



K.D.K. COLLEGE OF ENGINEERING

Department of Electronics & Telecommunication Engineering

COURSE OUTCOMES

B. TECH. III SEMESTER



K.D.K. COLLEGE OF ENGINEERING

Department of Electronics & Telecommunication Engineering

COURSE OUTCOMES

B. TECH. III SEMESTER

BEETC-301T

Applied Maths- III

Upon completion of this course, students will demonstrate the ability to:

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| C301T.1 | Apply Laplace Transform to solve ordinary differential equations, Integral Equations and Integro-differential Equations. |
| C301T.2 | Apply Fourier series in the analysis of periodic functions in terms sine and cosine encountered in engineering problems and Fourier Transform to solve integral equations. |
| C301T.3 | Learn the concept of differentiating, integrating and expanding of analytic functions in complex numbers and their applications such as evaluation of integrals of complex functions. |
| C301T.4 | Solve partial differential equations of first order, higher order with constant coefficients and of second order using method of separation of variables. |
| C301T.5 | Reduce matrix to diagonal form, apply iteration to find largest Eigen value and vector, use Sylvester theorem and singular values decomposition. |



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COURSE OUTCOMES

B. TECH. III SEMESTER

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|-------------------|-------------------------------------------------|
| BEETC-302T | COMPONENTS FOR ELECTRONIC CIRCUIT DESIGN |
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Upon completion of this course, students will demonstrate the ability to:

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| C302T.1 | Understand the principles of semiconductor physics. |
| C302T.2 | Understand the principles of semiconductor diode. |
| C302T.3 | Understand and analyze the mathematical model of transistors. |
| C302T.4 | Understand and analyze the mathematical model of unipolar transistors. |
| C302T.5 | Understand the process of Integrated Circuit Fabrication. |



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COURSE OUTCOMES

B. TECH. III SEMESTER

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|-------------------|-----------------------------------------------------|
| BEETC-302P | COMPONENTS FOR ELECTRONIC CIRCUIT DESIGN LAB |
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After completion of the practical students will be able to:

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| C302P.1: | Explain the basic concepts of different semiconductor components. |
| C302P.2: | Understand the use of semiconductor devices in different electronic circuits. |
| C302P.3: | Calculate different performance parameters of transistors. |
| C302P.4: | Plot and study the characteristics of semiconductor devices. |



COURSE OUTCOMES
B. TECH. III SEMESTER

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|-------------------|------------------------------|
| BEETC-303T | DIGITAL SYSTEM DESIGN |
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Upon completion of this course, students will demonstrate the ability to:

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| C303T.1 | Demonstrate the knowledge of: Logic gates, Boolean algebra including algebraic manipulation/simplification and Application of DEMorgan's Theorem, Karnaugh map reduction method. |
| C303T.2 | Construct basic combinational circuits and verify their functionalities. |
| C303T.3 | Illustrate and apply the knowledge of different flip flops to build Sequential digital circuits. |
| C303T.4 | Apply the fundamental knowledge about digital electronics so as to construct and analyze digital circuits like counters and sequence generators. |
| C303T.5 | Demonstrate and apply programming proficiency using the various addressing modes and instructions of the target microprocessor. |



COURSE OUTCOMES
B. TECH. III SEMESTER

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| BEETC-303P | DIGITAL SYSTEM DESIGN LAB |
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After the completion of practical, the students will be able to:

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|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C303P.1 | Demonstrate the different Boolean Laws & basics of K-map to realize combinational & sequential circuits. |
| C303P.2 | Identify the various digital ICs & understand their operation. |
| C303P.3 | Describe the operation & timing constraints for latches, registers, different sequential circuits. |
| C303P.4 | Solve basic binary math operations using microprocessor & explain the internal architecture & its operation within the area of manufacturing & performance. |
| C303P.5 | Select programming strategies & proper mnemonics & run their program on the training boards. |



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COURSE OUTCOMES

B. TECH. III SEMESTER

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|-------------------|-----------------------|
| BEETC-304T | Network Theory |
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Upon completion of this course, students will demonstrate the ability to:

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|----------------|------------------------------------------------------------------------------|
| C304T.1 | Apply mesh and node voltage method to model and analyze electrical circuits. |
| C304T.2 | Apply network theorems for the analysis of networks. |
| C304T.3 | Obtain the transient and steady-state response of electrical circuits. |
| C304T.4 | Synthesize waveforms and apply Laplace transforms to analyze networks. |
| C304T.5 | Evaluate different Network Functions and Analyze two port network behaviors. |



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COURSE OUTCOMES

B. TECH. III SEMESTER

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|-------------------|----------------------------|
| BEETC-305T | SIGNALS AND SYSTEMS |
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Upon completion of this course, students will demonstrate the ability to:

