

Sr. No.	Department of Electronics Engineering	
<b>Third Semester</b>		
1	BEENE301T	Applied Mathematics -III
2	BEENE302T	Electronics Devices And Circuits
3	BEENE303T	Electronics Measurement And Instrumentation
4	BEENE304T	Object Oriented Programming And Data Structure
5	BEENE305T	Network Analysis And Synthesis
<b>Fourth Semester</b>		
1	BEENE401T	Applied Mathematics -IV
2	BEENE402T	Power Devices And Machines
3	BEENE403T	Electromagnetic Field
4	BEENE404T	Digital Circuits And Fundamentals Of Microprocessor
5	BEENE405T	Signals And Systems
<b>Fifth Semester</b>		
1	BEENE501T	Switching Theory & Automata
2	BEENE502T	Microprocessor And Microcontroller
3	BEENE503T	Analog Circuit And Design
4	BEENE504T	Communication Electronics
5	BEENE505T	Industrial Economics And Entrepreneurship Development
<b>Sixth Semester</b>		
1	BEENE601T	Micro Wave Engineering
2	BEENE602T	Digital Signal Processing
3	BEENE603T	Control System Engineering
4	BEENE604T	Digital Communication
5	BEENE605T	Functional English
<b>Seventh Semester</b>		
1	BEENE701T	DSP Processor & Architecture
2	BEENE702T	Embedded System
3	BEENE703T	Optical Fiber Communication
4	BEENE704T	Advance Digital System Design
5	BEENE705T	Elective I-Digital Image Processing
<b>Eighth Semester</b>		
1	BEENE801T	Micro Electro-Mechanical System
2	BEENE802T	Computer Communication Network
3	BEENE803T	CMOS VLSI Design
4	BEENE804T	Elective 2-Nanotechnology
5	BEENE805T	Robotics And Automation
6	BEENE805T	Data Compression And Encryption

## Department of Electronics Engineering

The Electronics Engineering program subscribes to the following Program Specific Outcomes (PSOS):

PSO1	<b>Core and Design Competence-</b> To comprehend the technological advancements in the design of circuits leading to higher education and research inclination with the ability to associate the high impact learning from the courses related to Nanotechnology , Signal processing, Image processing, Embedded Systems, VLSI, Robotics and MEMS to arrive at solutions to real world
PSO2	<b>Career Prospects with Collaborative Endeavour-</b> To appreciate an academic culture that ignites the spirit of excellence and passion by grafting the entrepreneurial paradigm onto the learning methodologies through projects with Government organizations inculcating the professional etiquettes,

<b>BE Electronics Engineering Third Semester</b>	
	<b>Applied Mathematics –III (BEENE301T)</b>
CO301.1	Understand Laplace Transform and should able to solve differential equations,
CO301.2	Expand the function in periodic form using Fourier series and understand the
CO301.3	Will be able to formulate variation problems and analyze them to deduce key
CO301.4	Understand the fundamental concepts of complex analysis and also be able to
CO301.5	Formulate and solve linear partial differential equations problems and basic understanding in the transform which are useful in solving
CO301.6	Will be able to simplify the power of matrices, system of linear equations,
	<b>Electronics Devices And Circuits (BEENE302T)</b>
CO302.1	Analyze the characteristic of different diodes and its applications
CO302.2	Learn the basics of bipolar junction transistor and analyze its performance
CO302.3	Study the transistor amplifier circuit
CO302.4	Explore the positive feedback amplifier
CO302.5	To acquire the knowledge about the power amplifier circuits
CO302.6	Understand the concepts of JFET and MOSFET
	<b>Electronics Measurement And Instrumentation (BEENE303T)</b>
CO303.1	To understand basic concepts ,definitions in measurements and statistical
CO303.2	Able to understand the operation and design of Electronics instruments for
CO303.3	To describe different miscellaneous bridges and their methods for

