

# ANJUMAN COLLEGE OF ENGINEERING & TECHNOLOGY



MANGALWARI BAZAR ROAD, SADAR, NAGPUR-440001.  
(Managed by Anjuman Hami-E-Islam, Nagpur)  
PHONE : 0712 2582749, 2583559, FAX : 0712 2582749

## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Mathematics III

**Name of Faculty:** Dr.Yusuf Qazi

**Course Code:** BEETC-301T

After the completion of this course, students should be able to:

| COs           | Outcomes   |
|---------------|--|
| <b>C201.1</b> | <b>Apply</b> Laplace Transform to solve ordinary differential equations, Integral equations and Integro-differential Equations.  |
| <b>C201.2</b> | <b>Apply</b> Fourier series in the analysis of periodic functions in terms sine and cosine encountered in engineering problems and Fourier Transform to solve integral equations.            |
| <b>C201.3</b> | <b>Learn</b> the concept of differentiating, integrating and expanding of analytic functions in complex numbers and their applications such as evaluation of integrals of complex functions. |
| <b>C201.4</b> | <b>Solve</b> partial differential equations of first order, higher order with constant coefficients and of second order using method of separation of variables.                             |

|               |  |
|---------------|--|
| <b>C201.5</b> | <b>Analyze</b> real world scenarios to recognize when matrices are appropriate, formulate problems about the scenarios, creatively model these scenarios in order to solve the problems using multiple approaches. |
| <b>C201.6</b> | <b>Understand</b> the impact of scientific and engineering solutions in a global and societal context.   |
| <b>C201.7</b> | <b>Create</b> the groundwork for post-graduate courses, specialized study, and research in mathematics.  |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Components for Electronics Circuit Design

**Name of Faculty:** Prof Tasneem kauser

**Course Code:** BEETC-302T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C202.1 | <b>Understand</b> the principles of semiconductor physics .                          |
| C202.2 | <b>Understand</b> the principles of semiconductor diode.                             |
| C202.3 | <b>Understand</b> and <b>analyze</b> the mathematical model of transistors.          |
| C202.4 | <b>Understand</b> and <b>analyze</b> the mathematical model of unipolar transistors. |
| C202.5 | <b>Understand</b> the process of Integrated Circuit Fabrication.                     |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Components for Electronics Circuit Design Lab

**Name of Faculty:** Dr.Tirupati Goskula

**Course Code:** BEETC-302P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C203.1 | <b>Explain</b> the basic concepts of different semiconductor components.             |
| C203.2 | <b>Understand</b> the use of semiconductor devices in different electronic circuits. |
| C203.3 | <b>Calculate</b> different performance parameters of transistors.                    |
| C203.4 | <b>Plot and study</b> the characteristics of semiconductor devices.                  |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Digital System Design

**Name of Faculty:** Dr.A.S.Khan

**Course Code:** BEETC-303T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C204.1 | To <b>study</b> various digital gates and construction of various logic circuits using basic gates.          |
| C204.2 | To <b>study</b> combinational circuits.  |
| C204.3 | To <b>study</b> Flip flops & its applications.   |
| C204.4 | To <b>study</b> fundamentals of microprocessor & to understand the concept of Assembly language programming. |
| C204.5 | To <b>study</b> different interrupt techniques.  |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Digital System Design Lab

**Name of Faculty:** Dr.A.S.Khan

**Course Code:** BEETC-303P

| COs    | Outcomes   |
|--------|--|
| C205.1 | <b>Demonstrate</b> the different Boolean Laws & basics of K-map to <b>realize</b> combinational & sequential circuits.   |
| C205.2 | <b>Identify</b> the various digital ICs & understand their operation.  |
| C205.3 | <b>Describe</b> the operation & timing constraints for latches, registers, different sequential circuits.  |
| C205.4 | <b>Solve</b> basic binary math operations using microprocessor & <b>explain</b> the internal architecture & its operation within the area of manufacturing & performance |
| C205.5 | <b>Select</b> programming strategies & proper mnemonics & <b>run</b> their program on the training boards.   |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Network Theory

**Name of Faculty:** Prof. Shahid Arafat

**Course Code:** BEETC-304T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C206.1 | <b>Apply</b> mesh and node voltage method to model and <b>analyze</b> electrical circuits. |
| C206.2 | <b>Apply</b> network theorems for the analysis of networks.                                |
| C206.3 | <b>Obtain</b> the transient and steady -state response of electrical circuits.             |
| C206.4 | <b>Synthesize</b> waveforms and apply Laplace transforms to analyze networks.              |
| C206.5 | <b>Evaluate</b> different Network Functions and Analyze two port network behavior          |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Signal and System

