and frequency response of the electrical circuits.
BMC303.6	Synthesize an electrical network from a given impedance/admittance function.

BMC 304 --Electronic Circuit Analysis and Design

Learners will be able to:	
BMC304.1	Explain the diodes and zener diodes characteristics and implement wave shaping circuits.
BMC304.2	Explain BJT circuits, analyse the DC load line and perform DC analysis of various BJT configurations.
BMC304.3	Explain AC analysis of various BJT configurations and design BJT amplifiers using h-parameter and re modelling
BMC304.4	Explain AC analysis of various JFET configurations and design a single stage amplifier using JFET.
BMC304.5	Explain the working of MOSFETs, and sketch its characteristics and its various applications
BMC304.6	Design multistage cascade, cascade and Darlington amplifiers

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BMC 305 -Biomaterials , Prosthetics and Orthotics

Learners will be able to:	
BMC305.1	Classification of biomaterials and their general applications for humans , Apply the knowledge of the surface characterization techniques, while selecting a biomaterial
BMC305.2	Apply various degradable, polymeric and composite biomaterials for human use.
BMC305.3	Apply various metallic and ceramic biomaterials for human use.
BMC305.4	Selection of materials on the basis of testing of the biomaterials done biologically, mechanically, physio-chemically and thermally before implantation in the human body.
BMC305.5	Apply the knowledge of anatomical levers, gait cycle and gait parameters to design prostheses and orthoses.
BMC305.6	Apply the knowledge of design principles of prostheses and orthoses to create a product very comfortable to the human use.

BML- 301 Object Oriented Programing

Learners will be able to:	
BML301.1	To apply fundamental programming constructs.
BML301.2	To illustrate the concept of packages, classes and objects.
BML301.3	To elaborate the concept of strings, arrays and vectors.
BML301.4	To implement the concept of inheritance and interfaces.
BML301.5	To implement the notion of exception handling and multithreading.
BML301.6	To develop GUI based application.

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BML 302 - Basics of Human Physiology

Learners will be able to:	
BML302.1	Identify various body organs of different organ systems (anatomy)
BML302.2	Perform basic clinical measurements of blood cells, elements and blood grouping
BML302.3	Obtain the electrical activity of heart, blood pressure and understand the heart parameters and
BML302.4	Describe the working of the organ system (Physiology)

BML 303- Electrical Network Analysis and Synthesis

Learners will be able to:	
BML303.1	Apply number of powerful engineering circuit analysis techniques to simplify networks.
BML303.2	Use network theorems to analyse complex network under different conditions.
BML303.3	Determine the graphical solution to electrical network
BML303.4	Distinguish between different one port and two port network parameters
BML303.5	Analyse time and frequency response of the electrical circuits.
BML303.6	Synthesize an electrical network from a given impedance/admittance function.

Department of Biomedical Engineering

BML 304- Electronic Circuit Analysis and Design

Learners will be able to:	
BML304.1	Implement and verify outputs of various electronic circuits using diodes
BML304.2	Implement biasing circuits and verify characteristics of BJT and JFET.
BML304.3	Implement amplifiers and verify its characteristic.

BML- 305 :Biomaterials, Prosthetics and Orthotics

Learners will be able to:	
BML305.1	Classification of biomaterials and their general applications for humans , Apply the knowledge of the surface characterization techniques, while selecting a biomaterial
BML305.2	Apply various degradable, polymeric and composite biomaterials for human use.
BML305.3	Apply various metallic and ceramic biomaterials for human use.
BML305.4	Selection of materials on the basis of testing of the biomaterials done biologically, mechanically, physio-chemically and thermally before implantation in the human body.
BML305.5	Apply the knowledge of anatomical levers, gait cycle and gait parameters to design prostheses and orthoses.
BML305.6	Apply the knowledge of design principles of prostheses and orthoses to create a product very comfortable to the human use.