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|----------------|-----------------------------------------------------------------------------------------|
| C305T.1 | Classify different types of signals and systems |
| C305T.2 | Illustrate the concept of Linear Time Invariant (LTI) system and its properties. |
| C305T.3 | Analyze continuous time periodic and aperiodic signals. |
| C305T.4 | Analyze continuous time systems using Laplace Transform. |
| C305T.5 | Analyze DT signals and systems in frequency domain using Fourier Transform. |



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COURSE OUTCOMES

B. TECH. III SEMESTER

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|-------------------|-----------------------------------------|
| BEETC-306T | MEASUREMENTS AND INSTRUMENTATION |
|-------------------|-----------------------------------------|

Upon completion of this course, students will demonstrate the ability to:

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|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| C306T.1 | Select and use precise/accurate instrument for measurement of various electrical Parameters and to understand its technical specifications. |
| C306T.2 | Identify and minimize errors in electrical/electronic measurement. |
| C306T.3 | Understand analog and digital measurement. |
| C306T.4 | Measure power and frequency with the help of function generators and different analyzers. |
| C306T.5 | Understand modern trends in telemetry systems. |



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COURSE OUTCOMES

B. TECH. III SEMESTER

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|-------------------|------------------------------------|
| BEETC-307P | ELECTRONICS WORKSHOP- I LAB |
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After completion of the practical the students will be able to:

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|----------------|-------------------------------------------------------------------------------------------------------------------------|
| C307P.1 | Explain the Basic Concepts of Different Semiconductor Components with their usage physically as per their Types. |
| C307P.2 | Use of Semiconductor Devices in Different Electronic Circuits and Projects. |
| C307P.3 | Calculate Different Performance Parameters of Active and Passive Devices and their Datasheets. |
| C307P.4 | Plot and Study the Characteristics of Semiconductor Devices. |



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COURSE OUTCOMES

B. TECH. III SEMESTER

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|-------------------|-------------------------|
| BEETC-308T | CONSUMER AFFAIRS |
|-------------------|-------------------------|

After completion of the practical the students will be able to:

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|----------------|-------------------------------------------------------------------------------------|
| C308T.1 | Demonstrate consumer buying process and the procedure of filing a complaint. |
| C308T.2 | Learn how to pursue the consumer rights under consumer protection act 1986 |
| C308T.3 | Comprehend the hearings, enquiry and appeal provisions. |
| C308T.4 | Analyze the role of industry regulators in consumer protection. |



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COURSE OUTCOMES
B. TECH. IV SEMESTER



COURSE OUTCOMES

B. TECH. IV SEMESTER

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|-------------------|-----------------------------------------|
| BEETC-401T | MICROCONTROLLER AND APPLICATIONS |
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Upon completion of this course, students will demonstrate the ability to:

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|----------------|----------------------------------------------------------------------------------------------------|
| C401T.1 | Demonstrate the programming model of various microcontrollers. |
| C401T.2 | Design and implement 8051 microcontroller-based systems for various applications. |
| C401T.3 | Illustrate & program AVR / RISC microcontrollers in Integrated Development environment. |
| C401T.4 | Design and implement advanced processor/controllers-based systems for various applications |
| C401T.5 | Design and develop Arduino based embedded system applications. |



COURSE OUTCOMES
B. TECH. IV SEMESTER

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| BEETC-401P | MICROCONTROLLER AND APPLICATIONS LAB |
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After the completion of practical's, the students will be able to:

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| C401P.1. | Demonstrate the concept of Assembly languages and higher level language programming. |
| C401P.2. | Interface various peripherals with 8051, Atmega 32, MSP 430 and Arduino. |
| C401P.3. | Simulate the programs on different software platforms. |



COURSE OUTCOMES
B. TECH. IV SEMESTER

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|-------------------|-------------------------------------------|
| BEETC-402T | ANALOG & DIGITAL COMMUNICATION |
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Upon completion of this course, students will demonstrate the ability to:

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| C402T.1 | Demonstrate a basic need of modulation and various types of amplitude and angle modulation techniques required for analog communication. |
| C402T.2 | Analyze various AM-FM receivers, along with the effect of noise on analog communication systems. |
| C402T.3 | Explain the designing of digital communication systems by applying knowledge of the various pulse modulation techniques. |
| C402T.4 | Describe various digital modulation techniques and various parameters associated with it. |
| C402T.5 | Identify different types of channel coding techniques and analyze the different spread spectrum methods. |



COURSE OUTCOMES
B. TECH. IV SEMESTER

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| BEETC-403P | ANALOG AND DIGITAL ELECTRONICS LAB |
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After the completion of practical, the students will be able to:

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| C403P.1 | Explain the practical aspects of linear and non-linear applications of OP-AMP. |
| C403P.2 | Design the various wave-shaping circuits, oscillators, signal conditioners and various application based circuits using OP-AMP and Transistors. |
| C403P.3 | Demonstrate various concepts of analog communication. |
| C403P.4 | Explain various concepts of digital communication. |
| C403P.5 | Develop an application based project using industry based OPAMP. |