**Name of Faculty:** Dr.Tirupati Goskula

**Course Code:** BEETC-305T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C207.1 | <b>Classify</b> different types of signals and systems.                                 |
| C207.2 | <b>Illustrate</b> the concept of Linear Time Invariant (LTI) system and its properties. |
| C207.3 | <b>Analyze</b> continuous time periodic and aperiodic signals.                          |
| C207.4 | <b>Analyze</b> continuous time systems using Laplace Transform.                         |
| C207.5 | <b>Analyze</b> DT signals and systems in frequency domain using Fourier Transform.      |



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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Measurements and Instruments

**Name of Faculty:** Dr. Rahil Khan

**Course Code:** BEETC-306T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C208.1 | <b>Select</b> and <b>use</b> precise/accurate instrument for measurement of various electrical Parameters and to understand its technical specifications. |
| C208.2 | <b>Identify</b> and <b>minimize</b> errors in electrical/electronic measurement.  |
| C208.3 | <b>Understand</b> analog and digital measurement.   |
| C208.4 | <b>Measure</b> power and frequency with the help of function generators and different analyzers.  |
| C208.5 | <b>Understand</b> modern trends in telemetry systems.   |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Electronics Workshop-I

**Name of Faculty:** Prof.Mohsina Anjum

**Course Code:** BEETC-307P

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C209.1 | <b>Get</b> The Basic Concepts Of Different Semiconductor Components With Their Usage Physically As Per Their Types. |
| C209.2 | <b>Use</b> of Semiconductor Devices In Different Electronic Circuits And Projects.                                  |
| C209.3 | <b>Calculate</b> Different Performance Parameters of Active and Passive Devices and their Datasheets.               |
| C209.4 | <b>Plot</b> and <b>Study</b> the Characteristics of Semiconductor Devices.  |

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## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /3<sup>rd</sup>

**Course Name:** Consumer Affair

**Name of Faculty:** Prof. Shama Khan

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C210.1 | <b>Understand</b> the basic concept and importance of Consumer education. |
| C210.2 | <b>Grasp</b> the concepts related to Consumer Education and Protection.   |
| C210.3 | <b>Analyze</b> the regulations and redressal mechanism system.            |
| C210.4 | <b>Aware</b> of consumer movements.                                       |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Microcontroller and Applications

**Name of Faculty:** Dr.M.Nasiruddin

**Course Code:** BEETC-401T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C211.1 | <b>Demonstrate</b> the programming model of various microcontrollers.                                     |
| C211.2 | <b>Design</b> and <b>Implement</b> 8051 microcontroller.  |
| C211.3 | <b>Illustrate &amp; Program</b> AVR / RISC microcontrollers in Integrated Development environment.        |
| C211.4 | <b>Design</b> and <b>Implement</b> advanced processor/controllers-based systems for various applications. |
| C211.5 | <b>Design</b> and <b>Develop</b> Arduino based embedded system applications.                              |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Microcontroller And Applications Lab

**Name of Faculty:** Dr.M.Nasiruddin

**Course Code:** BEETC-401P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C212.1 | <b>Demonstrate</b> the programming model of various microcontrollers.                        |
| C212.2 | <b>Design</b> an interface of various peripherals with 8051, Atmega 32, MSP 430 and Arduino. |
| C212.3 | <b>Simulate</b> the programs on different software platforms.                                |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Analog and Digital Communication

**Name of Faculty:** Prof.K.Ramizuddin

**Course Code:** BEETC-402T

After the completion of this course, students should be able to:

| COs     | Outcomes  |
|---------|---|
| C213.1  | <b>Demonstrate</b> a basic need of modulation and various types of amplitude and angle modulation techniques required for analog communication. |
| C213.2  | <b>Analyze</b> various AM-FM receivers, along with the effect of noise on analog communication systems.   |
| C213..3 | <b>Explain</b> the designing of digital communication systems by applying knowledge of the various pulse modulation techniques.                 |
| C213..4 | <b>Describe</b> various digital modulation techniques and various parameters associated with it.  |
| C213.5  | <b>Identify</b> different types of channel coding techniques and analyze the different spread spectrum methods.                                 |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Analog & Digital Electronics LAB