Department of Biomedical Engineering

S.E. SEM IV (R2016): Course Outcomes

BMC401 - Applied Mathematics-II

Learners will be able to:	
BMC401.1	Use Calculus of variation in Isoperimetric problems
BMC401.2	Follow Gram-Schmidt Process and vector spaces
BMC401.3	Use Linear Algebra, Eigen values and Eigen vectors
BMC401.4	Explain Understand Quadratic forms and singular value decomposition
BMC401.5	Use complex integration formulas and theorems
BMC401.6	Use method of residues and Taylor series expansion, applications to real integration

BMC 402 - Biomedical Transducers and Measuring Instruments

Learners will be able to:	
BMC402.1	Explain generalized medical instrumentation system, general properties of transducers, static and dynamic characteristics of transducers and sensors.
BMC402.2	Classify the fundamental principles and applications of various types of sensors including motion, displacement and pressure sensors.
BMC402.3	Use different transduction methods for measuring temperature.
BMC402.4	Explain principle and application of various biopotential electrodes
BMC402.5	Explain principle and working of chemical sensors
BMC402.6	Discuss principle of various biosensors, and differentiate various amperometric and potentiometric sensors.

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BMC 403 Linear Integrated Circuits

Learners will be able to:	
BMC403.1	Analyze different types of differential amplifiers
BMC403.2	Demonstrate basics of operational amplifiers
BMC403.3	Analyze and design operational amplifier to perform mathematical operations
BMC403.4	Analyze and design operational amplifier as oscillators
BMC403.5	Illustrate basics of negative feedback and perform analysis on different types of circuits with negative feedback
BMC403.6	Exhibit working of power amplifiers, its types and DC and AC analysis and designing

BMC 404- Digital Electronics

Learners will be able to:	
BMC404.1	Apply various number systems (BCD, Binary, Octal, Hexadecimal etc.) in circuit design.
BMC404.2	Apply K-maps, boolean algebra and SOP-POS implementations to practical problems.
BMC404.3	Design code converter circuits, parity generator-checker circuits and magnitude comparator circuits.
BMC404.4	Design multiplexers, demultiplexers, and decoders.
BMC404.5	Design synchronous and asynchronous counters and registers using flipflops.
BMC404.6	Design various gates using various logic families.

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BMC 405- Signals & Control System

Learners will be able to:	
BMC405.1	Analyse signals ,classify signals and perform various operations
BMC405.2	Analyse systems, classify systems and represent it
BMC405.3	Solve Fourier transform and analyse it for continuous time signals
BMC405.4	Solve Laplace transform, Inverse Laplace transform. Apply concepts of Laplace transform.
BMC405.5	Apply basic concept of control systems, open loop and closed loop systems, difference between open loop and closed loop systems, use signal flow graph.
BMC405.6	Evaluate time domain and frequency domain behaviour of systems

BML 401- Introduction to Simulation Tools

Learners will be able to:	
BML401.1	State various tools of Matlab/Scilab
BML401.2	Write Programme in Matlab/Scilab
BML401.3	Simulate Digital and analog circuits
BML401.4	Simulate differential equations and other mathematical functions

BML 402 - Biomedical Transducers and Measuring Instruments

Learners will be able to:	
BML402.1	Record and display signals using CRO.
BML402.2	Analyse step response of a thermometer and measure temperature using various temperature transducers.
BML402.3	Measure various medical parameters (displacement, pressure, pH etc. using respective transducers.

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BML 403- Linear Integrated Circuits

Learners will be able to:	
BML403.1	Design and implement various mathematical operations using operational amplifier
BML403.2	Implement waveform generation using operational amplifier
BML403.3	Implement circuits of differential amplifiers, power amplifiers and negative feedback.

BML 404- Digital Electronics

Learners will be able to:	
BML404.1	Understand various ICs used for basic gates,EX-OR and EX-NOR gates
BML404.2	Design code converter circuits.
BML404.3	Design parity generator-checker circuits, adder-subtractor circuits and magnitude comparator circuits
BML404.4	Design circuits using multiplexers, demultiplexers, and decoders.
BML404.5	Design synchronous and asynchronous counters using flipflops.
BML404.6	Design various registers using flip flops. Comparison of logic families.

BML 405- Signals & Control System

Learners will be able to:	
BML405.1	Using computational techniques and methodical approach Learner will be able to analyse, design and develop systems
BML405.2	Knowledge of Signal Processing and Control System Techniques will help learner to contribute in the field of research and development of medical signals and image processing

Department of Biomedical Engineering

T.E. SEM V (R2016): Course Outcomes

BMC501 – Diagnostic & Therapeutic Instruments

Learners will be able to:	
BMC501.1	Explain the principles of various analytical instruments used in hospital laboratories.
BMC501.2	Demonstrate the knowledge about various blood cell counting systems and blood gas analysers.
BMC501.3	Demonstrate the knowledge about various automated drug delivery systems.
BMC501.4	Explain the basic mechanism of ventilation and analysis of pulmonary functions and demonstrate the use of ventilation therapy.
BMC501.5	Explain the basic principle and applications of physiotherapy and electrotherapy techniques.
BMC501.6	Explain the basic principle and working of haemodialysis machine.

