



SCHEME OF STUDIES & EXAMINATIONS

Department: Electronics & Communication Engineering – 7th Semester

Sr. No	Course No.	Course Title	Teaching Schedule			Marks of class work	Examination Marks		Total	Credit	Duration of Exam
			L	T	P		Theory	practical			
1	ECE401B	INDUSTRIAL PROCESS CONTROL AND INSTRUMENTATION(ECE,AEI)	3	1	-	25	75	-	100	4	3
2	ECE403B	DIGITAL SIGNAL PROCESSING(ECE,AEI)	3	1	-	25	75	-	100	4	3
3	ECE405B	SATELLITE COMMUNICATION	3	1	-	25	75	-	100	4	3
4	ECE407B	VLSI DESIGN(ECE,AEI,EEE)	3	1	-	25	75	-	100	4	3
5		*OPEN ELECTIVE	4	-	-	25	75	-	100	4	3
6	ECE 421 B	PROAMMABLE LOGIC CONTROLLERS LAB(ECE,AEI)	-	-	2	20	-	30	50	1	3
7	ESE 423B	DIGITAL SIGNAL PROCESSING LAB using MATLAB (ECE,AEI)	-	-	2	20	-	30	50	1	3
8	ECE 425B	SATELLITE COMMUNICATION LAB	-	-	2	20	-	30	50	1	3
9	ECE 427B	VLSI DESIGN LAB(ECE,AEI)	-	-	2	20	-	30	50	1	3
10	ECE431B	PROJECT	-	-	4	100	-	-	100	4	-
11	ECE435B	PROFESSIONAL TRAINING-II	-	-	2	50	-	-	50	2	-
Total			16	4	14	355	375	120	850	30	

* List of Open Electives

1	MEI 623B	ENTREPRENEURSHIP	6	BT401B	BIO-INFORMATICS
2	BME451B	MEDICAL INSTRUMENTATION	7	AE417B	MODERN VEHICLE TECHNOLOGY
3	ECE305B	CONSUMER ELECTRONICS	8	CE451B	POLLUTION & CONTROL
4	EE451B	ENERGY AUDIT	9	CSE-411B	MANAGEMENT INFORMATION SYSTEM
5	EEE457B	ENERGY RESOURCES & TECHNOLOGY	10	IT-413B	CYBER SECURITY

Note:

- Every student has to participate in the sports activities. Minimum one hour is fixed for sports activities either in the morning or evening. Weight-age of Moral Values & Ethics and Sports are given in General Proficiency Syllabus.
- Students will be permitted to opt for any one elective run by the other department (i.e. open electives) and for any two electives, one from Elective-I and one from Elective-II run by the department. However, the department shall offer those elective for which they have expertise. The choice of the students for any elective shall not be binding for the department to offer, if the department does not have expertise. The minimum strength of the students should be 20 to run an elective course.
- Assessment of Professional Training-II, undergone at the end of VI semester, will be based on seminar, viva-voce, report and certificate of Professional Training obtained by the student from the industry, institute, research lab, training center etc
- The students will be allowed to use non-programmable scientific calculator. However, sharing/exchange of calculator is prohibited in the examination.



SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: Industrial process control and instrumentation (Theory)

Subject Code: ECE401B

Detailed Content

Unit No.1 Introduction:

- Topic No.1: Instruments for measurements of voltage, Current and other circuit parameters
- Topic No.2: Digital meters
- Topic No.3: Introduction of basic Terms: Pressure measurements, Pressure Formulas
- Topic No.4: Measuring Instruments and their application considerations

Unit No.2 Level Measurements:

- Topic No.5: Introduction of level Formulas, Level sensing devices & their application considerations
- Topic No.6: Introduction of basic Terms & Flow Formulas
- Topic No.7: Flow measurement Instruments and their application considerations

Unit No.3 Temperature and Heat Measurements:

- Topic No.8: Introduction of basic Terms: Temperature and Heat Formulas
- Topic No.9: Temperature measuring devices & their application considerations
- Topic No.10: Viscosity and pH measurements: Basic Terms
- Topic No.11: Measuring devices and their application considerations

Unit No.4 Actuators and control:

- Topic No.12: Pressure controllers
- Topic No.13: Flow control actuators
- Topic No.14: Power controls
- Topic No.15: Introduction of automatic controllers
- Topic No.16: Classification of controllers
- Topic No.17: Introduction to computer aided measurement and control system
- Topic No.18: Introduction to programmable logic controllers

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

Text Books :

1. Principles of Industrial Instrumentation by D. Patranabis TMH
2. Industrial Instrumentation and Control by S.K.Singh TMH

Reference Books:

- 1.Elements of Electronic Instrumentation and Measurement by Joseph c. Carr Pearson

NOTE:

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, at least one from each unit. All questions carry equal marks.



SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: Digital signal processing (Theory)

Subject Code: ECE403B

Detailed Content

Unit No.1 Discrete Fourier Transform (DFT):

- Topic No.1: Frequency Domain Sampling and Reconstruction of Discrete –Time signals
- Topic No.2: Discrete Fourier Transform & DFT as a Linear Transformation
- Topic No.3: Relationship of the DFT to other transforms
- Topic No.4: Properties of DFT, Use of DFT in Linear filtering methods: linear filtering
- Topic No.5: Filtering of long data sequences
- Topic No.6: Efficient computation of the DFT: Fast Fourier Transform Algorithms, Radix-2 FFT Algorithms
- Topic No.7: Applications of FFT Algorithms: Efficient Computation of the DFT of Two Real Sequences
- Topic No.8: Efficient Computation of the DFT of a $2N$ –Point Real Sequence
- Topic No.9: Quantization effects in the Computation of the DFT

Unit No.2 Structures for FIR Systems:

- Topic No.10: Direct –Form Structures, Cascade –Form Structures
- Topic No.11: Frequency Sampling Structures
- Topic No.12: Lattice Structure & Direct –Form Structures
- Topic No.13: Signal Flow graphs & Transposed Structures
- Topic No.14: Cascade –Form Structures, Parallel –Form Structures, Lattice & Lattice-Ladder Structures for IIR Systems
- Topic No.15: Comparison of Different structures

UNIT No.3 Frequency Domain Characterization of LTI Systems:

- Topic No.16: Response to Complex Exponential & Sinusoidal Signals
- Topic No.17: Steady –state and transient response with Input as a sinusoidal signal
- Topic No.18: Steady state response to periodic input signals
- Topic No.19: Response to A periodic Input Signals
- Topic No.20: magnitude and phase response from pole & zeros
- Topic No.21: Measuring the impulse response of an unknown system by correlation
- Topic No.22: Ideal Filters: low pass, high pass, Band pass, Digital Resonators, Notch, Comb, All-pass filters
- Topic No.23: Digital Sinusoidal Oscillators pole –zero pattern for low pass and high pass filters
- Topic No.24: low pass to high pass filter transformation
- Topic No.25: Invertibility of systems & De convolution: LTI systems invertibility
- Topic No.26: maximum, minimum phase, and mixed phase systems
- Topic No.27: System identification through Cross correlation Spectrum

Unit No.4 Considerations for Practical Realization, Comparison of FIR & IIR, FIR Filter Design:

- Topic No.28: Testing the Frequency response for practical realization: Paley –Wiener Theorem
- Topic No.29: Characteristics of Practical Frequency –selective filters
- Topic No.30: FIR and IIR filters properties
- Topic No.31: Design of FIR filters: importance of Linear Phase response
- Topic No.32: Zero locations for a linear phase FIR filter
- Topic No.33: Design of linear phase FIR filters using Windows
- Topic No.34: Desirable Window function properties for FIR filter design
- Topic No.35: Frequency sampling method for Linear Phase FIR Filter Design
- Topic No.36: Design steps for IIR Filter design
- Topic No.37: Design of IIR low pass analog filters: Butterworth, Chebyshev, Elliptic
- Topic No.38: Conversion of analog system to digital system by: Approximation of Derivatives, Impulse Invariance and Bilinear transformation
- Topic No.39: Analog Domain Frequency Transformations & Digital Domain Frequency Transformations



PM

COLLEGE OF ENGINEERING

A Unit of Puran Murti Educational Society
Approved by AICTE, Ministry of HRD, Govt. of India,
Affiliated to Deenbandhu Chhotu Ram University of Science & Technology

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	

Text Books:

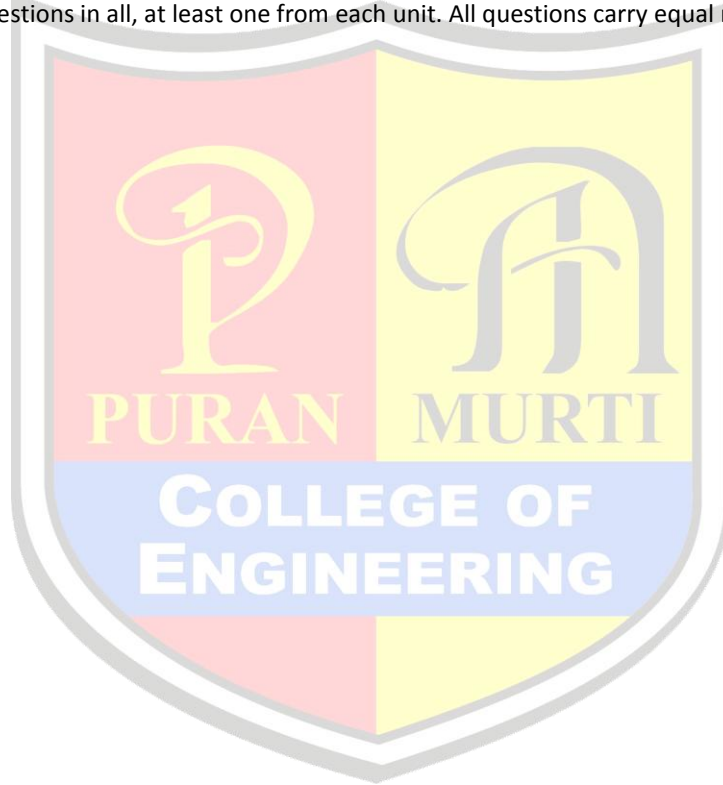
1. J. G. Proakis, D. G. Manolakis, "Digital Signal Processing, Principles, Algorithms, & Applications", Prentice –Hall India.

Reference Books:

1. L. R. Rabiner & B. Gold, "Theory and Application of Digital Signal Processing", Prentice –Hall India.
2. A. V. Oppenheim, R. W. Schaffer, J. R. Buck, "Discrete –Time Signal Processing", Prentice –Hall India.
3. A. V. Oppenheim, R. W. Schaffer, "Digital Signal Processing", Prentice –Hall India.

NOTE:

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, at least one from each unit. All questions carry equal marks.



SYLLABUS: B Tech (ECE)



Detailed Content

Unit No.1 fundamentals of satellite communication:

- Topic No.1: Basic principles of Satellite Communication
- Topic No.2: Evolution of Satellite Communications
- Topic No.3: Basic Concepts of Satellite Communications
- Topic No.4: Type of satellites
- Topic No.5: Frequency allocations for Satellite Services
- Topic No.6: Comparison of Satellite communication over other modes of communication
- Topic No.7: Satellite applications & Future Trends of Satellite Communications
- Topic No.8: Kepler's Laws
- Topic No.9: Equation of orbit & types of orbits
- Topic No.10: Locating the satellite in the orbit
- Topic No.11: Locating the satellite with respect to the earth
- Topic No.12: Orbital parameters & Orbital perturbations
- Topic No.13: Orbit determination: look Angle determination, Earth coverage and slant range
- Topic No.14: Mechanism of launching a satellite station keeping, Satellite stabilization
- Topic No.15: Orbital effects in communication systems performance

Unit No.2 Spacecraft and its subsystems:

- Topic No.16: Attitude and orbit control system (AOCS)
- Topic No.17: Telemetry, tracking, Command and monitoring
- Topic No.18: Power supply system, communication subsystems transponder
- Topic No.19: Satellite antenna subsystem
- Topic No.20: General Link design equation
- Topic No.21: System noise temperature
- Topic No.22: C/N and G/T ratio
- Topic No.23: Design of down links, up link design,
- Topic No.24: Effects of rain on satellite communication
- Topic No.25: Complete link design, Interference effect on complete link design.

Unit No.3 Earth station technology:

- Topic No.26: Classification of earth station
- Topic No.27: Earth station parameters
- Topic No.28: Earth station design requirements: Earth station antenna design
- Topic No.29: Earth station subsystem-transmitter, Receiver, low noise amplifier, High power amplifier
- Topic No.30: Antenna system & Tracking systems
- Topic No.31: Terrestrial interface
- Topic No.32: Elements of Digital Satellite Communication systems
- Topic No.33: Baseband Signals
- Topic No.34: Frequency Division Multiplexing technique, Time Division Multiplexing
- Topic No.35: Digital Modulation Techniques-ASK, BPSK, QPSK, BFSK, MSK and QAM.

Unit No.4 Multiple accesses:

- Topic No.36: Introduction of Frequency division multiple access (FDMA), Time division Multiple Access (TDMA)-frame structure
- Topic No.37: Burst structure, frame efficiency, Burst time plan
- Topic No.38: Satellite Switched TDMA & SPADE system
- Topic No.39: Code Division Multiple access (CDMA), Spread spectrum
- Topic No.40: Transmission and reception
- Topic No.41: Satellite for earth observation, Satellite for weather forecast, Satellite for scientific studies



Topic No.42: Satellite for military applications & Satellite television

Topic No.43: Telephone services via satellite and Data communication services

Topic No.44: Very small aperture terminal (VSAT), RADARSET, Mobile satellite, Communication system (MSAT)

