

DAV Institute of Engineering & Technology
Department of ECE

COURSE OUTCOMES

Upon successful completion of this course, the student will intend to apply the various outcome as::

BTEC-301, Analog Devices & Circuits

*This course aims to expose the students to the principles of Analog Devices and basic circuits to acquaint beginners to various Technical concepts, in the core of **Design, Implementation, Research& Invention** of various Electronic Systems.*

BTEC-302, Digital Circuits and Logic Design

CO1:-Students will be able to represent numerical values in various number systems and perform number conversions between different number systems.

CO2:-Students will demonstrate the knowledge of:

- operation of logic gates (AND, OR, NAND, NOR, XOR, XNOR) using IEEE/ANSI standard symbols
- Boolean algebra including algebraic manipulation/simplification, and application of DeMorgan's theorems
- Karnaugh map reduction method.

CO3:-Students will demonstrate the knowledge of operation of basic types of flip-flops, registers, counters, decoders, encoders, multiplexers, and de-multiplexers.

CO4:-Students will be able to analyze and design digital combinational circuits including arithmetic circuits (half adder, full adder, multiplier).

BTEC-303, Network Analysis & Synthesis

1) *The student gain **skills** on analysis of electrical networks using complex frequency approach and Laplace transform. The student is capable of applying such approaches to two port networks.*

2) *Students can perform mathematical transformations to describe the **behavior** of networks which are*

represented using differential equations.

3) Students are able to perform reduction of the circuit; they **develop** an ability to choose an appropriate analytical method.

BTCS-305, Object Oriented Programming using C++

- 1) Gain **knowledge** on basics of object oriented programming.
- 2) **Understand** template, file handling, exception handling concepts.

BTEC-401, Analog Communication Systems

- 1) To **develop** the concept of analog communication System.
- 2) To **understand** different types of noise and predict its effect on various analog communication systems
- 3) To **design** the major building blocks of communication system

BTEE-402, Linear Control Systems

- 1) **Apply** systems theory to complex real world problems in order to obtain models that are expressed using differential equations, transfer functions
- 2) **Predict** system behavior based on the mathematical model of that system where the model may be expressed in time or frequency domain
- 3) **Analyze** the behavior of closed loop systems using tools such as root locus, Routh Hurwitz, Bode and Nyquist criteria.

BTEC-402, Signals & Systems

- 1) **Classify** signals and systems and perform operations like folding, shifting, scaling etc. on them.
- 2) **Apply** Fourier series and Fourier transform to represent continuous and discrete time signals.
- 3) **Solve** and apply DTFT and Z transform to analyze linear time invariant discrete time system:
- 4) **Explain** the behavior of random signals in terms of probability functions

BTEC-403, Electromagnetics & Antenna

- 1) **Recognize** the need of electromagnetic wave theory including the Maxwell equations in different form, Waveguides and Transmission Lines analogy with waveguide. .
- 2) **Explain** the various type of antennas and application in the field of communication engineering.
- 3) **Aware** of different wave propagation including free space equation, Surface and Space wave propagation and ionosphere propagation

BTEC-404, Electronics Measurement & Instrumentation

- 1) **Identify** electronics/ electrical instruments, their use, peculiar errors associated with the instruments and how to minimize such errors.
- 2) **Explain** the industrial and laboratory applications of such instruments.
- 3) **Understand** the basic design techniques of electronic equipments.

BTEC-405, Pulse Wave Shaping &Swtching

- 1) The students will be able to know the **applications** of clipping and clamping circuits in communication.
- 2) The students will be able to **design** multivibrators for various purposes.
- 3) The students will be able to **understand** the basic swtching concepts and their applications to pulse circuits.

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BTEC-501, Digital Communication Systems

- 1) **Analyze** the performance of a baseband and pass band digital communication system in terms of error rate and spectral efficiency.
- 2) **Perform** the time and frequency domain analysis of the signals in a digital communication system.
- 3) **Select** the blocks in a design of digital communication system.
- 4) **Analyze** Performance of spread spectrum communication system.

BTEC-502, Digital Signal Processing

- 1) **Apply** the concept of discrete time signals and various manipulations on them.
- 2) **Analyze** the Discrete time system using Z-transform and Discrete Fourier Transform
- 3) **Learn** and understand realizations of various forms of structures' for discrete time systems
- 4) **Develop** the capability to design FIR and IIR filters depending upon the specific application
- 5) **Analyze** the effects of finite word length on filter performance
- 6) **Describe** the architecture and characteristics of digital signal processors.

