

# **SILVER OAK COLLEGE OF ENGINEERING & TECHNOLOGY**

## **DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING**

### **Mid Sem II Exam Syllabus**

AUDIO VIDEO SYSTEMS

**SUBJECT CODE:** 2151101

#### **B.E. 5th SEMESTER**

##### **Television Fundamentals:**

Elements of TV communication system, Scanning, Synchronization, Aspect ratio, Pixels, Resolution, Bandwidth, Composite video signal, Modulation of video and audio signals, Monochrome and color cameras, Compatibility, Luminance and Chrominance signal, Picture tubes, Solid state picture transducers, TV broadcasting systems, Video monitors.

##### **Digital video, compression techniques and standards:**

Digital Video, The RGB and YUV Representation of Video Signals, The Need for Compression, how compression works, Compression formats for video - MPEG-x format, H.26x format

##### **Digital Television-Transmission and Reception:**

Digital system hardware, Signal quantizing and encoding, digital satellite television, (DTH) Digital TV receiver, Merits of digital TV receivers, Digital Terrestrial Television(DTT), Introduction to Video on demand, Introduction to CCTV, Introduction to CATV

##### **Stereophonic sound, flat panel TV receivers, 3-Dimensional TV, EDTV, HDTV and Digital Studio equipment:**

Stereo sound systems, Projection television, Flat panel display TV receivers, Three Dimensional (3-D) television, Advances in 3D TV technology, Present status of new 3D receivers, Extended Definition Television(EDTV), Digital equipment for television studios, Electronic control of studio lights, Digital audio recorders and editing, Colour receivers of new generation

##### **Liquid Crystal and Plasma Screen Televisions:**

LCD technology, LCD matrix types and operation, LCD screens for television, Plasma and conduction of charge, Plasma television screens, Signal processing in Plasma TV receivers, A Plasma colour receiver, LCD colour receivers, Single LCD receivers, 3-LCD colour receivers, Plasma or LCD-which is the best choice, Performance comparison of Plasma and LCD televisions, Introduction to LED TV

**Projection Display Systems and Television Home Theatres:** Direct View and rear projection systems, front projection TV system, Transmissive type projection systems, Reflective projection systems, Digital Light Processing (DLP) projection system

Microcontroller & interfacing

SUBJECT CODE: 2151001

**B.E. 5th SEMESTER**

**AVR Assembly Language Programming:**

AVR assembly language programs, AVR I/O Port Programming, Time delay loop, BCD, ASCII conversion Program, Look-up table, Bit addressability, MACROs.

**AVR Programming in C :**

Data types, I/O programming, logic operations, Intel HEX file, Timer programming in assembly and C, Serial Port programming in assembly and C.

**Peripheral Interfacing :**

ADC, DAC and sensor interfacing, Relay, Stepper Motor Interfacing.

# ENGINEERING ELECTROMAGNETICS

SUBJECT CODE: 2151102

## **B.E. 5th SEMESTER**

### **Energy and Potential:**

Energy Expended in Moving a Point Charge in an Electric Field, The Line Integral, Definition of Potential Difference and Potential, The Potential Field of a Point Charge, The Potential Field of a System of Charges: Conservative Property, Potential Gradient, The Electric Dipole, Energy Density in the Electrostatic Field.

### **Conductors and Dielectrics:**

Current and Current Density, Continuity of Current, Metallic Conductors, Conductor Properties and Boundary Conditions, The Method of Images, Semiconductors, The Nature of Dielectric Materials, Boundary Conditions for Perfect Dielectric Materials.

### **Capacitance:**

Capacitance, Parallel-Plate Capacitor, Several Capacitance Examples, Capacitance of a Two-Wire Line, Using Field Sketches to Estimate Capacitance in Two-Dimensional Problems, Poisson's and Laplace's Equations, Examples of the Solution of Laplace's Equation, Example of the Solution of Poisson's Equation: the  $p$ - $n$  Junction Capacitance

### **The Steady Magnetic Field:**

Bio-Savart Law, Ampere's Circuital Law, Curl, Stokes' Theorem, Magnetic Flux and Magnetic Flux Density, The Scalar and Vector Magnetic Potentials, Derivation of the Steady-Magnetic-Field Laws.

### **Magnetic Forces, Materials and Inductance:**

Force on a Moving Charge, Force on a Differential Current Element, Hall Effect, Force between Differential Current Elements, Force and Torque on a Closed Circuit, The Nature of Magnetic Materials, Magnetization and Permeability, Magnetic Boundary Conditions, The Magnetic Circuit, Potential Energy and Forces on Magnetic Materials

### **Time-Varying Fields and Maxwell's Equations:**

Faraday's Law, Displacement Current, Maxwell's Equations in Point Form, Maxwell's Equations in Integral Form, The Retarded Potentials

### **Electromagnetic Wave Propagation:**

Wave Propagation in Free Space, Lossy and Lossless Dielectrics

Name of Faculty: Mr. Vimal H. Nayak

Subject: Electronic Communication (2151004)

B.E. 5th SEMESTER

## **Unit 2: Analysis and transmission of signals:**

Aperiodic (non-periodic) signal representation by Fourier integral, Fourier transforms of some useful functions, signal transmission through a linear system, signal distortion over a communication channel, Signal energy and energy spectral density, signal power and power spectral density.

## **Unit 5: Angle modulation/demodulation:**

Concept of instantaneous frequency and angle modulation, sinusoidal FM and its time domain representation, spectral components of angle modulated signals, power in sinusoidal FM and modulation index, Carson's rule, equivalence between Frequency modulation(FM) and Phase modulation(PM), Angle modulator circuits, Fm transmitters, Armstrong method of FM generation, Fm stereo broadcast, FM detection: Basic slope detector, FosterSeeley discriminator, ratio detector, PLL detector and Quadrature detector, Concept of Amplitude limiter, Pre-emphasis and de-emphasis circuits, Interference in angle modulated systems.

## **Unit 6: Radio receivers:**

Functions of radio receivers, working of super heterodyne radio receivers, tuning ranges, tracking, sensitivity and gain, image rejection, spurious responses, Adjacent channel selectivity, Automatic gain control, Electronically tuned, receivers, IC receivers, AM receivers, FM receivers