BMC 502 - Analog and Digital Circuit Design

Learners will be able to:	
BMC502.1	Apply various waveform generation IC's in the projects.
BMC502.2	Apply the knowledge of various special function IC's for designing.
BMC502.3	Design active filters and their application in biomedical field and electronic circuit design
BMC502.4	Apply power devices like power diodes, SCR, DIAC and TRIAC, UJT and power MOSFET's in the designing of projects.
BMC502.5	Applying the knowledge of voltage regulators,power supplies, and switches .
BMC502.6	Apply different types of ac and dc motors in the project design.

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BMC 503- Principles of Communication Engineering

Learners will be able to:	
BMC503.1	Demonstrate concept of electronic communication system with effect of noise and modeling of noise
BMC503.2	Have in depth knowledge of amplitude modulation and be able to compare different types of AM transmitters with analysis
BMC503.3	Analyze efficiently different types of AM receivers with characteristics, merits and demerits
BMC503.4	Exhibit basic operation of FM transmitter and receiver with types, analysis, advantages and disadvantages
BMC503.5	Apply sampling theorem and quantization process in digitizing analog signal with different types of analog and digital pulse modulation
BMC503.6	Explain and compare different types of digital transmission techniques and multiplexing techniques

BMC 504- Biomedical Digital Signal Processing

Learners will be able to:	
BMC504.1	Evaluate z-transform, ROC, the properties of ZT, Inverse z-transform. Apply concept of z-transform & IZT, DTFT
BMC504.2	Analyse signals using Discrete Fourier Transform & its properties. Solve Circular and Linear convolution and will be able to implement using DFT.
BMC504.3	Apply efficient computation techniques such as DIT and DIF FFT and IFFT algorithms
BMC504.4	Design IIR filters by designing prototype analog filters and then applying analog to digital conversion
BMC504.5	Design FIR filters using window method. Realise FIR & IIR filters. Apply concept of dsp in Biomedical Applications

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BMDLO5011- Healthcare Database Management (Elective)

Learners will be able to:	
BMDLO 5011.1	Learn and practice data modelling using the entity-relationship and developing database designs
BMDLO 5011.2	Describe the use of Structured Query Language (SQL) and learn SQL syntax
BMDLO 5011.3	Create, display, validate and search XML files
BMDLO 5011.4	Create windows applications using standard .NET controls.
BMDLO 5011.5	Acquire knowledge of client side scripting language thereby to reduce the load on server and minimize the response time.

BML 501- Business Communication and Ethics

Learners will be able to:	
BML 501.1	Prepare a project report by assimilating, analysing, organizing and formatting data in the prescribed format.
BML 501.2	Prepare notice agenda and minutes of a meeting and plan and conduct an effective meeting
BML 501.3	Participate in group discussions and interviews and write a cover letter and resume in the latest format
BML 501.4	Apply presentation techniques to deliver power point presentations
BML 501.5	Implement the concept and application of soft skills in real life situations

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BML 502- Diagnostic and Therapeutic Instruments

Learners will be able to:	
BML502.1	Appreciate the importance of wavelength selection for measurement of various ions present in the sample.
BML502.2	Explain the principles of various analytical instruments used in hospital laboratories.
BML502.3	Design and Implement power supply of regulated
BML502.4	Explain the basic principle and demonstrate the application techniques of physiotherapy and electrotherapy techniques.
BML502.5	Compare the applications of various types of physiotherapy equipments.
BML502.6	Explain the basic principle and working of haemodialysis machine.

BML 503- Integrated and Communication Circuit Design

Learners will be able to:	
BML503.1	Apply various waveform generation ICs and various special function ICs for designing.
BML503.2	Apply the knowledge of voltage regulators, power supplies, switches and different types of ac and dc motors in the project design.
BML503.3	Apply power devices and active filters in the designing of projects.
BML503.4	Demonstrate concept of electronic communication system.
BML503.5	Analyze different types of AM transmitters and receivers and FM transmitters and receivers.
BML503.6	Analyze the process of digitizing analog signal and analyze different types of digital transmission techniques and multiplexing techniques.