	of electrical quantities.
CO303.4	To discuss different types of transducers along with their working principle and
CO303.5	Explain the operation of oscilloscope with basic circuit block and appreciate the
CO303.6	Describe the different signal analyzer with their types and data acquisition
	<b>Object Oriented Programming And Data Structure (BEENE304T)</b>
CO304.1	Be able to implement the concept of object oriented programming in any
CO304.2	Explain the basic data structures and algorithms for manipulating them
CO304.3	Implement these data structures and algorithm in the C++language
CO304.4	Integrate these data structures and algorithms in larger programs
CO304.5	Code and test well-structured programs of moderate size using the C++
CO304.6	Apply principles of good program design to the C++ language
	<b>Network Analysis And Synthesis (BEENE305T)</b>
CO305.1	Analyse the network using source transformation, mesh analysis and nodal
CO305.2	To determine current and change in current through a branch, and maximum
CO305.3	Analyse series and parallel resonance circuit.
CO305.4	Analyse different types of Filters and Attenuators
CO305.5	Analyse application of Laplace transform to different electrical circuits and
CO305.6	To analyse different network parameter of two port network.
<b>BE Electronics Engineering Fourth Semester</b>	
	<b>Applied Mathematics IV (BEENE401T)</b>
CO401.1	Know and understand various types of numerical methods and apply them to solve algebraic and transcendental equations, system of linear equations
CO401.2	Apply the concept of Z-transform for solving difference equations and analyze
CO401.3	Able to Series solution of Ordinary Differential Equations by Frobenius method
CO401.4	Know about discrete and continuous random variables and theory of
CO401.5	Know and understanding about expectations, moments and moment generating
CO401.6	Understanding thoroughly standard probability distributions and apply the in
	<b>Power Devices And Machines (BEENE402T)</b>
CO402.1	To understand operation, working and construction of SCR and TRIAC with
CO402.2	To understand operating principle, construction and application of IGBT, Power
CO402.3	To understand basic idea of AC to DC conversion i.e. operation of

	controlled rectifier with numerical and cycloconverter (AC-AC).
CO402.4	To understand operation of chopper i.e. DC-DC conversion ,chopper types and
CO402.5	To understand operation and working of 3-phase transformer, 3-phase induction
	<b>Electromagnetic Field (BEENE403T)</b>
CO403.1	Understand the basic concept of electric and magnetic field and coordinate
CO403.2	Understand the different theorems and laws which are used in electromagnetic
CO403.3	Ability to Solve Electromagnetic Relation using Maxwell's formulae
CO403.4	Understand the concept of propagation of wave in different medium.
CO403.5	Understand the use of waveguide for transmission of electromagnetic wave.
CO403.6	Understand the concept of radiation element used for radiation along with basic
	<b>Digital Circuits And Fundamentals Of Microprocessor (BEENE404T)</b>
CO404.1	Students will be able to understand Analog, Digital systems and also the types of
CO404.2	Able to understand the different combinational logic circuits with examples.
CO404.3	Able to understand the Sequential logic circuits with their conversions.
CO404.4	Able to design the applications of Flip Flops like Counter, Register.
CO404.5	Able to understand various characteristics of Semiconductor Memories and
CO404.6	Acquire the knowledge of internal architecture of 8085 Microprocessor including instruction sets and how to use them in writing assembly
	<b>Signals And Systems (BEENE405T)</b>
CO405.1	Get knowledge about different types of signals and systems used in communication electronics and also the use of Fourier series and
CO405.2	Understand the concept of probability and its use in communication system.
CO405.3	Understand different coding schemes and able to apply selective coding scheme
CO405.4	Understand the different analog and digital modulation schemes.
CO405.5	Able to understand the digital carrier system and its features.
CO405.6	Understand the information theory concept and different error control coding
<b>BE Electronics Engineering Fifth Semester</b>	
	<b>Switching Theory and Automata (BEENE501T)</b>
CO501.1	Demonstrate basic tools for the design of digital circuits and fundamental
CO501.2	Find out structural properties by using Functional Decomposition and
CO501.3	Describe designing aspects of logic circuits using threshold elements.
CO501.4	Design sequential logic circuits.

CO501.5	Describe behavior, capabilities and structure of finite state machines and
CO501.6	Describe diagnosis of faults of switching circuits and methods of improving
	<b>Microprocessor And Microcontroller (BEENE502T)</b>
CO502.1	Describe internal organization of 8086/8088 microprocessors and
CO502.2	Understand the basic idea about data transfer schemes and its applications and
CO502.3	Interface 8086 and 8051 with Keyboard/ Display, ADC/DAC, Stepper motor
CO502.4	Demonstrate the concept of interrupts and its use. Demonstrate the concept of
CO502.5	Describe the concept of DMA and Pentium. Describe 8087 Numeric
CO502.6	Develop programming skills in assembly language for 8086MP, 8051MC and apply the fundamentals of assembly level programming of microprocessor
	<b>Analog Circuit And Design (BEENE503T)</b>
CO503.1	Be able to describe the basic differential amplifier using transistor and its
CO503.2	Design linear Op-Amp circuit such as voltage follower, summing amplifier, scaling and averaging amplifier, Instrumentation amplifier, Integrator circuit, Differentiator circuit, Log and Antilog Amplifier circuit for various practical applications.
CO503.3	Design Non-linear Op-Amp circuit such as comparators, Schmitt trigger, Clipper, Clamper, Rectifiers, Sample and Hold circuit, A/D and D/A
CO303.4	Design Regulated power supply such as SVR and SMPS.
CO503.5	Design Wein bridge oscillator, Phase shift oscillator, Hartley and Colpitts
CO503.6	Design active filter of LPF, HPF, BPF, Butterworth filter, Relay driver circuit,
	<b>Communication Electronics (BEENE 504T)</b>
CO504.1	Able to understand and analyze various forms of amplitude modulation, its
CO504.2	Able to demonstrate FM techniques, evaluate the bandwidth requirements and
CO504.3	Able to learn sampling, quantization and various pulse modulation techniques,
CO504.4	Able to understand various types of noise and solve numerical on noise.
CO504.5	Able to understand detection techniques for AM and FM signals
CO504.6	Able to learn multiplexing techniques and broadband communication links.
	<b>Industrial Economics and Entrepreneurship Development (BEENE505T)</b>
CO505T.1	Subject makes the student understand and learn the basic concepts of Industrial

