ODD SEMESTER

III SEM

Mathematics III: BEETE301T   **Year of Study 2017-2018**

CO1: Understand the use of Fourier and Laplace transforms and their simple properties, applications.

CO2: Understand the use of Complex Variable like Analytic function, Cauchy-Riemen condition, conjugate, function, singularities, Taylor's and Laurent theorem.

CO3: To know about the various Calculus of Variations like Maxima and Minima variation and its properties Euler's-equation etc.

CO4: To understand the concept of various Fourier Series

CO5: Understand the use of matrix algebra techniques this is needed by engineers for practical applications.

CO6: Understand the use of matrix algebra Theorem such as Hamilton theorem, Sylvester's theorem, Association of matrices with linear differential equation of second order with a constant coefficient

Electronic Devices And Circuits :BEETE302T   **Year of Study 2017-2018**

CO1: To present a clear consistent picture of the internal physical behavior of many electronic devices so that their studies of electronic circuits and system will be meaningful.

CO2: To develop the basic tools with which they can later learn about newly developed devices

Electronics Measurement and Instrumentation: BEETE303T   **Year of Study 2017-2018**

CO1: The primary aim of this subject is to acquaint the students with the basic principles of measuring instruments and show how each of them can be exploited for the measurement of large number of variables

CO2: Gain understanding of various sensors, errors and error analysis, characteristics and response of transducers.

Object Oriented Programming & Data Structure:BEETE304T

Year Of Study- 2017-2018

CO1: To understand the concept of object oriented programming and develop skills in C++ Language.

CO2: Access how the choice of data structures and algorithm design methods impacts the performance of programs.

CO3: To Choose the appropriate data structure and algorithm design method for a specified application.

CO4: Write programs using C++ Language.

Network analysis & synthesis: BEETE305T　　　　　　**Year of Study 2017-2018**

CO1: To make the students capable of analyzing any given electrical network

CO2: To make the students learn how to synthesize an electrical network from a given impedance admittance function

V SEM

Antenna & Wave Propagation: BEETE501T　　Year of Study 2017-2018

CO1: To study transmission line characteristics.

CO2: To study the basics of radiating elements and effect of propagation of radio waves in actual environment.

CO3: To study the antennas, their principle of operation, analysis and their applications

CO4: To study the features of Antenna array, Microstrip antenna and reflector antenna

CO5: To study designing aspects of Antenna.

Microprocessor And Microcontrollers: BEETE502T　　　　　**Year of Study 2017-2018**

CO1: To study fundamentals of microprocessor and microcontroller systems.

CO2: To study architecture of microprocessor & to understand the concept of memory organization, stack memory, Assembly language programming

CO3: To study different interrupt techniques.

CO4: To study interfacing of microprocessor & microcontroller with different peripheral devices

ANALOG CIRCUIT AND DESIGN : BEETE503T　　　　　　**Year of Study 2017-2018**

CO1: To study the basic characteristic, construction, open loop & close loop operations of Op-Amp.

CO2: To study linear and non linear applications of Op-Amp

CO3: To enable students to design regulated power supply using regulated ICs

COMMUNICATION ELECTRONICS: BEETE504T   **Year of Study 2017-2018**

CO1: To study the basic concept of communication and different modulation system based on basic parameters.

CO2: To study the concept of noise, properties & its effects.

CO3: To study the AM, FM, PM process & compute modulation Index..

CO4: 2D Clipping algorithms for regular and irregular windows.

CO5: To develop knowledge about fundamentals of Broadband Communication Systems. .

Industrial Eco & Entrepreneurship Development: BEETE505T   Year of Study 2017-2018

CO1: Study of this subject provides an understanding of the scope of an industrial economics and entrepreneurship development, key areas of business development, sources of finance, project preparation, methods of taxation and tax benefits, significance of entrepreneurship and economic growth, application of engineering skills in entrepreneurial activities etc

VII SEM

DSP PROCESSOR & ARCHITECTURE: BEETE701T   **Year of Study 2017-2018**

CO1: To study Programmable DSP Processors.

CO2: To provide an understanding of the fundamentals of DSP techniques

CO3: To study implementation & applications of DSP techniques.

CO4: To study multi-rate filters.