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BML 504- Biomedical Digital Signal Processing

Learners will be able to:	
BML504.1	Implement algorithms based on signal processing with the help of MATLAB

BMDLL 5011- Healthcare Database Management

Learners will be able to:	
BMDLL 5011.1	Design data models and schemas in DBMS and apply the features of database management systems and Relational database
BMDLL 5011.2	Construct tables and retrieve data from the database by using SQL- the standard language of relational databases.
BMDLL 5011.3	Create XML documents using XML schema
BMDLL 5011.4	Designing of windows applications using VB.NET
BMDLL 5011.5	Prepare operators, variables, and control structures in JavaScript

Department of Biomedical Engineering

T.E. SEM VI (R2016): Course Outcomes

BMC601 - Biomedical Monitoring Equipment

Learners will be able to:	
BMC601.1	Apply knowledge about various bioelectrical signal recorders in the pick-up of biosignals
BMC601.2	Demonstrate the principles of electronics used in designing various biomedical monitoring equipment.
BMC601.3	Apply the basic principles and working of audiometry equipments to develop hearing aids
BMC601.4	Apply the knowledge of foetal and neonatal monitoring systems to provide healthcare for foetus and infants.
BMC601.5	Apply the knowledge of various blood flow meters and cardiac output meaurement devices, to quantify various parameters.
BMC601.6	Apply in-depth knowledge about different streams in Biomedical Engineering with greater emphasis on health care Equipment and the advanced technologies such as Telemetry and Telemedicine.

BMC 602 - Microprocessors and Microcontrollers

Learners will be able to:	
BMC602.1	Acquire fundamental concepts of Microprocessors and microcontrollers and timing diagrams
BMC602.2	Explain the concepts of 8086 Architecture, pipelining and memory segmentation
BMC602.3	Acquire the fundamental knowledge of various peripheral ICs used in interfacing
BMC602.4	Apply the knowledge of 8051 core microcontroller, which will equip them to learn higher end controllers used in industry
BMC602.5	Develop programming skills for designing and developing automated and user friendly systems.
BMC602.6	Acquire interfacing skills to develop applications for industry as well as biomedical field

Department of Biomedical Engineering

BMC 603- Digital Image Processing

Learners will be able to:	
BMC603.1	Analyse and process images in the spatial domain & Apply the knowledge of Histogram Stretching, Histogram Equalisation
BMC603.2	Analyse and process images in Frequency domain
BMC603.3	Implement segmentation
BMC603.4	Apply various transforms on an Image & compression of an Image
BMC603.5	Apply different morphological operations on an Image

BMC 604- Medical Imaging I

Learners will be able to:	
BMC604.1	Explain X ray imaging along with X ray tube construction, X ray generators and the total radiographic system.
BMC604.2	Describe Fluoroscopic Imaging and Digital Subtraction Angiography
BMC604.3	Distinguish between CR and DR. Understand Mammography.
BMC604.4	Explain the technique of Computed tomography, the CT scanner configuration, reconstruction techniques and clinical applications.
BMC604.5	Apply the knowledge of CT and learn advancements in CT.

BMDLO 6021.1:Healthcare Software (Elective)

Learners will be able to:	
BMDLO6021.1	Designing of windows applications using C#.NET
BMDLO6021.2	Describe Microsoft .NET Framework and ASP.NET page structure
BMDLO6021.3	Designing of web applications using ASP.NET controls
BMDLO6021.4	Creating database driven ASP.NET web applications using SQL Server
BMDLO6021.5	Debugging and deploying ASP.NET web applications

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BMDLO 6023 Biological Modelling and Simulation (Elective)

Learners will be able to:	
BMDLO6023.1	Explain the concepts, usage and process of physiological modelling
BMDLO6023.2	Apply basic biophysical laws for calculation of membrane potential under different equilibrium conditions and develop simulation programs for understanding neuronal functions
BMDLO6023.3	Analyse the function of complex closed loop systems like temperature control using modelling.
BMDLO6023.4	Analyse the function of neuromuscular system with the help of various models.
BMDLO6023.5	Analyse the function of open loop system like eye movement system and differentiate open loop and closed loop system
BMDLO6023.6	Apply the knowledge of physiological modelling to understand various biological models (immune response, drug delivery and insulin glucose feedback) in the working life.