**Name of Faculty:** Prof.Tasneem Kausar

**Course Code:** BEETC-403P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C214.1 | <b>Study</b> the practical aspects of linear and non-linear applications of OP-AMP.  |
| C214.2 | <b>Design</b> the various wave-shaping circuits, oscillators, signal conditioners and various application based circuits using OP-AMP and Transistors. |
| C214.3 | <b>Study</b> various concepts of analog communication.   |
| C214.4 | <b>Study</b> various concepts of digital communication.  |
| C214.5 | <b>Develop</b> an application based project using industry based OPAMP.  |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Analog System Design

**Name of Faculty:** Prof. Tasneem Kausar

**Course Code:** BEETC-404T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C215.1 | <b>Understand</b> and <b>Explain</b> the basic concepts of OPAMP           |
| C215.2 | <b>Demonstrate</b> the working principle of various analog circuits        |
| C215.3 | <b>Analyze</b> analog circuits to evaluate various performance parameters. |
| C215.4 | <b>Design</b> Op-Amp based circuits.                                       |
| C215.5 | <b>Design</b> DC Power Supply.   |
| C215.6 | <b>Design</b> Oscillators, filters and drivers.                            |



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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Data Structure and Algorithm

**Name of Faculty:** Dr.Rahil Khan

**Course Code:** BEETC-405T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C216.1 | Student will be able to <b>choose</b> appropriate data structure based on the specified problem definition and analysis the algorithm.      |
| C216.2 | Student will be able to <b>handle</b> operations like searching, insertion, deletion, traversing mechanism etc. on various data structures. |
| C216.3 | Students will be able to <b>apply</b> concepts learned in various domains like Operating Systems, DBMS etc.                                 |
| C216.4 | Students will be able to <b>use</b> linear and non-linear data structures like stacks, queues, linked list, trees etc.                      |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Numerical Mathematics and Probability Using MATLAB

**Name of Faculty:** Dr.Yusuf Qazi

**Course Code:**BEETC-406T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C217.1 | <b>Learn</b> and <b>use</b> MATLAB effectively in various applications as a simulation tool.  |
| C217.2 | <b>Find</b> 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. |
| C217.3 | <b>Apply</b> Z- transform to solve difference equations with constant coefficients.   |
| C217.4 | <b>Analyze</b> 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.  |
| C217.5 | <b>Understand</b> the impact of scientific and engineering solutions in a global and societal context.  |
| C217.6 | <b>Create</b> the groundwork for post-graduate courses, specialized study, and research in mathematics.   |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Programming for Problem Solving

**Name of Faculty:** Dr.Rahil Khan

**Course Code:** BEETC-407T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C218.1 | <b>Understand</b> the basic concepts of Object Oriented Programming and design simple java programs.                                 |
| C218.2 | <b>Apply</b> the knowledge of Inheritance in program development.  |
| C218.3 | <b>Develop</b> programs using polymorphism and interfaces.   |
| C218.4 | <b>Handle</b> various exceptions using concepts of exception handling.   |
| C218.5 | <b>Use</b> multithreading concepts to develop inter process communication.   |
| C218.6 | <b>Understand</b> and <b>Implement</b> concepts on file streams and operations in java programming for a given application programs. |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Programming for Problem Solving lab

**Name of Faculty:** Dr.Rahil Khan

**Course Code:** BEETC-407P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C219.1 | <b>Choose</b> appropriate data structure based on the specified problem definition and analysis the algorithm.         |
| C219.2 | <b>Handle</b> operations like searching, insertion, deletion and traversing mechanism etc. on various data structures. |
| C219.3 | <b>Apply</b> the knowledge of Inheritance in program development.  |
| C219.4 | <b>Develop</b> programs using polymorphism and interfaces.   |
| C219.5 | <b>Handle</b> various exceptions using concepts of exception handling.   |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Course Name:** Internship

**Name of Faculty:** Prof.K.Ramizuddin

**Course Code:** BEETC408I

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C220.1 | <b>Identify</b> the modern tools used in the field of Engineering for product development                                  |
| C220.2 | <b>Demonstrate</b> ethical conduct and professional accountability while working in a team for the benefit of the society. |
| C220.3 | <b>Assess</b> the resources requirement and planning to facilitate the project success.                                    |

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### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 2<sup>nd</sup> /4<sup>th</sup>