CO5: To understand architecture of DSP processor.

Television And Video Engineering: BEETE702T   **Year of Study 2017-2018**

CO1: To make students understand /explain the analysis and synthesis of T.V. systemTo study various colour TV system with greater emphasis on PAL T.V.system.

CO2: To study various colour TV system with greater emphasis on PAL T.V.system .

CO3: To study Advance Technology of TV Engineering –Digital T.V.,HDTV.

CO4: To study various video recording system,display system and its application.

Optical Communication: BEETE703T   **Year of Study 2017-2018**

CO1: To understand optical fiber technology to sophisticated modern telecommunication systems.

CO2: To understand the fundamental behavior of the individual optical components, describes their interactions with other devices in an optical fiber.

CO3: To measure & analyze different measurements, parameters & properties of optical fiber.

Advanced Digital System Design: BEETE704T   **Year of Study 2017-2018**

CO1: To motivate the students to learn basic foundation course in VHDL.

CO2: To address the challenges in Hardware design by discussing the role of digital components in system design.

CO3: To concentrate on HDL based digital design ,HDL terminology, architecture and design of combinational and sequential circuit

CO4: To learn about modeling of system tested with test benches & synthesis also implementation on FPGA/CPLD

Elective-I:- VLSI SIGNAL PROCESSING: BEETE705T   **Year of Study 2017-2018**

CO1: To learn pipelining & parallel processing techniques.

CO2: To understand folding & unfolding techniques in multirate system

CO3: To address folding techniques used to design time multiplexed architecture.

Elective-I: Data Compression & Encryption: BEETE705T   **Year of Study 2017-2018**

CO1: To understand the different text compression technique.

CO2: To study the various audio compression scheme.

CO3: To verify different video compression & image compression methods.

CO4: To have the knowledge of various encryption technique.

CO5: To acquire the information about different authentication technique.

Elective-I: FUZZY LOGIC & NEURAL NETWORK: BEECE705T/ BEETE705T

Year of Study 2017-2018

CO1: Understand the adequate knowledge about feedback neural networks.

CO2: Understand the concept fuzzy logic control to real time systems.

CO3:provide adequate knowledge about fuzzy set theory.

CO4:provide comprehensive knowledge of fuzzy logic control and adaptive fuzzy logic

CO5:study and understand defuzzification techniques.

CO6: Understand and design genetic fuzzy controller.

CO7:gain comprehensive knowledge of adaptive fuzzy system.

Elective-I: MICROELECTROMECHANICAL SYSTEMS AND SYSTEM ON CHIP BEECE705T/ BEETE705T **Year of Study 2017-2018**

CO1: Understand working principles of currently available microsensors, actuators used in Microsystems.

CO2: Apply scaling laws that are used extensively in the conceptual design of micro devices and systems.

CO3: Understand the basic principles and applications of micro-fabrication processes, such as photolithography, ion implantation, diffusion, oxidation, CVD, PVD, and etching.

CO4: Choose a micromachining technique, such as bulk micromachining and surface micromachining for a specific MEMS fabrication process

CO5: Consider recent advancements in the field of MEMS and devices

EVEN SEMESTER

IV SEM

Applied Mathematics: BEETE401T **Year of Study 2017-2018**

CO1: Understand the use of Newton-Raphson method and their convergence. System of linear equation, Gauss elimination method, Gauss seidel method

CO2: Understand the use of Z-Transform, inverse Z-Transform, Relationship of the Fourier transform to Z-transform, Properties of Z-transform, Convolution

CO3: To know about the various Random variable and probability distribution

CO4: To understand the concept of various Definition of mathematical expectation, functions of random variables

CO5: Understand the use of Bernoulli Distribution, Poisson distribution.

CO6: Understand the use of Series solution of differential equation by : Frobanius method,

Bessel's functions, Legendre's polynomials

Power Devices And Machines : BEETE402T **Year of Study 2017-2018**

CO1: To teach the basic concepts of power electronics. Also to study the important power devices and machines

CO2: Basics applications of SCR as controlled rectifier.

CO3: To get skill of developing and design related to power electronic circuits.