BML 601- Biomedical Monitoring Equipment

Learners will be able to:	
BML601.1	Design and Implement filters for filtering of noise from signals.
BML601.2	Design and Implement Instrumentation amplifier to amplify low amplitude signals.
BML601.3	Design and Implment a regulated power supply
BML601.4	Design and Implement Pulse Width Modulator
BML601.5	Develop the ability to record ECG signals.
BML601.6	Develop the ability to test hearing ability by use of an audiometry.

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BML 602- Microprocessors and Microcontrollers

Learners will be able to:	
BML602.1	Study the 8031/8086 kit to understand hardware
BML602.2	Implement arithmetic and data transfer programs using assembly programs
BML602.3	Implement C programs for timers/counters using Keil
BML602.4	Implement C programs for port handling using Keil
BML602.5	Design a small application using 8051 and peripherals

BML 603- Digital Image Processing

Learners will be able to:	
BML603.1	Design and implement with MATLAB algorithms for digital image processing operations such as point processing, histogram processing, spatial and frequency domain filtering, denoising, transforms, compression and morphological processing.Gain hands-on experience in using computers to process images.Apply the techniques on Medical Image for reconstruction and quality improvement.

BML 604- Medical Imaging I

Learners will be able to:	
BML604.1	Explain X ray imaging along with X ray tube construction, X ray generators and the total radiographic system.
BML604.2	Describe Fluoroscopic Imaging and Digital Subtraction Angiography
BML604.3	Distinguish between CR and DR. Understand Mammography.
BML604.4	Explain the technique of Computed tomography, the CT scanner configuration, reconstruction techniques and clinical applications.
BML604.5	Apply the knowledge of CT and learn advancements in CT.

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BMDLL 6021- Healthcare Software (Elective)

Learners will be able to:	
BMDLL 6021.1	Designing of windows applications using C#.NET
BMDLL 6021.2	Describe of Microsoft .NET Framework and ASP.NET page structure
BMDLL 6021.3	Designing of web applications using ASP.NET controls
BMDLL 6021.4	Creating database driven ASP.NET web applications using SQL Server
BMDLL 6021.5	Debugging and deploying ASP.NET web applications

BMDLL 6023- Biological Modelling and Simulation(Elective)

Learners will be able to:	
BMDLL6023.1	Apply concept of physiological modelling to model thermometer system.
BMDLL6023.2	Explain virtually biophysical laws for calculation of membrane potential under different equilibrium conditions and develop simulation programs for understanding neuronal functions
BMDLL6023.3	Simulate mathematical model for the eye movement
BMDLL6023.4	Electrically simulate model of thermoregulatory system
BMDLL6023.5	Explain the usage of, and the assumptions behind biological models

Department of Biomedical Engineering

B.E. SEM VII (R2012): Course Outcomes

BMC701 – Biomedical Instrumentation-III

Learners will be able to:	
BMC701.1	Explain the working of various Physiotherapy equipments and its technical specifications.
BMC701.2	Demonstrate the ability to apply principles of electronics and explain the working of Valve type and Solid State surgical diathermy and its technical specifications.
BMC701.3	Demonstrate the ability to apply principles of electronics and explain the working of External and Implantable Cardiac Pacemakers and its technical specifications.
BMC701.4	Demonstrate the ability to apply principles of electronics and explain the working of Cardiac Defibrillator and its technical specifications.
BMC701.5	Demonstrate the ability to apply principles of electronics and explain the working of Haemodialysis machine and its technical specifications
BMC701.6	Demonstrate the ability to apply principles of electronics and explain the working of Lasers and its applications.

BMC 702 - Medical Imaging II

Learners will be able to:	
BMC702.1	Describe the Physical Principle of NMR and CT imaging modalities.
BMC702.2	Describe principles of physics in acquiring a medical image.
BMC702.3	Describe Applications of MRI and CT imaging modalities for diagnosis.
BMC702.4	Analyse effect of radiations on the patient and environment and take appropriate measures for radiation safety.
BMC702.5	Describe Recent advancement in CT and MRI

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BMC 703- Biomechanics Prosthesis and Orthosis

Learners will be able to:	
BMC703.1	Explain basic physics, force system and its classification and equilibrium
BMC703.2	Describe Tissue Biomechanics (Bone, Ligament, Tendon, Skin)
BMC703.3	Apply basic concepts of Movement Biomechanics and Joint Analysis
BMC703.4	Evaluate the human walking pattern (GAIT cycle)
BMC703.5	Describe prostheses and orthoses, in regards to its classification, design and application.
BMC703.6	Develop a better understanding of how mechanical principles influence human motion during everyday life