**Name of Faculty:** Prof.Shama Khan

**Course Name:** Universal Human Values

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C221.1 | <b>Become</b> more aware of themselves, and their surroundings(family, society, nature).   |
| C221.2 | <b>Become</b> more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind. |
| C221.3 | <b>Understand</b> values in relationship.  |
| C221.4 | <b>understand</b> the role of a human being in ensuring harmony in society and nature.   |
| C221.5 | <b>Distinguish</b> between ethical and unethical practices at work place and would contribute for making a value based society.                          |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:**

3rd/5<sup>th</sup>

**Name of Faculty:** Prof.Zahwa Mirza

**Course Name:** Embedded System Design

**Course Code:** BEETC -501T

After the completion of this course, students should be able to:

| COs           | Outcomes  |
|---------------|---|
| <b>C301.1</b> | <b>Describe</b> and <b>Analyze</b> the Requirements & Design issues of embedded systems design.       |
| <b>C301.2</b> | <b>Apply</b> the knowledge of architecture and Programming of for development of simple applications. |
| <b>C301.3</b> | <b>Describe</b> and <b>Demonstrate</b> the interfacing of various peripherals with ARM Processor.     |
| <b>C301.4</b> | <b>Exnlain</b> the concept of Real Time Operating System for embedded system design.                  |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd/5<sup>th</sup>

**Name of Faculty:** Prof.Zahwa Mirza

**Course Name:** Embedded System Design Lab

**Course Code:** BEETC -501P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C302.1 | <b>Apply</b> the knowledge of Instruction skill for the Development of Simple and Complex Programs.    |
| C302.2 | <b>Apply</b> the programming skill for the Development of Simple application.                          |
| C302.3 | <b>Apply</b> and <b>Demonstrate</b> the Concept of Interfacing for the Development of Embedded System. |



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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /5th

**Course Name:** Electromagnetic Waves

**Name of Faculty:** Dr Tirupati Goskula

**Course Code:** BEETC-502T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C303.1 | <b>Understand</b> the different coordinate system & <b>Analyze</b> theorem's of electric Field.                            |
| C303.2 | <b>Understand</b> magnetic fields; <b>Apply</b> the Maxwell's equations to solve problems in electromagnetic field theory. |
| C303.3 | <b>Analyze</b> the propagation of wave in different transmission media.  |
| C303.4 | <b>Understand</b> and <b>Analyze</b> various parameters and characteristics of the rectangular waveguide.                  |
| C303.5 | <b>Understand</b> principle of radiation and radiation characteristics of an antenna .                                     |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /5th

**Course Name:** Digital Signal Processing

**Name of Faculty:** Prof.Mohsina Anjum

**Course Code:** BEETC-503T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C304.1 | <b>Analyze</b> discrete time signals and system.  |
| C304.2 | <b>Process</b> the signal in z domain for various discrete time systems.  |
| C304.3 | <b>Draw</b> the structures of various discrete time systems in DFI, DFII, cascade and parallel form.  |
| C304.4 | <b>Apply</b> discrete Fourier transform, its properties & Analyze the discrete time systems in frequency domain.                                |
| C304.5 | <b>Understand</b> the filter design techniques for IIR and FIR digital filters and will be able to determine parameters affecting its response. |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /5th

**Course Name:** Digital Signal Processing Lab

**Name of Faculty:** Prof.Mohsina Anjum

**Course Code:** BEETC-503P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C305.1 | <b>Demonstrate</b> the sampling and reconstruction of discrete time signal & <b>Perform</b> different signal operation in developing discrete time system. |
| C305.2 | <b>Analyze</b> different properties of Z-transform.  |
| C305.3 | <b>Analyze</b> different properties of discrete Time Fourier transform.  |
| C305.4 | <b>Analyze</b> and <b>Process</b> the signals in the discrete domain.  |
| C305.5 | <b>Design</b> the filters to suit requirements of specific applications.   |
| C305.6 | <b>Apply</b> the techniques, skills, and modern engineering tools like MATLAB.   |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /5th

**Course Name:** Industrial Economics and Entrepreneurship Development

**Name of Faculty:** Dr.Nawaz Khan

**Course Code:** BEETC-504T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C306.1 | <b>Understand</b> different types of business structure.                                  |
| C306.2 | <b>Acquire</b> the knowledge of different market structures and New economic policy.      |
| C306.3 | <b>Grasp</b> the functions of banks, taxations system and implications of Inflation.      |
| C306.4 | <b>Identify</b> various sources of finance  |
| C306.5 | <b>Analyse</b> the problems of Small Scall Industries and government's policies for them. |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /5th