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COURSE OUTCOMES

B. TECH. IV SEMESTER

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|-------------------|-----------------------------|
| BEETC-404T | ANALOG SYSTEM DESIGN |
|-------------------|-----------------------------|

Upon completion of this course, students will demonstrate the ability to:

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|----------------|-------------------------------------------------------------------------|
| C404T.1 | Describe and explain the basic concepts of OPAMP. |
| C404T.2 | Demonstrate and analyze various linear applications of OPAMP |
| C404T.3 | Demonstrate and analyze various non-linear applications of OPAMP |
| C404T.4 | Examine and design DC Power Supply. |
| C404T.5 | Examine and design various types of oscillators and filters. |



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COURSE OUTCOMES

B. TECH. IV SEMESTER

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|-------------------|----------------------------------------|
| BEETC-405T | DATA STRUCTURE & ALGORITHMS |
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Upon completion of this course, students will demonstrate the ability to:

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| C405T.1 | Choose appropriate data structure based on the specified problem identification and analysis the algorithm. |
| C405T.2 | Handle operations like searching, insertion, deletion, traversing mechanism etc. on various data structures. |
| C405T.3 | Apply concepts learned in various domains like Operating Systems, DBMS etc. |
| C405T.4 | Use linear and non-linear data structures like stacks, queues, linked list, trees etc. |



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COURSE OUTCOMES

B. TECH. IV SEMESTER

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|-------------------|---------------------------------------------------------------|
| BEETC-406T | HSC:NUMERICAL MATHEMATICS AND PROBABILITY USING MATLAB |
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After completing the course, students will be able to:

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| C406T.1 | Learn and use MATLAB effectively in various applications as a simulation tool. |
| C406T.2 | Find an approximate solution of algebraic and transcendental equations, system of linear equations and first order ordinary differential equations by various numerical methods and MATLAB commands. |
| C406T.3 | Apply Z- transform to solve difference equations with constant coefficients. |
| C406T.4 | Analyze real world scenarios to recognize when probability is appropriate, formulate problems about the scenarios; creatively model these in order to solve the problems using multiple approaches. |
| C406T.5 | Understand the impact of scientific and engineering solutions in a global and societal context. |
| C406T.6 | Create the groundwork for post-graduate courses, specialized study, and research in mathematics. |



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COURSE OUTCOMES

B. TECH. IV SEMESTER

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|-------------------|----------------------------------------|
| BEETC-407T | PROGRAMMING FOR PROBLEM SOLVING |
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Upon completion of this course, students will demonstrate the ability to:

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| C407T.1 | Describe the basic concepts of Object Oriented Programming and design simple java programs. |
| C407T.2 | Apply the knowledge of Inheritance in program development. |
| C407T.3 | Develop programs using polymorphism and interfaces. |
| C407T.4 | Handle various exceptions using concepts of exception handling. |
| C407T.5 | Describe multithreading concepts to develop inter process communication. |
| C407T.6 | Implement the concepts on file streams and operations in java programming for a given application programs. |



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COURSE OUTCOMES

B. TECH. IV SEMESTER

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|-------------------|--------------------------------------------|
| BEETC-407P | PROGRAMMING FOR PROBLEM SOLVING LAB |
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After the completion of practicals, the students will be able to:

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| C407P.1 | To understand the basic concept of object oriented programming and design simple JAVA program. |
| C407P.2 | To apply the knowledge of inheritance in program development. |
| C407P.3 | To develop programs using polymorphism and interfaces. |
| C407P.4 | To handle various exceptions using concept of exception handling. |
| C407P.5 | To use multithreading concept to develop inter process communication. |
| C407P.6 | To understand and implement concept on file streams and operations in JAVA programming for a given application programs. |



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COURSE OUTCOMES

B. TECH. IV SEMESTER

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|-------------------|-------------------|
| BEETC-408I | INTERNSHIP |
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After the completion of Internship, the students will be able to:

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| C408I.1: | Explore career alternatives prior to graduation. |
| C408I.2. | Assess interests and abilities in their field of study by using Integrate theory and practice. |
| C408I.3. | Develop work habits and attitudes necessary for job success. |
| C408I.3. | Demonstrate effective management of personal behavior, ethics and attitudes. |



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COURSE OUTCOMES

B. TECH. IV SEMESTER

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|-------------------|-------------------------------|
| BEETC-409A | UNIVERSAL HUMAN VALUES |
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By the end of the course, the students will be able to:

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| C409A.1 | Become more aware of themselves, and their surroundings (family, society, nature) |
| C409A.2 | Become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind. |
| C409A.3 | Understand values in relationship. |
| C409A.4 | Understand the role of a human being in ensuring harmony in society and nature. |
| C409A.5 | Distinguish between ethical and unethical practices at work place and would contribute for making a value based society |



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COURSE OUTCOMES

B. TECH. V SEMESTER



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COURSE OUTCOMES

B. TECH. V SEMESTER

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|-------------------|-------------------------------|
| BEETC-501T | EMBEDDED SYSTEM DESIGN |
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By the end of the course, the students will be able to:

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| C501T.1 | To Describe and analyze the Requirements & Design issues of embedded systems design. |
| C501T.2 | To apply the knowledge of architecture and Programming for development of simple applications. |
| C501T.3 | To Describe and Demonstrate the interfacing of various peripherals with ARM Processor |
| C501T.4 | To explain the concept of Real Time Operating System for embedded system design. |



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COURSE OUTCOMES

B. TECH. V SEMESTER

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|-------------------|-----------------------------------|
| BEETC-501P | EMBEDDED SYSTEM DESIGN LAB |
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By the end of the course, the students will be able to:

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| C501P.1 | Apply the knowledge of Instruction skill for the Development of Simple and Complex Programs. |
| C501P.2 | Apply the programming skill for the Development of Simple application |
| C501P.3 | Apply and Demonstrate the Concept of Interfacing for the Development of Embedded System. |



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COURSE OUTCOMES

B. TECH. V SEMESTER

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|-------------------|------------------------------|
| BEETC-502T | ELECTROMAGNETIC WAVES |
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By the end of the course, the students will be able to:

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| C502T.1 | Understand the different coordinate system & analyze theorems of electric field. |
| C502T.2 | Understand magnetic fields, Apply the Maxwell's equations to solve problems in electromagnetic field theory. |
| C502T.3 | Analyze the propagation of wave in different transmission media. |
| C502T.4 | Understand and analyze various parameters and characteristics of the rectangular waveguide |
| C502T.5 | Understand principle of radiation and radiation characteristics of an antenna |



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COURSE OUTCOMES

B. TECH. V SEMESTER

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|-------------------|----------------------------------|
| BEETC-503T | DIGITAL SIGNAL PROCESSING |
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By the end of the course, the students will be able to:

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| C503T.1 | Analyze discrete time signals and system. |
| C503T.2 | Process the signal in z domain for various discrete time systems. |
| C503T.3 | Draw the structures of various discrete time systems in DFI, DFII, cascade and parallel form |
| C503T.4 | Apply discrete Fourier transform, its properties & Analyze the discrete time systems in frequency domain |
| C503T.5 | Understand the filter design techniques for IIR and FIR digital filters and will be able to determine parameters affecting its response. |



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COURSE OUTCOMES

B. TECH. V SEMESTER

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|-------------------|--------------------------------------|
| BEETC-503P | DIGITAL SIGNAL PROCESSING LAB |
|-------------------|--------------------------------------|

By the end of the course, the students will be able to:

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| C503P.1 | Demonstrate the sampling and reconstruction of discrete time signal & perform different signal operation in developing discrete time system. |
| C503P.2 | Analyze different properties of Z-transform. |
| C503P.3 | Analyze different properties of discrete Time Fourier transform. |
| C503P.4 | Analyze and process the signals in the discrete domain. |
| C503P.5 | Design the filters to suit requirements of specific applications. |
| C503P.6 | Apply the techniques, skills, and modern engineering tools like MATLAB. |



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COURSE OUTCOMES

B. TECH. V SEMESTER

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|-------------------|-------------------------------------------------------------------------|
| BEETC-504T | HSC:INDUSTRIAL ECONOMICS ENTREPRENEURSHIP DEVELOPMENT(ECONOMICS) |
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By the end of the course, the students will be able to:

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| C504T.1 | Understand different types of business structure. |
| C504T.2 | Acquire the knowledge of different market structures and New economic policy. |
| C504T.3 | Grasp the functions of banks, taxations system and implications of Inflation. |
| C504T.4 | Identify various sources of finance. |
| C504T.5 | Analyze the problems of Small Scale Industries and government's policies for them. |



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COURSE OUTCOMES

B. TECH. V SEMESTER

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| BEETC-505PE | OPERATING SYSTEM (PE -I) |
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By the end of the course, the students will be able to:

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| C505PE.1 | Explain basic concepts of operating system. |
| C505PE.2 | Understand the process management policies and scheduling algorithms. |
| C505PE.3 | Design various memory management techniques. |
| C505PE.4 | Analyze process synchronization techniques. |
| C505PE.5 | Evaluate deadlock detection and prevention mechanism. |



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COURSE OUTCOMES

B. TECH. V SEMESTER

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| BEETC-505PE | ELECTRONIC DESIGN TECHNIQUES WITH HDL(PE-I) |
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By the end of the course, the students will be able to:

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| C505PE.1 | Design digital systems through HDL language. |
| C505PE.2 | Understand Different Modelling Style of VHDL. |
| C505PE.3 | Develop a Test bench for various Combinational and Sequential logic Circuits. |
| C505PE.4 | Design examples of sequence detector, Finite state machine and analysis of Asynchronous Sequential Circuits. |
| C505PE.5 | Synthesis the concept of Timing analysis, Combinational logic synthesis and FPGA based systems. |