Topic No.45: GPS systems: Satellite signal acquisition, GPS Navigation Message, GPS signal levels

Topic No.46: GPS receiver operation, Differential GPS

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	

Text Books:

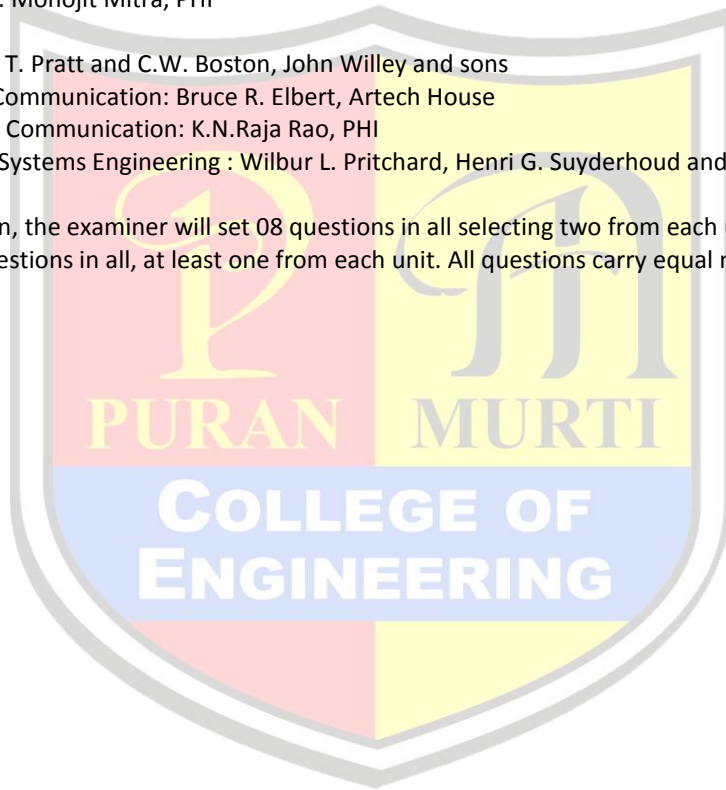
1. Satellite Communications : Dennis Roddy, TMH
2. Satellite Communication : Monojit Mitra, PHI

Reference Books:

1. Satellite Communication: T. Pratt and C.W. Boston, John Willey and sons
2. Introduction to Satellite Communication: Bruce R. Elbert, Artech House
3. Fundamentals of satellite Communication: K.N.Raja Rao, PHI
4. Satellite Communication Systems Engineering : Wilbur L. Pritchard, Henri G. Suyderhoud and Robert A. Nelson, Pearson

NOTE:

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, at least one from each unit. All questions carry equal marks.





SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: VLSI design (Theory)

Subject Code: ECE407B

Detailed Content

Unit No.1 Introduction:

- Topic No.1: Evolution of VLSI
- Topic No.2: Moore's Law
- Topic No.3: MOS transistor theory – MOS structure, Enhancement & depletion transistor
- Topic No.4: Threshold voltage
- Topic No.5: MOS device: Design equations & their Body Effect
- Topic No.6: Channel length modulation
- Topic No.7: Mos Transistor Trans conductance and output conductance.
- Topic No.8: Crystal Growth, Wafer preparation, Epitaxy, Oxidation, Lithography, Etching, Diffusion, Deposition, ion-implantation & Metallization
- Topic No.9: Fabrication process: nMOS, CMOS (n-well, p-well, twin-tub, silicon on insulator, 3-D CMOS,
- Topic No.10: MOS capacitance dynamic behavior
- Topic No.11: Sub-micron MOS transistors- related effects.

Unit No.2 Mos inverter:

- Topic No.12: Introduction of NMOS inverter: resistive load, Enhancement load, Depletion load
- Topic No.13: Determination of pull-up to pull-down ratio for an n MOS inverter
- Topic No.14: Driven by another n MOS inverter.
- Topic No.15: CMOS inverter: DC characteristics, Circuit model, Latch up
- Topic No.16: Gate Logic: inverter, and gate, Nor gate
- Topic No.17: Ratioed logic, Pseudo NMOS logic, DCVSL Logic
- Topic No.18: Switch Logic: pass transistor and transmission gate
- Topic No.19: Dynamic logic, Charge sharing logic, Domino logic
- Topic No.20: Combination logic: Parity generator, Multiplexer
- Topic No.21: Sequential logic: two phase clocking,
- Topic No.22: Setup and hold time violations
- Topic No.23: Causes, Effects and remedies

Unit No.3 MOS circuit Design:

- Topic No.24: MOS layer, stick diagram: nMOS Design style
- Topic No.25: CMOS design style, Design rules and layout: lambda based design rule
- Topic No.26: Layer representation & Contact cuts
- Topic No.27: Double metal MOS process rules
- Topic No.28: scaling models and scaling factors for device parameters
- Topic No.29: Limitations of scaling: substrate doping, Limits of miniaturization, limit of interconnects and contact resistance

Unit No.4 Circuit characterization and performance estimation:

- Topic No.30: Sheet resistance,
- Topic No.31: Resistance estimation & Capacitance estimation, Inductance
- Topic No.32: Switching characteristic
- Topic No.33: Propagation delays
- Topic No.34: CMOS gate
- Topic No.35: Transistor sizing
- Topic No.36: Power dissipation: static and dynamics
- Topic No.37: Design of an ALU subsystem: 4-bit shifter, Barrel shifters, Logarithmic shifters. Adders – ripple carry
- Topic No.38: Manchester carry, Carry bypass
- Topic No.39: Carry select linear, Carry select square root, Carry looks ahead
- Topic No.40 : Tree and domino adder



- Topic No.41: Multiplier – binary, array, carry save, Wallace tree,
Topic No.42: Programmable logic array
Topic No.43: Random access memory
Topic No.44: Binary counters

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

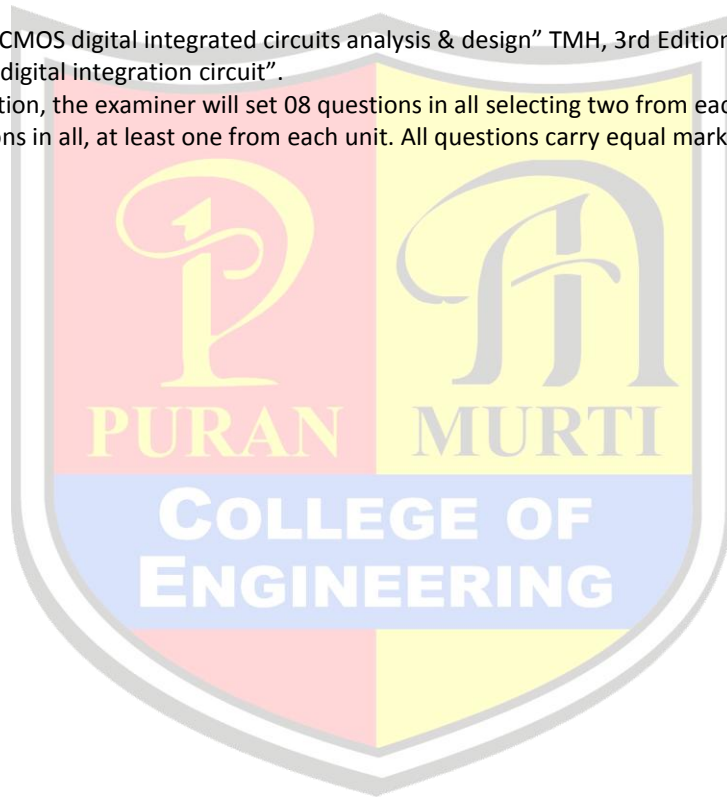
Text Books :

1. D.A.Pucknell and K. Eshraghian, "Basic VLSI Design"
2. Weste and Eshraghian, "Principle of CMOS VLSI Design" Pearson Education, 2001

Reference Books:

1. S. M. Kang, Y. Leblebici, "CMOS digital integrated circuits analysis & design" TMH, 3rd Edition.
2. Rabaey, "Introduction of digital integration circuit".

NOTE: In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, at least one from each unit. All questions carry equal marks.





SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: Consumer Electronics (Theory)

Subject Code: ECE305B

Detailed Content

Unit No.1 Monochrome TV (introduction)

- Topic No.1: Elements of a TV System
- Topic No.2: Picture transmission, Sound transmission, Picture reception, Sound reception
- Topic No.3: Synchronization & Receiver control
- Topic No.4: Image continuity: Scanning Process
- Topic No.5: Aspect Ratio & Flicker
- Topic No.6: Composite Video Signal
- Topic No.7: Picture Elements, Kell factor
- Topic No.8: Vertical Resolution, Horizontal Resolution
- Topic No.9: Video bandwidth
- Topic No.10: Interlacing
- Topic No.11: 625 Line System
- Topic No.12: Bandwidths for TV Transmission
- Topic No.13: Vertical and horizontal synch detail
- Topic No.14: Vestigial Side Band transmission (Advantages and Disadvantages)
- Topic No.15: Monochrome picture tube: beam reflection, beam focusing, Screen Phosphor, Face plate
- Topic No.16: Picture tube characteristics, picture tube circuit controls
- Topic No.17: Monochrome Camera Tubes: Basic principle, Image Orthicon, Vidicon, Plumbicon