**Course Name:** Operating system (Elective)

**Name of Faculty:** Prof.Tasneem Kausar

**Course Code:** BEETC-505PE

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C307.1 | <b>Explain</b> basic concepts of operating system.                           |
| C307.2 | <b>Understand</b> the process management policies and scheduling algorithms. |
| C307.3 | <b>Design</b> various memory management techniques.                          |
| C307.4 | <b>Analyze</b> process synchronization techniques.                           |
| C307.5 | <b>Evaluate</b> deadlock detection and prevention mechanism.                 |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /5th

**Course Name:** Electronics Workshop-II

**Name of Faculty:** Prof.Akbar Nagani

**Course Code:** BEETC-506P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C308.1 | <b>Understand</b> the various PCB design steps and design PCB for an electronic circuit. |
| C308.2 | <b>Use</b> the simulation software to design electronic circuits.                        |
| C308.3 | <b>Interface</b> basic electronic circuits to Arduino.                                   |
| C308.4 | <b>Demonstrate</b> Raspberry Pi to implement various electronic projects.                |
| C308.5 | <b>Build</b> a mini-project based on Arduino and Raspberry-Pi.                           |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd/6<sup>th</sup>

**Course Name:** Computer Communication Network

**Name of Faculty:** Prof.Zahwa Mirza

**Course Code:** BEETC-601T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C309.1 | <b>Describe</b> the basics of Computer Network, Data Communication, Network topologies, transmission media and switching techniques.   |
| C309.2 | <b>Analyze</b> the services and features of various protocols of Data Link Layer and MAC sub-layer.                                    |
| C309.3 | <b>Apply</b> the concept of IP Addressing techniques and its various protocols of Network Layer.                                       |
| C309.4 | <b>Describe</b> the transport layer, Application Layer services and its protocol Headers and analyze the congestion control protocols. |
| C309.5 | <b>Explain</b> the function of Application Layer and Presentation layer paradigm and protocols.  |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd/6<sup>th</sup>

**Course Name:** Computer Communication Network Lab

**Name of Faculty:** Prof.Zahwa Mirza

**Course Code:** BEETC-601P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C310.1 | <b>Analyze</b> and <b>Select</b> various cables and Connectors used for networking with computer network security.                                   |
| C310.2 | <b>Verify</b> the implementation results on software like NS2 and simulate different networking models and implement different networking protocols. |
| C310.3 | <b>Understand</b> different data transmission techniques using TCP and UDP Protocol for evaluating the different IP addresses for various systems.   |



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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd/6<sup>th</sup>

**Course Name:** Internet of Things  
Name

**of Faculty:** Prof.Mohsina Anjum

**Course Code:** BEETC-602T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C311.1 | <b>Analyze</b> different design levels of IoT.               |
| C311.2 | <b>Analyze</b> IOT Architecture.                             |
| C311.3 | <b>Understand</b> network and communication aspects.         |
| C311.4 | <b>Design</b> a portable IoT using Raspberry Pi and Aurdino. |
| C311.5 | <b>Analyze</b> applications of IoT in real time scenario .   |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd/6<sup>th</sup>

**Course Name:** Internet of Things

**Name of Faculty:** Prof.Mohsina Anjum

**Course Code:** BEETC-602P

After the completion of this course, students should be able to:

| COs    | Outcomes                                       |
|--------|--|
| C312.1 | Install Arduino IDE.                           |
| C312.2 | Configure Raspberry Pi.                        |
| C312.3 | Write Aruino programs and run it on Aruino IDE |
| C312.4 | Interface different sensors with Aruino.       |
| C312.5 | Program Node MCU                               |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd/6<sup>th</sup>

**Course Name:** Wireless Sensor Networks

**Name of Faculty:** Prof.Akbar Nagani

**Course Code:** BEETC-603T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C313.1 | <i>Understand (BT2)</i> the fundamentals Principles of wireless sensor networks and its application to critical real time scenarios.  |
| C313.2 | <i>Understand (BT2)</i> sensor network architecture and the use of MAC PROTOCOLS in WSN   |
| C313.3 | <i>Understand (BT2)</i> the different Transport Control Protocols and the uses.   |
| C313.4 | <i>Analyze (BT4)</i> the issues pertaining to major obstacles in Establishment,Designining, and Efficient Management of Sensor Networks.  |
| C313.5 | <i>Understand (BT2)</i> a computing science approach, in terms of software techniques, for wireless sensor networking with emphasis on tiny sensors, sensor specific programming languages, |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd/6<sup>th</sup>