ELECTROMAGNETIC FIELDS : BEETE403T   **Year of Study 2017-2018**

CO1: To provide the students of Engineering with a clear and logical presentation of basic concepts and principles of electromagnetic.

CO2: To identify , formulate and solve fields and electromagnetic waves propagation problems in a multi-disciplinary frame individually or as a member of a group.

Digital Circuits And Fundamental Of Microprocessor: BEETE404 Year Of Study 2017-2018

CO1: To acquaint students with various basic digital gates used in digital system and develop logical circuits using Boolean gates, construction of various logic circuits using basic gates

CO2: Able to Design and analyze a given combinational or sequential circuit using Boolean algebra as a tool to simplify and design logic circuits.

SIGNALS AND SYSTEMS : BEETE405T   **Year of Study 2017-2018**

CO1: The concept of this subject enable you to understand how signals, systems and inference combine in prototypical tasks of communication, control and signal processing.

ENVIRONMENTAL STUDIES : BEETE406T   **Year of Study 2017-2018**

CO1: Increase understanding of how the world as a bio-physical system works, foster awareness of the earth's vital signs, and sharpen the ability of students to understand the nature and results of science.

CO2: Encourage a critical understanding of the various historical, political, economic, ethical, and religious forces that have shaped and continue to shape our world.

CO3: Nurture an ecological frame of mind which is willing and able to see things whole and thus resist the narrow specialization that can blind us to the connections between disciplines and bodies of knowledge.

CO4: Cultivate people who have sufficient knowledge, care, and practical competence to live in an ecologically responsible way.

CO5: Provide opportunities for students to explore the connections between environmental issues and different religious and philosophical traditions, and to encourage students who are Christian to reflect on their faith and its vision of shalom

VI SEM

Telecommunication Switching Systems: BEETE601T   **Year of Study 2017-2018**

CO1: To study the latest development of Telecommunication systems.
CO2: To study the architecture and major design issues related to switching systems.

Digital Signal Processing: BEETE602T   **Year of Study 2017-2018**

CO1: To study the basic concepts of digital signal processing.
CO2: To study analysis and processing of signals for different kind of applications and retrieval of information from signals.
CO3: To understand the physical significance of circular convolution and its relation with linear convolution.

CO4: To study designing of digital filters and its realization.
CO5: To study analysis of signals using the discrete Fourier transform (DFT) and Z-Transform.
CO6: To study behavior of discrete time systems using Z-Transform.

Control System Engineering : BEETE603T   **Year of Study 2017-2018**

CO1: To study the fundamental concepts of Control systems and mathematical modelling of the system

CO2: To study the concept of time response and frequency response of the system.
CO3: To study controllers & compensators.
CO4: To study the basics of stability analysis of the system.

Digital Communication: BEETE604T   **Year of Study 2017-2018**

CO1: To study basic components of digital communication systems.
CO2: To understand the designing aspects of optimum receivers for digital modulation techniques.
CO3: To study the analysis of error performance of digital modulation techniques.
CO4: To study the designing of digital communication systems under given power, spectral and

error performance constraint.

Functional English : BEETE604T   **Year of Study 2017-2018**

CO1: Functional Grammar
CO2: English for Competitive Exams & Interview Techniques
CO3: Formal Correspondence, Analytical comprehension
CO4: Technical & Scientific Writing

VIII SEM

Computer Communication Network: BEETE801T   Year of Study 2017-2018

CO1: To explain the basic concept of computer communication network.

CO2: To explain the computer network layer.

CO3: To explain IP addressing scheme.

CO4: To explain network process.

CO5: To study Hardware aspect of network communication.

CO6: To make selection of IEEE lAN standards..

CO7: To explain network security & administration

Microwave and Radar Engineering: BEETE802T   Year of Study 2017-2018

CO1: To understand the principles of the advanced microwave engineering

CO2: To design of passive and active microwave components and microwave circuits including:

micro strip line, guided wave device

CO3: To study Klystron amplifier and oscillator.

CO4: To learn working principle of Radar system.

CO5: To understand the radio wave propagation and interference in mobile communications..

CO6: To get knowledge and relate different components in Radar and use them in projects.

Wireless & Mobile Communication: BEETE803T   Year of Study 2017-2018

CO1: To impart the fundamental concept of mobile communication system.