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COURSE OUTCOMES

B. TECH. V SEMESTER

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|-------------------|--------------------------------|
| BEETC-506P | ELECTRONICS WORKSHOP-II |
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By the end of the course, the students will be able to:

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|----------------|------------------------------------------------------------------------------------------|
| C506P.1 | Understand the various PCB design steps and design PCB for an Electronic circuit. |
| C506P.2 | Use the simulation software to design Electronic circuit. |
| C506P.3 | Interface basic Electronic circuits to Arduino. |
| C506P.4 | Demonstrate Raspberry Pi to implement various Electronic project. |
| C506P.5 | Build a mini project based on Arduino and Raspberry Pi. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER



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COURSE OUTCOMES

B. TECH. VI SEMESTER

| | |
|-------------------|----------------------------------------|
| BEETC-601T | COMPUTER COMMUNICATION NETWORKS |
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By the end of the course, the students will be able to:

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| C601T.1 | Describe the basics of Computer Network, Data Communication, Network topologies, transmission media and switching techniques. |
| C601T.2 | Analyze the services and features of various protocols of Data Link Layer and MAC sub-layer. |
| C601T.3 | Apply the concept of IP Addressing techniques and its various protocols of Network Layer. |
| C601T.4 | Describe the transport layer, Application Layer services and its protocol Headers and analyze the congestion control protocols. |
| C601T.5 | Explain the function of Application Layer and Presentation layer paradigm and protocols. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

BEETC-601P

COMPUTER COMMUNICATION NETWORKS LAB

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| C601P.1 | To analyze and select various cables and Connectors used for networking with computer network security. |
| C601P.2 | To verify the implementation results on software like NS2 and simulate different networking models and implement different networking protocols. |
| C601P.3 | To understand different data transmission techniques using TCP and UDP Protocol for evaluating the different IP addresses for various systems. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

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|-------------------|---------------------------------|
| BEETC-602T | INTERNET OF THINGS (IOT) |
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By the end of the course, the students will be able to:

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|----------------|------------------------------------------------------|
| C602T.1 | Analyze different design levels of IoT. |
| C602T.2 | Analyze IOT Architecture. |
| C602T.3 | Describe network and communication aspects. |
| C602T.4 | Design a portable IoT using Rasperry Pi and Aurdino. |
| C602T.5 | Analyze applications of IoT in real time scenario. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

| | |
|-------------------|-------------------------------------|
| BEETC-602P | INTERNET OF THINGS (IOT) LAB |
|-------------------|-------------------------------------|

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------|
| C602P.1 | Understand the concept of IOT. |
| C602P.2 | Implement interfacing of various Sensors with Arduino/Raspberry Pi. |
| C602P.3 | Demonstrate the ability to transmit data wirelessly between different Devices. |
| C602P.4 | To show an ability to upload/ Download sensor data on cloud and server. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

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|-------------------|--------------------------------|
| BEETC-603T | WIRELESS SENSOR NETWORK |
|-------------------|--------------------------------|

By the end of the course, the students will be able to:

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| C603T.1 | 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 |
| C603T.2 | 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. |
| C603T.3 | 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. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

| | |
|-------------------|------------------------------------|
| BEETC-603P | WIRELESS SENSOR NETWORK LAB |
|-------------------|------------------------------------|

By the end of the course, the students will be able to:

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|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C603P.1 | To analyze and evaluate the performance of wireless sensor network by using simulation tools (NS-2). |
| C603P.2 | To understand the basic concepts and components of wireless sensor networks, including sensors nodes, communication protocols, data routing, network architecture and its applications. |
| C603P.3 | To simulate and analyze wireless sensor network and involve NS-2 architecture, command line interface and simulation script language (TCL) used in NS-2. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

| | |
|--------------------|--------------------------------------|
| BEETC-604PE | COMPUTER ARCHITECTURE (PE-II) |
|--------------------|--------------------------------------|

By the end of the course, the students will be able to:

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|-----------------|---------------------------------------------------------------------------------------------------------------|
| C604PE.1 | Demonstrate computer architecture concepts related to design of modern processors, memories and I/O s. |
| C604PE.2 | To develop logic for assembly language programming using arithmetic and logical operations. |
| C604PE.3 | Distinguish the organization of various parts of a system memory hierarchy. |
| C604PE.4 | Describe fundamentals concepts of pipeline and vector processing. |
| C604PE.5 | Analyze the performance of commercially available computers. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

| | |
|--------------------|-------------------------------------------|
| BEETC-604PE | DATA BASE MANAGEMENT SYSTEM(PE-II) |
|--------------------|-------------------------------------------|

By the end of the course, the students will be able to:

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|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|
| C604PE.1 | Understands basic database concepts and data modeling techniques used in data base design. |
| C604PE.2 | Study the concept of functional dependency and perform the calculus with design database by using different normalization techniques. |
| C604PE.3 | Study query processing and perform optimization on query processing. |
| C604PE.4 | Understand the concept of transaction processing and different recovery techniques used in RDBMS. |
| C604PE.5 | Study and Implement advanced database which are used in real time system. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

| | |
|--------------------|-----------------------------------------------|
| BEETC-605OE | CONSUMER ELECTRONICS (OPEN ELECTIVE-I) |
|--------------------|-----------------------------------------------|