**Course Name:** Wireless Sensor Networks Lab

**Name of Faculty:** Prof. Akbar Naganii]k

**Course Code:** BEETC-603P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C314.1 | Students will be able <i>Understand</i> the use of NS-2 Software.  |
| C314.2 | Students will be able to <i>Write</i> a TCL Script use for simulation in NS-2  |
| C314.3 | Students will be able to <i>Design</i> a Wireless Sensor Network simulation model using NS-2.                          |
| C314.4 | Students will be able to <i>Analyze</i> a Wireless Sensor Network simulation model for different Protocols using NS-2. |

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd/6<sup>th</sup>

**Course Name:** Data Base Management System (Elective-II)

**Name of Faculty:** Prof.Tirupati Goskula

**Course Code:** BEETC-604PE

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C315.1 | <i>Understand (BT2)</i> basic database concepts and data modeling techniques used in data base design.        |
| C315.2 | Students can <i>Analyze (BT4)</i> the concept of functional dependency and different normalization techniques |
| C313.3 | <i>Understand (BT2)</i> the query processing and perform optimization on query processing                     |
| C315.4 | <i>Analyze (BT4)</i> the concept of transaction processing and different recovery techniques used in RDBMS    |
| C315.5 | <i>Analyze (BT4)</i> the concept of advanced database which are used in real time system languages,           |

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## DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

### Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /6th

**Course Name:** Consumer Electronics (Open Elective-I)

**Name of Faculty:** Prof.Syed Akbar Ali

**Course Code:** BEETC6050E

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C316.1 | <b>Describe</b> various analog and digital sensor/switches used in commercial applications           |
| C316.2 | <b>Describe</b> working of smart sensor and discuss application of smart senso                       |
| C316.3 | <b>Describe</b> working principal of smart actuator and discuss it application                       |
| C316.4 | <b>Describe</b> various component used in implementation of Analog Process Control Devices           |
| C316.5 | <b>Demonstrate</b> knowledge of Programmable Logic Controllers (PLCs) SCADA by conducting case study |

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /6th

**Course Name:** Effective Technical Communication (Theory)

**Name of Faculty:** Dr.Sajid Kazi

**Course Code:** BEETC-606T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C317.1 | <b>Acquire</b> knowledge of structure of language.                            |
| C317.2 | <b>Build</b> vocabulary and face interview process and can become employable. |
| C317.3 | <b>Develop</b> business writing skills.                                       |
| C317.4 | <b>Understand</b> technical and scientific writing skills.                    |

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 3rd /6th

**Course Name:** Mini Project (Internship)

**Name of Faculty:** Dr.Tirupati Goskula

**Course Code:** BEETC-607I

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C318.1 | <b>Implement</b> electronic hardware by learning PCB artwork design, soldering techniques, testing and troubleshooting etc. |
| C318.2 | <b>Develop</b> design strategy for the project work.  |
| C318.3 | <b>Understand, Plan and Execute</b> a Mini Project with team.   |
| C318.4 | <b>Evaluate</b> application of project work with appropriate societal consideration.  |
| C318.5 | <b>Prepare</b> a technical report based on the Mini project.  |



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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 4<sup>th</sup>

**/7<sup>th</sup> Course Name:** PEC -III - AUDIO AND VIDEO ENGINEERING

**Name of the Faculty:** Prof Sanjay Ganar

**Course Code:** BEETC701PE-T

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C401.1 | <b>Analyze</b> Colour Television. System  |
| C401.2 | <b>Compare</b> different T. V. Standards  |
| C401.3 | <b>Summarize</b> working principle of Digital TV, MAC signal, and Digital Video compression |
| C401.4 | <b>Distinguish</b> Advanced T. V. Technology  |
| C401.5 | <b>Analyze</b> Audio & Video recording display and relevant consumer applications           |

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 4<sup>th</sup>

**/7<sup>th</sup> Course Name:** Microwave & Radar Engineering

**Name of the Faculty:** Prof Syed Akbar Ali

**Course Code:** BEETC702PE-T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C402.1 | <b>Explain</b> basic components of microwave.                          |
| C402.2 | <b>Explain</b> different UHF components.                               |
| C402.3 | <b>Understand</b> use of different Klystron.                           |
| C402.4 | <b>Explain</b> operation of RADAR Communication.                       |
| C402.5 | <b>Identify &amp; formulate</b> different RADAR Engineering Solutions. |