Unit No.2 Colour TV Essentials

- Topic No.18: Compatibility
- Topic No.19: Colour perception
- Topic No.20: Three Colour theory
- Topic No.21: Luminance, Hue and Saturation
- Topic No.22: Dispersion and Recombination of light
- Topic No.23: Primary and secondary colours, luminance signal, Chrominance Signal
- Topic No.24: Colour picture tube
- Topic No.25: colour TV Camera, Colour TV display Tubes
- Topic No.26: Colour Signal Transmission: Bandwidth for colour signal transmission
- Topic No.27: Colour TV controls
- Topic No.28: Cable TV: Block Diagram and principle of working of cable TV
- Topic No.29: Introduction to liquid crystals: Types of LCD's, TN, STN, TFT & their Power requirements, LCD working
- Topic No.30: Principle of operation of TN display, Construction of TN display, Behavior of TN liquid crystals, viewing angle
Colour balance
- Topic No.31: Colour TN display and their Limitations, Advantages, Disadvantages & applications

Unit No.3 LED and DMD

- Topic No.32: Introduction to LED Television
- Topic No.33: comparison with LCD and Plasma TV's
- Topic No.34: Schematic of DMD
- Topic No.35: Introduction to Digital Micro Mirror device Diagram of DMD and Principle of working, Emerging applications of DMD.
- Topic No.36: Microwaves study: Transit Time, Magnetron, and Waveguides
- Topic No.37: Microwave Oven, Microwave Cooking
- Topic No.38: Air conditioning: Components of air conditioning systems
- Topic No.39: Types: All water Air conditioning systems, All air air conditioning Systems, Split air conditioner



Unit No.4 Microphone:

- Topic No.40: Introduction and characteristics of microphones
- Topic No.41: Types of microphone: carbon, moving coil, wireless, crystal
- Topic No.42: Introduction to tape recorder
- Topic No.43: Introduction to ideal and basic loudspeaker
- Topic No.44: Loudspeaker construction types of loudspeaker: Dynamic and permanent magnet
- Topic No.45: Woofers, Tweeters
- Topic No.46: Brief introduction to baffles & Equalizers

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
3	1	-	4	25	75	3 hours	100

Text Books :

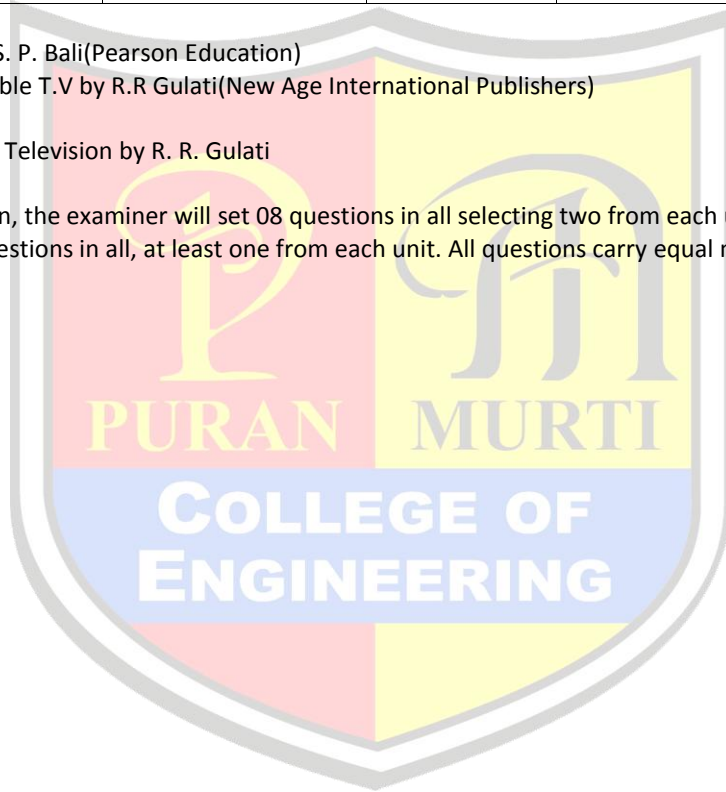
- 1.Consumer Electronics by S. P. Bali(Pearson Education)
- 2.Complete Satellite and Cable T.V by R.R Gulati(New Age International Publishers)

Reference Books:

1. Monochrome and Colour Television by R. R. Gulati

NOTE:

In the Semester examination, the examiner will set 08 questions in all selecting two from each unit. The candidates will be required to attempt five questions in all, at least one from each unit. All questions carry equal marks.





SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: Programmable logic controllers lab

Subject Code: ECE421B

Detailed Content

List of experiments:

- 1 : To study of PLC based Process control systems in a semi-automatic Bottling plant.
- 2 : To study of PLC based Process control systems in a fully-automatic Bottling plant.
- 3 : To Study of PLC based car parking.
- 4 : To study of PLC based tank level control (high level, medium level, low level, empty level)
- 5 : To study of PLC based step sequence (use of time at different time interval)
- 6 : How to create delay in PLC system (off delays, pulse, extended pulse)
- 7 : To study of PLC based light intensity variation. (intensity variation with help of digital processing)
- 8 : To study of PLC based motor control (stepper motor clockwise, anticlockwise dectional control)
- 9 : To study of PLC based digital electronic design (combinational, sequentional and control logic ckt.)
- 10 : To study of PLC based traffic light interface.

Note:-

1. Total ten experiments are to be performed in the semester
2. At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
-	-	2	1	20	30	3 hours	50



SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: Satellite communication lab

Subject Code: ECE425B

Detailed Content

List of experiments:

- 1 : To set up a active and passive satellite communication link and study their difference.
- 2 : To measure the base-band analog (voice) signal parameters in the satellite link.
- 3 : To measure C/N ratio.
- 4 : To transmit and receive the function generator waveforms through a Sat.Com. link.
- 5 : To measure the digital baseband signal parameters in Sat.Com. link.
- 6 : To send tele command and receive the telemetry data.
- 7 : To set a PC to PC Sat. Com. Link using RS-232 ports.
- 8 : To measure the propagation delay of signal in a Sat. Com. Link.
- 9 : To measure fading of a received signal.
- 10 : To measure the parameters in an analog FM/FDM TV Sat.Com. link.
- 11 : To measure the S/N ratio.
- 12 : To calculate the figure of merit and FM deviation.

Note:-

- 1 Total ten experiments are to be performed in the semester
- 2 At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week		Credits	Internal Assessment	External Assessment (Examination)			
L	T		P	Max. Marks	Max. Marks	Exam Duration	
-	-	2	1	20	30	3 hours	50



SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: Digital signal processing lab using Matlab

Subject Code: ECE423B

Detailed Content

List of experiments:

- 1 : Introduction to MatLab.
- 2 : Matrix operations: - Addition, Subtraction, Multiplication, Transpose, Inverse.
- 3 : Solution of a Linear Equation.
- 4 : To find Eigen value of matrix.
- 5 : To find statistical properties: - Mean, Median, Standard Deviation and energy of a set of signals.
 - Plotting.
 - Single signal in a single graph.
 - Multiple signals in single graph.
 - Multiple signals in multiple graphs but in single window.
6. : To sort a matrix.
 - Row wise – in reference to a particular row.
 - Column wise – in reference to a particular column.
- 7 : To practice different kind of loop and conditional statement and to make a program using the same.
- 8 : To save workspace variables in a file.
- 9 : To make a simulink model of feedback system using second order transfer function and utility feedback.
- 10 : To find the convolution of two number.
- 11 : To represent basic signals (Unit step, unit impulse, ramp, exponential, sine and cosine).
- 12 : To develop program for discrete convolution & discrete correlation.
- 13 : To understand stability test.
- 14 : To develop program for computing FFT & IDFT.
- 15 : To design analog filter (low-pass, high pass, band-pass, band-stop).
- 16 : To design digital IIR filters (low-pass, high pass, band-pass, band-stop).
- 17 : To design FIR filters using windows technique.
- 18 : To design a program to compare direct realization values of IIR digital filter
- 19 : To develop a program for computing parallel realization values of IIR digital filter.
- 20 : To develop a program for computing cascade realization values of IIR digital filter
- 21 : To develop a program for computing inverse Z-transform of a rational transfer function.
- 22 : To design equiripple FIR filter for given specifications and plot its magnitude & Phase Response.
- 23 : To plot pole zero diagram for given FIR and IIR system.

Note:-

- 1 Total fifteen experiments are to be performed in the semester
- 2 At least Ten experiments should be performed from the above list. Remaining Five experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.
- 3 All above experiments should be performed using MATLAB.