BMC 704- Very Large Scale Integrated Circuits

Learners will be able to:	
BMC704.1	Explain FPGA and VHDL hardware description language
BMC704.2	Develop and implement various digital circuits using soft wares
BMC704.3	Explain the physics involved in making a VLSI chip
BMC704.4	Explain MOS device and operation of MOS inverter and various related parameters
BMC704.5	Explain the various fabrication techniques and physics involved in making a VLSI chip
BMC704.6	Apply various digital circuits using design rules and layouts

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BMC 705-Networking & Information Systems in Medicine

Learners will be able to:	
BMC705.1	Explain and Analyse Functioning of fundamental component of computer Networking.
BMC705.2	Configuration of various networking devices and components
BMC705.3	Describe various threats to computer networking and basic technique to counter it
BMC705.4	Design requirement of healthcare IT infrastructure
BMC705.5	Design data flow in Hospital.
BMC705.6	Explain standards in healthcare informatics.

BMP 706: Project Satge-I

Learners will be able to:	
BMP706.1	Review , understand and study research papers in various domains of interest
BMP706.2	Identify domain of interest and do literature survey/analysis in domain of interest.
BMP706.3	Formulate solutions to various engineering design problems which can be useful in the healthcare industry.
BMP706.4	Identify technique/algorithm/hardware for developing a project
BMP706.5	Write good project report/technical papers

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B.E. SEM VIII (R2012): Course Outcomes

BMC801 – Nuclear Medicine

Learners will be able to:	
BMC801.1	Apply knowledge of physics of nuclear medicine such as basic concepts of radioactivity, its measurement, interaction with matter, etc.
BMC801.2	Select the radiopharmaceuticals for specific pharmaceuticals for specific tests in nuclear medicine for diagnosis and treatment
BMC801.3	Apply the knowledge of principles of physics to demonstrate working of scammers
BMC801.4	Describe In-vivo and In-vitro techniques, Uptake monitoring systems, its quality control functions of various scanning systems.
BMC801.5	Describe IT based modern methodologies, multi-disciplinary skill set and knowledge while working on real time projects that demand convergence of engineering, science and technology.
BMC801.6	Describe the importance of radiation safety and radioactive waste management and specific needs with reference to public health and environmental safety.

BMC 802 - Biomedical Microsystems

Learners will be able to:	
BMC802.1	Discuss concept of miniaturization and materials used in microsystems in development of microsystem
BMC802.2	Describe and compare fabrication techniques used in microsystems
BMC802.3	Describe and compare micromachining methodology for designing and fabrication of microsystems
BMC802.4	Describe micro total analysis system with designing of its components by applying various fabrication techniques
BMC802.5	Describe working principles of Bio Nano-sensors and its various types and fabrication
BMC802.6	Discuss various MEMS based drug delivery devices and MEMS packaging techniques

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BMC 803- Hospital Management

Learners will be able to:	
BMC803.1	Apply resource management concepts (personnel, finance, and material resources) and practice the various the processes and strategies needed in specific hospital sectors.
BMC803.2	Explain the management structure and functions in hospital. Communicate effectively and develop their leadership and team building abilities.
BMC803.3	Apply the principles of designing, implementing and commissioning of clinical services and supportive department in the hospital.
BMC803.4	Apply the principles of designing, implementing, commissioning and functioning of Engineering and auxiliary services and in the hospital.
BMC803.5	Apply the knowledge of Basic Sciences, Engineering and management in implementing and practicing various functions in materials management and inventory control in the hospital. Also will be able to actively participate in purchase of equipment.
BMC803.6	Explain the safety norms laid by the regulatory bodies, various certifications and legal aspects in the hospital to avoid any litigation.

BME 8013: Healthcare Informatics (HCI)

Learners will be able to:	
BME8013.1	Classify of healthcare interoperability standards
BME8013.2	Create XML interoperability message
BME8013.3	Create HL7 message to transfer clinical and administrative data between software applications
BME8013.4	Demonstrate the knowledge of medical image messaging standard DICOM
BME8013.5	Edit, modify DICOM objects

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BMP 805- Project Stage-II

Learners will be able to:	
BMP805.1	Implementation and testing of design formulated in Project stage-I that can be useful in the healthcare industry and serve the society at large