	organization as economic analysis.
CO505T.2	Students learn the basic concepts like market structures, pricing strategies, business integration, economies and diseconomies of scale and the
CO505T.3	Students are familiarized with working of banking system, foreign direct investment, the concept of free trade, capital formation, inflation,
CO505T.4	Students learn about entrepreneurship as career avenue and factors affecting entrepreneurial growth. Students learn about project formulation, market survey and research, techno economic feasibility assessment and project appraisal.
CO505T.5	Subject enhances their understanding about needs and sources of finance, various types of loans, capital structures, break even analysis, network
CO505T.6	Students learn about role of small scale industries in the economy, problems of SSI,FDI as a threat to SSI, technical consultancy organizations,
<b>BE Electronics Engineering Sixth Semester</b>	
<b>Microwave Engineering (BEENE 601T)</b>	
CO601.1	Able to describe and differentiate between klystron amplifier and TWT on
CO601.2	Able to describe and analyze about magnetron and solve numerical based on it
CO601.3	Able to describe about various transmission lines and their fabrication
CO601.4	Able to analyze various passive components with the help of scattering matrix
CO601.5	Able to demonstrate about measurement of different microwave parameters
CO601.6	Able to describe different solid state devices and discuss its applications
<b>Digital Signal Processing (BEENE602T)</b>	
CO602.1	Represent discrete time signals analytically and visualize them in the time
CO602.2	Design and implement digital filters for various applications
CO602.3	Describe various transforms for analysis of signals and systems
CO602.4	Understand the behavior of discrete time using Z-transform
CO602.5	Explore the concept of multirate signal processing
CO602.6	Acquire knowledge on DSP architecture
<b>Control System Engineering (BEENE603T)</b>	
CO603.1	This is to understand the fundamental concepts control system and mathematical
CO603.2	To determine the Time response of different order systems for various inputs,
CO603.3	To understand the fundamental concept of stability and to Analyze the stability
CO603.4	To analyze the concept stability of in frequency domain. Polar plot, Bode plot,
CO603.5	Able to analyze the need for compensation and types of compensation for

CO603.6	Able to understand concept of state space representation, Obtain transfer function of systems using signal flow graph. Apply the state variable
	<b>Digital Communication (BEENE604T)</b>
CO604.1	Model digital communication system using appropriate mathematical
CO604.2	Describe a random process in terms of its mean and correlation functions and
CO604.3	Describe digital modulation techniques.
CO604.4	Demonstrate the concept of coding and decoding techniques.
CO604.5	Explain the receiver techniques for detection of signals in AWGN channel
CO604.6	Describe the spread spectrum analysis and analyze the performance of spreading
	<b>Functional English (BEENE605T)</b>
CO605.1	Will become adept in using functional grammar
CO605.2	Would be able to write at workplaces
CO605.3	Will be able to draft technical reports and write proposals
CO605.4	Will be able to understand the planning and procedure of carrying out research
CO605.5	Will become well prepared to face competitive examinations and job
CO605.6	Dexterous in presentation skills
<b>BE Electronics Engineering Seventh Semester</b>	
	<b>DSP Processor and Architecture (BEENE701T)</b>
CO701.1	Understand the fundamentals of programmable Digital Signal Processors (P-
CO701.2	Understand the architecture of TMS and Motorola processors.
CO701.3	Understand the assembly language instructions and write simple assembly
CO701.4	Write and execute the application programs for processing of real time signals.
CO701.5	Interface DSP processors hardware to a software Integrated Development
CO701.6	Implement different Digital Signal processing algorithms on DSP processors.
	<b>Embedded System (BEENE702T)</b>
CO702.1	To give sufficient background for understanding embedded systems design and describe the difference between the general computing system and
CO702.2	Describe the hardware and software architecture of embedded system and
CO702.3	Describe the architecture of ARM processor and its programming aspects and to
CO702.4	Describe the different communication protocols and buses required for an embedded system and to understand connections of various peripherals
CO702.5	Describe the real time operating system concepts and different scheduling