CO2: To give the student the idea about cellular communication theory & technology.

CO3: To introduce various technology and protocol involved in mobile communication.

CO4: To provide the student with an understanding the cellular concept.

Elective II: Embedded Systems: BEETE804T   Year of Study 2017-2018

CO1: To give sufficient background for understanding embedded systems design.

CO2: To give knowledge of RISC processor.

CO3: To understand connections of various peripherals with microcontroller based system

CO4: To study of embedded system design aspects.

Elective-II Digital Image Processing: BEETE804T   Year of Study 2017-2018

CO1: Provide the student with the fundamentals of digital image processing.

CO2: Introduce the students to some advanced topics in digital image processing.

CO3: Give the students a useful skill base that would allow them to carry out further study in the

field of Image processing.

Elective II - ARTIFICIAL INTELLIGENCE : BEECE804T/ BEETE804T   Year of Study 2017-2018

CO1: understand the history, development and various applications of artificial intelligence;

CO2: .familiarize with propositional and predicate logic and their roles in logic programming;

CO3: understand the programming language Prolog and write programs in declarative programming style.

CO4: learn the knowledge representation and reasoning techniques in rule-based systems, case-based systems, and model-based systems.

CO5: understand how uncertainty is being tackled in the knowledge representation and reasoning process, in particular, techniques based on probability theory and possibility theory (fuzzy logic);

CO6: master the skills and techniques in machine learning, such as decision tree induction, artificial neural networks, and genetic algorithm.

CO7: apply and integrate various artificial intelligence techniques in intelligent system development as well as understand the importance of maintaining intelligent systems.

Elective II- WIRELESS SENSOR NETWORK : BEECE804T/ BEETE804T

Year of Study 2017-2018

CO1: Demonstrate advanced knowledge and understanding of the engineering principle of sensor design, signal processing, established digital communications techniques, embedded hardware and software, sensor network architecture, sensor networking principles and protocols.

CO2: Demonstrate a computing science approach, in terms of software techniques, for wireless sensor networking with emphasis on tiny sensors, sensor specific programming languages, RFID technology, embedded architectures, software program design and associated hardware, data fusion.

CO3: Demonstrate knowledge of the associated business, legislative, safety and commercial issues; future technological advances and the way these will impact on the engineering product enterprise process.

Elective III- CMOS VLSI DESIGN: BEETE805T   Year of Study 2017-2018

CO1: Design PMOS and NMOS transistor.

CO2: Implementation different combinational logic circuits.

CO3: Design layout for various circuits.

CO4: Design CMOS transistor.

CO5: Experiment on CMOS logic design.

CO5: Detect and correct errors in VLSI Design.

Elective III- SATELLITE COMMUNICATION BEECE805T/ BEETE805T

Year of Study 2017-2018

CO1: Do research with capabilities in the design, development and manufacture of satellite Communication systems used in a wide spectrum of applications.

CO2: Experience real world experience from household appliances to sophisticated satellite communication, from electronic ignition to neural networks and signal processing chips & to integrate academic discipline with project-based engineering applications, classroom learning theory

CO3: Able for Acquisition of technical competence in specialized areas of Satellite Communication engineering.

CO4: Able to identify, formulate and model problems and find Satellite Communication engineering solutions based on a system approach.

Elective III- ROBOTICS & AUTOMATION BEECE805T/ BEETE805T

Year of Study 2017-2018

CO1: Explore 8051 microcontroller architecture

CO2: Effectively utilize instruction set for assembly language programming

CO3: Interface different on & off chip peripherals with 8051 using C language

CO4: Basics of 8051 can be used for robotic applications

Elective III- RANDOM SIGNAL THEORY BEECE805T/ BEETE805T

Year of Study 2017-2018

CO1: Apply theory of probability in identifying and solving relevant problems.

CO2: Define and differentiate random variables and vector through the use of cumulative distribution function (CDF), probability density function (PDF), probability mass function (PMF) as well as joint, marginal and conditional CDF, PDF and PMF.

CO3: Show probability and expectation computations using important discrete and continuous random variable types.

CO4: Define and specify random processes and determine whether a given process is stationary or wide sense stationary.

Principal
GNIET, Nagpur