By the end of the course, the students will be able to:

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|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C605OE.1 | Describe various audio gadgets used in domestic and commercial applications. |
| C605OE.2 | Describe various video gadgets used in domestic and commercial applications. |
| C605OE.3 | Explain satellite communication technology along with DTH for day to day application. |
| C605OE.4 | Describe various types of home appliances used in domestic life like washing machine, RO plant, Mixer, grinder, vacuum cleaner etc. |
| C605OE.5 | Describe various types of home appliances used in domestic life like Microwave oven, printers, food processors, Induction devices, scanner and fax machines etc. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

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|------------|---------------------------------------|
| BEETC-606T | HSC:EFFECTIVE TECHNICAL COMMUNICATION |
|------------|---------------------------------------|

By the end of the course, the students will be able to:

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|----------------|----------------------------------------------------------------------------------------------------------------------------|
| C606T.1 | To provide the graduates to use written communication in work and personal experience beyond college. |
| C606T.2 | To acquaint student for active participation in reading and writing. |
| C606T.3 | To teach the skills needed to successfully communicate in modern word through written materials. |
| C606T.4 | To identify and select many types of writing frequently required in variety of careers. |
| C606T.5 | To improve the graduates ability to differentiate among and to use facts, inferences and judgment in professional careers. |



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COURSE OUTCOMES

B. TECH. VI SEMESTER

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|-------------------|---------------------------------|
| BEETC-607I | MINIPROJECT (INTERNSHIP) |
|-------------------|---------------------------------|

By the end of the course, the students will be able to:

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|----------------|------------------------------------------------------------------------------------------|
| C607I.1 | Understand various PCB design. |
| C607I.2 | Interface basic Electronics circuits to Arduino. |
| C607I.3 | Build a mini project based on Electronic components and Arduino and Raspberry Pi. |



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COURSE OUTCOMES

B. E.VII SEMESTER



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COURSE OUTCOMES

B. E.VII SEMESTER

| | |
|-------------------|-----------------------------------------|
| BEENE-701T | DSP PROCESSOR & ARCHITECTURE |
|-------------------|-----------------------------------------|

By the end of the course, the students will be able to

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|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| C701T.1 | Learn the fundamentals of DSP processors. |
| C701T.2 | Describe the architecture & addressing modes of fixed point processor TMS320C5X. |
| C701T.3 | Apply instruction set of TMS320C5X and write Programs for processing signals. |
| C701T.4 | Describe the architecture, instruction set & write programs using floating point DSP processor TMS320C54X. |
| C701T.5 | Compare DSP processors like C5X, C54X and C6X and design & implement DSP algorithm using code composer studio of TMS320C6X and Motorola DSP563XX. |
| C701T.6 | Compare the complexity of DFT and FFT algorithm and design decimation filter, interpolation filter & wavelet filter. |



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COURSE OUTCOMES

B. E. VII SEMESTER

| | |
|-------------------|---------------------------------------|
| BEENE-701P | DSP PRO & ARCHITECTURE LAB |
|-------------------|---------------------------------------|

By the end of the course, the students will be able to:

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|----------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| C701P.1 | To study the modern digital signal processing architecture, programming and algorithms using TMS & Motorola processor. |
| C701P.2 | Enable students to analyze and design different signals & filters using TMS320C54XX and TMS320C6713. |
| C701P.3 | Analyze various signals in transform domain and Perform real time experiments on processors such as audio and speech processing. |



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COURSE OUTCOMES

B. E. VII SEMESTER

| | |
|-------------------|------------------------|
| BEENE-702T | EMBEDDED SYSTEM |
|-------------------|------------------------|

By the end of the course, the students will be able to:

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|----------------|--------------------------------------------------------------------------------------------------------|
| C702T.1 | Identify the financial issues related to Prototyping & Production of an Embedded System. |
| C702T.2 | Select various types of Processors & Peripherals required to design an Embedded processors. |
| C702T.3 | Explain Architecture, modes of operations & Exceptions of ARM Processors. |
| C702T.4 | Describe various communication Protocols used in embedded system. |
| C702T.5 | Explain Real Time Operating System Concepts. |
| C702T.6 | To study various case studies based on embedded systems. |



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COURSE OUTCOMES

B. E. VII SEMESTER

| | |
|-------------------|----------------------------|
| BEENE-702P | EMBEDDED SYSTEM LAB |
|-------------------|----------------------------|

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------------------|
| C702P.1 | Explain different assembly instruction used in ARM Processor. |
| C702P.2 | Develop Programs using Assembly & embedded c Language. |
| C702P.3 | Develop Programs for related to different peripheral devices & Communication Protocol. |