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 4<sup>th</sup>

**/7<sup>th</sup> Course Name:** Optical Communication

**Name of the Faculty:** Prof. Akbar Nagani

**Course Code:** BEETC703PE-T

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C403.1 | <i>Understand (BT2)</i> about the light transmission through optical fibers and applications of optical fibre. |
| C403.2 | <i>Analyze (BT4)</i> the different kind of losses, signal distortion IN OPTICAL WAVES.                         |
| C403.3 | <i>Understand (BT2)</i> the characteristics of Optical detectors and Sources.                                  |
| C403.4 | <i>Understand (BT2)</i> various types of Optical fiber link.   |
| C403.5 | <i>Understand (BT2)</i> the concept of WDM & optical network components.                                       |

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2020-2021

**Year/Semester:**

4th/7<sup>th</sup> **Course Name:** Intellectual Property Rights

**Name of the Faculty:** Dr.Ruhina Quazi

**Course Code:** BEETC706A

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C404.1 | <i>Understand (BT2)</i> the concepts of Intellectual Property Rights.   |
| C404.2 | <i>Understand (BT2)</i> the need of Intellectual Property Rights & how to protect it.   |
| C404.3 | <i>Analyze (BT4), Discuss (BT2) and Debate (BT5)</i> about the latest Legal problems, confronting the world and the solutions being offered |
| C404.4 | <i>Learn (BT1)</i> about new areas of Intellectual Property   |

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 4<sup>th</sup>

**/8<sup>th</sup> Course Name:** Artificial Intelligence

**Name of the Faculty:** Prof. Sanjay Ganar

**Course Code:** BEETE801PE

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C405.1 | <i>Understand</i> history of artificial intelligence (AI) concepts of AI.                    |
| C405.2 | <i>Checking</i> out proofs in first order and propositional logic and problem solving in AI. |
| C405.3 | <i>Recognize</i> the concepts of Machine Learning and its deterministic tools                |
| C405.4 | <i>Understand</i> the Neural Networks and basic of Deep learning in designing AI models.     |
| C405.5 | <i>Apply</i> different platforms , tools, frameworks and languages for AIML.                 |

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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 4<sup>th</sup>

**/8<sup>th</sup> Course Name:** VLSI Signal Processing

**Name of the Faculty:** Dr. Ruhina Quazi

**Course Code:** BEETC802PE

After the completion of this course, students should be able to:

| COs    | Outcomes  |
|--------|---|
| C406.1 | <i>Explain (BT2)</i> fundamental concept of pipelining and parallel processing for DSP architectures.                               |
| C406.2 | <i>Relate (BT2) &amp; Apply (BT3)</i> various retiming techniques to reduce clock period and power consumption of circuit.          |
| C406.3 | <i>Design (BT6) and Apply (BT3)</i> unfolding transformation techniques describing more than one iteration of the original program. |
| C406.4 | <i>Explain (BT2) &amp; Apply (BT3)</i> folding transformations to reduce the silicon area of DSP architectures.                     |
| C406.5 | <i>Illustrate (BT5)</i> the use of fast convolution algorithms for algorithmic strength reduction.                                  |
| C406.6 | <i>Design (BT6)</i> low power ,cost effective and high speed DSP architectures with minimum hardware.                               |

# ANJUMAN COLLEGE OF ENGINEERING & TECHNOLOGY



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DEPARTMENT OF ELECTRONICS AND TELECOMMUNICATION ENGINEERING

## Course Outcomes

**Academic Year:** 2023-2024

**Year/Semester:** 4<sup>th</sup>/8<sup>th</sup>

**Course Name:** PROJECT SEMINAR

**Name of the Faculty:** Prof. Ruhina Quazi

**Course Code:** BEETC803P

After the completion of this course, students should be able to:

| COs    | Outcomes   |
|--------|--|
| C407.1 | <i>Understand (BT2)</i> the engineering aspects of design with reference to simple products.             |
| C407.2 | <i>Develop (BT3)</i> skills in doing literature survey, technical presentation and report preparation.   |
| C407.3 | <i>Enable (BT2)</i> project identification and execution of preliminary works on final semester project. |