Study Scheme				Evaluation Scheme			Total Marks
L	T	P	Credits	Internal Assessment	External Assessment (Examination)		
				Max. Marks	Max. Marks	Exam Duration	
-	-	2	1	20	30	3 hours	50



SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: VLSI design lab

Subject Code: ECE427B

Detailed Content

List of experiments:

- 1 : Design the schematic for CMOS inverter .
- 2 : Design the schematic for CMOS Nand gate
- 3 : Design the schematic for CMOS Nor gate .
- 4 : Design the schematic for a d- latch with clk time period =6ns using nand gates
- 5 : Design the schematic for a half adder using nand gates .
- 6 : Design a full adder using half adder designed above.
- 7 : Design the layout for PMOS in layout editor.
- 8 : Design the layout for NMOS in layout editor.
- 9 : Design the layout for CMOS inverter with equal rise and fall time in layout editor.
- 10 : Design the layout for 2-Input and 3-Input NAND gate.
- 11 : Design the layout for 2-Input and 3-Input NOR gate.
- 12 : Design the layout for clocked S-R flip-flop.

Note:-

- 1 Total ten experiments are to be performed in the semester
- 2 At least seven experiments should be performed from the above list. Remaining three experiments should be performed as designed and set by the concerned institution as per the scope of the syllabus.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
-	-	2	1	20	30	3 hours	50



SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: Professional training – ii

Subject Code: ECE435B

Detailed Content

Research Laboratory etc. with the prior approval of the Training and Placement Officer of the University and submit in the department a typed report along with a certificate from the organization.

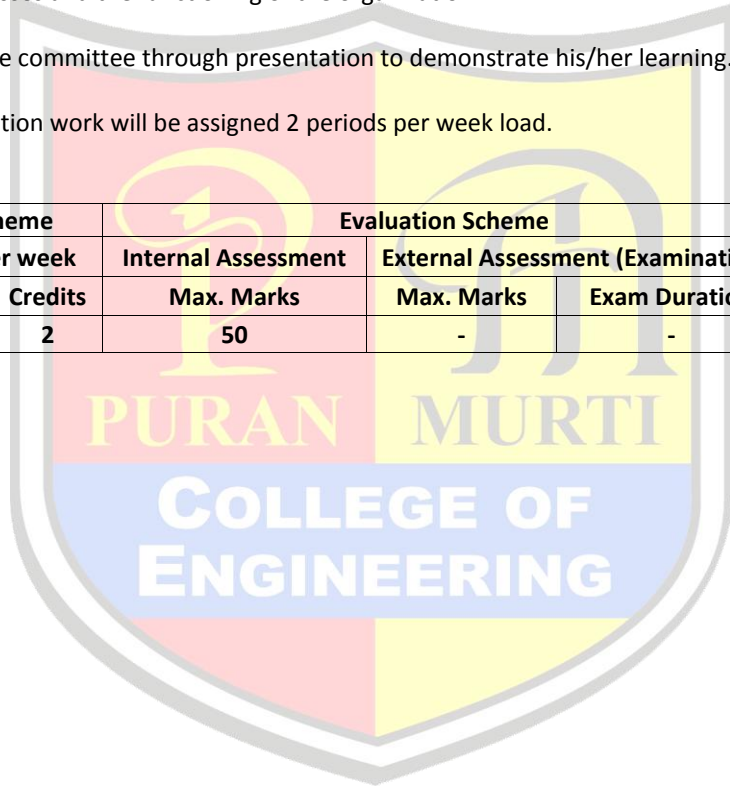
The typed report should be in a prescribed format.

The report will be evaluated in the VII Semester by a Committee consisting of three teachers from different specialization to be constituted by the Chairperson of the department. The basis of evaluation will primarily be the knowledge and exposure of the student towards different processes and the functioning of the organization.

The student will interact with the committee through presentation to demonstrate his/her learning.

Teachers associated with evaluation work will be assigned 2 periods per week load.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week				Internal Assessment	External Assessment (Examination)		
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
-	-	2	2	50	-	-	50





SYLLABUS: B Tech (ECE)

Department: ELECTRONICS AND COMMUNICATION – 7th Semester

Subject: Project

Subject Code: ECE431B

Detailed Content

The project started in VII Semester will be completed in VIII Semester and will be evaluated through a panel of examiners consisting of the following:

Head/ Chairperson of Department : Chairperson
Project coordinator : Member
External examiner : To be appointed by the University

The student will be required to submit two copies of his/her project report to the department for record (one copy each for the department and participating teacher).

Project coordinator will be assigned the project load of, maximum of 2 hrs. per week including his own guiding load of one hr. However, the Guiding teacher will be assigned maximum of one period of teaching load irrespective of number of students/groups under him/her.

The format of the cover page and the organization of the body of the report for all the B.Tech. will be finalized and circulated by the Dean, Faculty of Engineering and Technology.

Study Scheme				Evaluation Scheme			Total Marks
Lectures per week		Internal Assessment		External Assessment (Examination)			
L	T	P	Credits	Max. Marks	Max. Marks	Exam Duration	
-	-	4	4	100	-	-	100