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COURSE OUTCOMES

B. E. VII SEMESTER

| | |
|-------------------|------------------------------|
| BEENE-703T | OPTICAL COMMUNICATION |
|-------------------|------------------------------|

By the end of the course, the students will be able to:

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|----------------|------------------------------------------------------------------------------------------------------------------------------|
| C703T.1 | Recognize and classify the structures of optical fibers and types of optical fibers. |
| C703T.2 | Discuss the effect of dispersion, coupling losses and other degradation factors on fiber optics communication system. |
| C703T.3 | Differentiate the splicing techniques, connectors and optical sources, and analyze their performance. |
| C703T.4 | Differentiate optical detectors and analyze receiver operation and its performance. |
| C703T.5 | Measure the performance of Analog and Digital link and compare the design considerations of fiber optics system. |
| C703T.6 | Understand the operating principle of WDM and utilization of optical Amplifiers. |



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COURSE OUTCOMES

B. E. VII SEMESTER

| | |
|-------------------|---------------------------------------|
| BEENE-704T | ADVANCED DIGITAL SYSTEM DESIGN |
|-------------------|---------------------------------------|

By the end of the course, the students will be able to:

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|----------------|-----------------------------------------------------------------------------------------------------|
| C704T.1 | Analyze the level of abstraction and basic VHDL Concept. |
| C704T.2 | Optimize complex Combinational and sequential circuits. |
| C704T.3 | Testing of digital systems that are reconfigurable. |
| C704T.4 | Develop examples on finite state machines. |
| C704T.5 | Simulate and synthesize programming models for digital circuits using ISE and Quartus tools. |
| C704T.6 | Experimentation on Hardware / software co-design (FPGA design). |



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COURSE OUTCOMES

B. E. VII SEMESTER

| | |
|-------------------|-------------------------------------------|
| BEENE-704P | ADVANCED DIGITAL SYSTEM DESIGN LAB |
|-------------------|-------------------------------------------|

By the end of the course, the students will be able to:

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|----------------|----------------------------------------------------------------------------------|
| C704P.1 | Model, simulate, verify digital model with hardware description language. |
| C704P.2 | Learn about modelling of system tested with test bench. |
| C704P.3 | Create and simulate FSM using VHDL. |



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COURSE OUTCOMES

B. E. VII SEMESTER

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|-------------------|----------------------------------|
| BEENE-705T | E-I: MOBILE COMMUNICATION |
|-------------------|----------------------------------|

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------------------------|
| C705T.1 | Elaborate the principle of Mobile Communication and understand cellular system. |
| C705T.2 | Analyze mobile radio environment. |
| C705T.3 | Explain the concept of Switching systems and distinguish modulation techniques of mobile communication. |
| C705T.4 | Differentiate the concept of equalization, diversity and channel coding. |
| C705T.5 | Categorize, distinguish and analyze multiple access technique. |
| C705T.6 | Demonstrate the GSM system. |



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COURSE OUTCOMES

B. E. VII SEMESTER

| | |
|-------------------|----------------------------------------|
| BEENE-705T | (E-I): DIGITAL IMAGE PROCESSING |
|-------------------|----------------------------------------|

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------------|
| C705T.1 | To understand Basics and fundamentals of Digital Image Processing. |
| C705T.2 | To Analyze the Histogram and Filtering techniques in Enhancement of Image. |
| C705T.3 | To Compare various Transform Techniques for Image Enhancement. |
| C705T.4 | To understand the Coding and Compression Techniques. |
| C705T.5 | To Analyze the Image by Segmentation, Representation and Description. |
| C705T.6 | To demonstrate the application of image processing algorithms to real life problems. |



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COURSE OUTCOMES

B. E. VII SEMESTER

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|-------------------|------------------------|
| BEENE-706P | PROJECT SEMINAR |
|-------------------|------------------------|

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------------------------------------------------|
| C706P.1 | Demonstrate the ability to perform close and critical analysis based on existing literature review. |
| C706P.2 | Demonstrate the ability to consider critically the motives and methods of scholarship and the relationship between them. |
| C706P.3 | Formulate the problem for further analysis and design. |



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COURSE OUTCOMES

B. E. VIII SEMESTER



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COURSE OUTCOMES

B. E. VIII SEMESTER

| | |
|-------------------|------------------------------------------------------------|
| BEENE-801T | MICRO ELECTROMECHANICAL SYSTEM & SYSTEM ON CHIP |
|-------------------|------------------------------------------------------------|

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C801T.1 | Understand working principles of currently available micro sensors actuators benefits of Miniaturization applications of MEMS devices. |
| C801T.2 | Understand the basic principles application of micro fabrications process design & manufacturing of MEMS Device surface & bulk micromachining, wet & dry etching process. |
| C801T.3 | Understand the conceptual design of devices & system chemical biological optical & thermal transducers. |
| C801T.4 | Understand the basic principles in designing MEMS components such as capacitors, inductors, switches & antennas & MEMS applications in communication, space & defense. |
| C801T.5 | Understand microelectronics, micro system packaging. |
| C801T.6 | Consider recent advancements in the field of MEMS & Microsystems technology system on chip & applications of MEMS. |