BTEC-502, Linear Integrated Circuits

- 1) Students will be able to **understand** the basic concepts of Linear Integrated Circuits.

- 2) Students will be able to **apply** the knowledge of operational amplifiers and design various op-amp circuits.
- 3) Students will be able to able to **complete** accurate and comprehensive analysis of Linear Integrated Circuits.
- 4) Students will be able to **demonstrate** the working of various circuits using 741C and 555 ICs

BTEC-504, Microprocessor & Microcontrollers

- 1) *To understand the detailed architecture of 8085-microprocessor & 8051 microcontrollers.*
- 2) *The students will be able to apply the knowledge of addressing modes and instruction sets for writing assembly language programmes for problem solving.*
- 3) *The students will be able to compare microprocessors and microcontrollers.*
- 4) *The students will be able to demonstrate the interfacing of various peripheral devices to microcontroller and design of interfacing systems.*

BTEC-601, Microwave & Radar Engineering

- 1) *The students will be able to **know** the basics of Microwave Range and its advantages and disadvantages.*
- 2) *They will be able to **understand** the importance of various microwave components*
- 3) *They will be able to **measure** various microwave parameters to judge the performance of the Microwave systems.*

BTEC-602, VLSI Design

- 1) *To **understand** mathematical methods and circuit analysis models in analysis of CMOS digital electronics circuits, including logic components and their interconnect.*
- 2) *To **create** models of moderately sized CMOS circuits that realizes specified digital functions.*
- 3) *To **apply** CMOS technology-specific layout rules in the placement and routing of transistors and interconnect, and to verify the functionality, timing, power, and parasitic effects.*

BTEC-603, WIRELESS COMMUNICATION SYSTEM

COURSE OBJECTIVES

1. This course is designed to provide students with an overview of Wireless communication Systems, one of the fastest growing fields in the Engineering world.
2. This course provides students understanding many practical and theoretical concepts that form the basis of wireless communication and knowledge of Elements of cellular system design and various Wireless Systems and standards.

COURSE OUTCOMES:

- CO1:** The students shall have the understanding of basics of Wireless communication.
- CO2:** The students will be able to understand the cellular concept, Co-channel Interference and frequency Reuse concept
- CO3:** Upon completion of the course, the students shall have the ability to understand the concept of fading and Diversity and design some model to reduce these effects.
- CO4:** Upon completion of the course, the students shall have the ability to understand the concept of multiple access techniques and the cellular systems which are using these techniques.
- CO5:** Students shall be able to understand various wireless systems and standards GSM,CDMA,UMTS,4G,LTE

BTC-403, Computer Networks

- 1) *Students will be able to understand basic networking concepts.*
- 2) *Students will be able to compare the data link protocols and networking layer protocols.*
- 3) *Students are able to design new protocols for data link layer and routing algorithms.*

BTEC-701 Embedded Systems

- 1) *Get insight of design metrics of Embedded systems to design real time applications to match recent trends in technology.*
- 2) *Understand Real time systems concepts.*
- 3) *Apply interfacing of devices using LPC2148*

BTEC-702 Optical Communication Systems

- 1)The students will **learn** the need of optical communication system with basic knowledge to elements of optical fiber transmission link, fiber modes configurations and structures
- 2)The student will understand the different kind of losses, signal distortion in optical wave guides and other signal degradation Factors
- 3) The student will **become** skilled at the various optical source materials, LED & Laser structures,quantum efficiency of optical source as well as photo detector, fiber optical receivers such as PIN,APD diodes, noise performance in photo detector, receiver Operation and configuration
- 4)The student will **gain** knowledge of the fiber optical network components, variety of optical communication system & network aspects

BTEC-912 Speech & Image Processing

- 1) *After studying this course, the students will be able to **understand** the basics of image and speech processing*

- 2) *Students will be able to **analyze** image tools on image enhancement, segmentation and color image models.*
- 3) *Students will **conceptualize** the basics of speech production, speech synthesis, music theory and filters used for practical applications.*

BTEC 920 Wireless Sensor Network

Course Outcomes

- CO1.** Students will be introduced to sensor networks and their characteristics
- CO2.** Students will be introduced to some existing applications of wireless sensor networks
- CO3.** Students will get an overview of the various network level protocols for MAC, routing, time synchronization, aggregation, consensus and distributed tracking.
- CO4.** Students will learn to program sensor network platforms using TinyOS, NS2 Java and will get an opportunity to have hands on training in developing applications on wireless motes, smart phones and other embedded platforms
- CO5.** Students will understand what research problems sensor networks pose in disciplines such as signal processing, wireless communications and even control systems