CO702.6	Describe the detail contextual analysis of a limited number of events and their
	<b>Optical Fiber Communication (BEENE703T)</b>
CO703.1	Understand the basic operating principles of physics, optical fiber
CO703.2	Understand the mechanism of optical fiber drawing apparatus, optical fiber
CO703.3	Classify various optical source materials, LED structures and LASER diodes.
CO703.4	Learn the fiber optic receivers, their operation and performances.
CO703.5	understand the concept of analog and digital link,
CO703.6	Learn optical network SONET/SDH, WDM, high speed optical network Such
	<b>Advance Digital System Design (BEENE704T)</b>
CO704.1	Learn the VHDL development flow
CO704.2	Explore the basic language constructs of VHDL
CO704.3	Develop a formal test bench from informal system requirement
CO704.4	Design the FSM and ASM using VHDL
CO704.5	Understand the synthesis concepts in digital design
CO704.6	Learn the basics of the programmable logic devices
	<b>Elective I-Digital Image Processing (BEENE705T)</b>
CO705.1	Understand the fundamental of Digital image processing
CO705.2	Define image transforms and filtering
CO705.3	Understand the image compression techniques
CO705.4	Explore advanced topics of color image processing
CO705.5	Acquire the knowledge on segmentation methods
CO705.6	Analyse different restoration techniques
<b>BE Electronics Engineering Eighth Semester</b>	
	<b>Micro-Electromechanical System (BEENE801T)</b>
CO801.1	To understand Major classes, components, and applications of MEMS devices/systems and to demonstrate an understanding of the fundamental principles behind the operation of these devices/systems such as optical mems, bio mems, RF-mems.
CO801.2	To understand Standard micro fabrication techniques and the issues surrounding
CO801.3	To understand Major classes, components, and applications of MEMS devices/systems and to demonstrate an understanding of the fundamental principles behind the operation of these devices/systems like different types of sensors and transducers such as chemical sensor, molecule based bio-sensor, optical transducer, and thermal transducer.
CO801.4	To understand micro fabrication techniques and applications to the design and Manufacturing of an MEMS device or a Microsystems like RF MEMS
CO801.5	Describe different packaging methods for microelectronics and Microsystems.
CO801.6	Describe Microsystems technology and core architecture for digital media.



	<b>Computer Communication Network (BEENE802T)</b>
CO802.1	To learn the design issues of various layers and architecture of networks
CO802.2	Able to understand physical medias and switching concept
CO802.3	Study of data link protocols and characteristic of different methods
CO802.4	To understand various routing algorithms and data formats.
CO802.5	Explain majority of application along with their working principle ,advantages
CO802.6	study the concept to provide security and administration to the network
	<b>CMOS VLSI Design (BEENE803T)</b>
CO804.1	To be aware about the trend in semiconductor technology ,MOS transistor
CO803.2	To understand MOS (Metal Oxide Semiconductor)Transistor
CO803.3	To design Combinational Logic Circuits using CMOS logic
CO803.4	Analyze the switching characteristic and power dissipation of MOS inverter
CO803.5	Able to draw layout , stick diagram
CO803.6	Learn the fault coverage and design for testability
	<b>Elective 2-Nanotechnology(BEENE804T)</b>
CO804.1	Understand the fundamental of nanotechnology
CO804.2	Apply different tools for the measurements of nanotechnology
CO804.3	Apply specific methodology for fabrication of nano devices for specific
CO804.4	Learn different nano materials and its applications
CO804.5	Understand nano electronics for advanced computation
CO804.6	Apply nanotechnology concepts in electronics engineering field
	<b>Robotics And Automation (BEENE805T)</b>
CO805.1	Will get overview of robot technology, sensory perception categories and Artificial intelligence (AI). Students will be able to compare human brain
CO805.2	Able to know and compare the different techniques used for knowledge
CO805.3	Will get idea about different techniques used for speech synthesis and speech
CO805.5	Will be able to find range of the object for the robot using different techniques.
CO805.6	Explore various robot programming language, their characteristics and
	<b>Data Compression And Encryption (BEENE805T)</b>
CO805.1	Understand various text compression techniques and compare their performances.
CO805.2	Understand various audio compression techniques and audio coding formats
CO805.3	Understand various image and video compression techniques and image compression
CO805.4	Understand various types of attacks on secrete messages and encryption measures to
CO805.5	Gain knowledge of various public key encryption techniques.
CO805.6	Gain knowledge of system security from intruders, viruses and warms