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COURSE OUTCOMES

B. E. VIII SEMESTER

| | |
|-------------------|---------------------------------------|
| BEENE-802T | COMPUTER COMMUNICATION NETWORK |
|-------------------|---------------------------------------|

By the end of the course, the students will be able to:

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|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| C802T.1 | To study the different types of computer network using reference models. |
| C802T.2 | Select IEEE standard 802.11 in physical layer for implementing the network. |
| C802T.3 | Analyze the different wired & wireless LAN standards & Routers. |
| C802T.4 | Implement the network communication protocols like IPv4, IPv6 and identify the IP addresses using different addressing schemes like IP Address, Hardware Address, etc. |
| C802T.5 | To discuss and describe the applications of protocols like ping, FTP, telnet. |
| C802T.6 | Apply the concept of computer network security and its authentication. |



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COURSE OUTCOMES

B. E. VIII SEMESTER

| | |
|-------------------|-----------------------------------------------|
| BEENE-802P | COMPUTER COMMUNICATION NETWORK LAB |
|-------------------|-----------------------------------------------|

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|
| C802P.1 | To analyze and select various cables and Connectors used for networking with computer network security. |
| C802P.2 | To verify the implementation results on software like NS2 and simulate different networking models and implement different networking protocols. |
| C802P.3 | To understand different data transmission techniques using TCP and UDP Protocol for evaluating the different IP addresses for various systems. |



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COURSE OUTCOMES

B. E. VIII SEMESTER

| | |
|-------------------|-------------------------|
| BEENE-803T | CMOS VLSI DESIGN |
|-------------------|-------------------------|

By the end of the course, the students will be able to:

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|----------------|--------------------------------------------------------------------------------------------------------------|
| C803T.1 | Develop PMOS and NMOS transistor. |
| C803T.2 | Understand CMOS Inverter. |
| C803T.3 | Implementation different combinational logic circuits. |
| C803T.4 | Develop circuit characterization and performance estimation of CMOS/ Experiment on CMOS Logic Design. |
| C803T.5 | Construct layout for various circuits. |
| C803T.6 | Detect and correct error in VLSI design. |



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COURSE OUTCOMES

B. E. VIII SEMESTER

| | |
|-------------------|-----------------------------|
| BEENE-803P | CMOS VLSI DESIGN LAB |
|-------------------|-----------------------------|

By the end of the course, the students will be able to:

| | |
|----------------|--------------------------------------------------------------------------|
| C803P.1 | To Demonstration characteristic of NMOS/PMOS. |
| C803P.2 | Implementation different combinational logic circuits using CMOS. |
| C803P.3 | Design layout for various circuits. |



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COURSE OUTCOMES

B. E. VIII SEMESTER

| | |
|-------------------|-------------------------------------|
| BEENE-804T | E-II SATELLITE COMMUNICATION |
|-------------------|-------------------------------------|

By the end of the course, the students will be able to:

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|----------------|---------------------------------------------------------------------------------------------------|
| C804T.1 | To Understand the basics and fundamentals of Satellite Communication. |
| C804T.2 | To Design the Satellite Link with various parameters. |
| C804T.3 | To Compare the Data Communication with FDMA, TDMA and CDMA Multiple Access. |
| C804T.4 | To analyze the technical competence in Atmospheric effect in Satellite Communication Engineering. |
| C804T.5 | To Identify the problems based on Data Communication Errors, Detection and Correction. |
| C804T.6 | To understand the Earth Station Technology and its design. |



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COURSE OUTCOMES

B. E. VIII SEMESTER

| | |
|-------------------|----------------------------------------------|
| BEENE-805T | E-III DATA COMPRESSION AND ENCRYPTION |
|-------------------|----------------------------------------------|

By the end of the course, the students will be able to:

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|----------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| C805T.1 | Define and differentiate various types of Text compression techniques. |
| C805T.2 | Differentiate various Audio compression techniques. |
| C805T.3 | Apply various methods of Image and Video compression techniques to solve the problems. |
| C805T.4 | Able to explain the different conventional Encryption/Decryption techniques and able to compare it based on its performance parameters. |
| C805T.5 | Explain & Compare the results among various types of Public key Encryption and number theory. |
| C805T.6 | Present case studies based on the data and system security issues and solutions. |



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COURSE OUTCOMES

B. E. VIII SEMESTER

| | |
|-------------------|----------------|
| BEENE-806P | PROJECT |
|-------------------|----------------|

By the end of the course, the students will be able to:

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|----------------|-----------------------------------------------------------------------------------------------------|
| C806P.1 | Define the problem based on knowledge of Electronics Engineering. |
| C806P.2 | Study and analyze the identified problem. |
| C806P.3 | Design and construct the module in group based on software / hardware and prepared a report. |