

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL-206**

SUBJECT NAME : **WAVE PROPAGATION AND COMMUNICATION**

FACULTY NAME : **B. L. RATHORE**

DESIGNATION : **LECTURER**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME
Introduction :--Basic component of communication; Definition of modulation	2	August	20/8;22/8	
Need of modulation in communication; Definition of AM, FM, PM, PAM, PPM, PWM and PCM	2	August-September	27/8;29/8; 3/9;5/9	Practical training seminar on 27/8 and G.H. On 29/8
EM Wave Propagation :- Ground Wave propagation and effect of curvature of the earth.	2	September	10/9/2015;	
Space Wave Propagation:---Line of sight distance. Effect of Atmosphere and Obstacles. (no derivation)	2	September		
Sky Wave Propagation:--Ionospheric and its characteristics;Critical frequency	2	September		
Effect of the Earth's magnetic field on ionospheric propagation	1	October		
MUF and Skip distance. Ionospheric absorption and disturbances.	1	October		
Atmospheric noise. Scatter propagation. . Fading of Radio Waves. (no derivation)	2	October		
Antennas :-Principle of Radiation. Resonant and non resonant antennas.	2	October		
Radiation Pattern of $\lambda/2$, λ and $3\lambda/2$ dipoles. Effect of ground on $\lambda/2$ dipole.	2	October		
Radiation pattern of grounded $\lambda/4$, $\lambda/2$, and λ dipole.	2	November		
Radiation resistance;total resistance, efficiency, beam width, gain, aperture area of an antenna. (no derivation)	2	November		
Antenna Array - Principle of Pattern Multiplication	1	December		
Broad Side array; End Fire array;Folded dipole and Rhombic antenna	1	December		
Yagi antenna and parasitic elements log Periodic and Loop antenna.	2	December		
Parabolic antennas and Horn antenna. Noise and Cross Talk :---	2	January		
Classification of noise--Atmospheric noise;Shot noise; Thermal noise	1	January		
Transit time noise; Miscellaneous noise; Noise figure;Concept of cross talk;Cross-talk elimination techniques	2	January		
Amplitude Modulation :-Derivation of AM wave equation; Modulation index for sinusoidal AM	1	January		
Frequency spectrum for sinusoidal AM; Total power in AM wave.Effective voltage and current for sinusoidal AM	2	January		

BJT collector amplitude modulator;General idea of carrier and sideband suppression;	2	February		
Balance modulator circuits:-- Using diode; Using FET;SSB generation by filter and phase shift methods; Block diagram of AM transmitter	2	February		
Frequency Modulation :--Derivation of FM wave equation; Modulation index and frequency deviation for FM	1	February		
Frequency spectrum for sinusoidal FM; FET reactance and varactor diode FM modulator circuits	2	February		
Block diagram of FM transmitter using direct and indirect method (Armstrong method)Comparison of AM and FM system	1	February		
Radio Receivers :--Various types of receivers; Receiver characteristics and their measurements;Electronic tuning system;	2	March		
AM demodulator - envelope detection, product demodulator (SSB detection circuit)	2	March		
FM demodulator - balance slope, Foster Seely and ratio detector circuit	2	March		
Block diagram of Super heterodyne AM receiver	1	March		
Block diagram of FM receiver	1	March		
TOTAL	50			

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E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
none
none

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL-209**

SUBJECT NAME : **ELECTRONIC INSTRUMENTS**

FACULTY NAME : **B. L. RATHORE**

DESIGNATION : **LECTURER**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME
Multimeter:- Principle of measurement of D.C. Voltage and current	2	August	17/8;19/8	
A.C. Voltage and current;Resistance	2	August	24/8;26/8	
Calculation of shunt and multiplier for range extension	2	August-September	31/8;2/9	
AC and D.C. Sensitivity ;Loading effect	1	September	07/09/15	
Specifications and limitations of multimeter. Electronic Voltmeter :-	1	September	09/09/15	
Characteristics of different analog electronic voltmeter	2	September		
Circuits for D.C. voltmeter using BJTs and FETs (single device and balanced bridge type)	2	September		
Theory and operation of circuits for average, peak, peak to peak and RMS responding A.C. electronic voltmeters	2	September-October		
Comparison of amplifier rectifier type and rectifier amplifier type electronic voltmeter	2	October		
Cathode Ray Oscilloscope (C.R.O) : Construction of CRT and deflection sensitivity	2	October		
Block diagram of CRO;Various controls of CRO;Detail of X-Y section and delay line	3	October-November		
Horizontal sweep section;Synchronization of sweep and triggered sweep	2	November		
Measurement of voltage, current, frequency and phase angle using CRO	3	November		
CRO probes;Construction and working of dual trace and dual beam CROs	3	December		
Frequency & phase measurement by lissaju figure.	2	January		
Working Principle and Application of : Q-meter;AF/RF signal generators	2	January		
Harmonic distortion analyzers. Transistor Tester	2	January		
Curve Tracer; LCR bridge	2	February		
Output power meter (AF); Spectrum analyzer	2	February		
Cable fault locator ; Magger Digital Displays :---	2	February		
Construction and Working Principle of different type of displays. Such as Diode Matrix,	2	February		

7-segment using LED and LCD, Dot matrix using LED	2	February-March		
Comparison of different type of displays	1	March		
Guarding Techniques:---Safety guard and signal ground.	1	March		
Ground loops and ground currents.	1	March		
Common mode and series mode voltage.	1	March		
Avoiding parasitic voltage.	1	March		
TOTAL	50			

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E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
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GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL-302**

SUBJECT NAME : **ADVANCE MICROPROCESSORE ANI**

FACULTY NAME : **B. L. RATHORE**

DESIGNATION : **LECTURER**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME
Internal architecture – Bus interface unit, execution unit, internal registers and flags	4	August	17/8;18/8; 24/8;25/8	
Instruction execution sequence; Addressing modes	2	August-September	31/8;01/9	
Modes of operation;Comparison with 8088	2	September	7/9;8/9	
Data transfer instructions;Arithmetic instructions	2	September		
Logic, shift and rotate instructions; Processor control instructions	2	September		
String operation instructions;Writing simple assembly language programs	3	September-October		
System bus timing	1	October		
Classification of IO schemes;Programmed data transfer	1	October		
Programmed data transfer - IO mapped and memory mapped IO	1	October		
Asynchronous data transfer and synchronous data transfer	1	October		
Interrupt driven data transfer:-Interrupt process;Multiple interrupts and priorities	2	October		
Enabling, disabling and masking of interrupts	2	November		
DMA data transfer scheme ;Serial data transfer scheme	2	November		
Programmable peripheral interfaces - 8255 and its applications.	2	November		
DMA controller - 8257	2	December		
Programmable interrupt controller - 8259	2	December-January		
Programmable communication interface - 8251	2	January		
Programmable TIMER - 8253	2	January		
Programmable keyboard and display interface 8279	2	January		
Brief idea of CRT controller, dot-matrix printer controller and floppy disk controller	2	February		
RS 232 C ; IEEE 488	2	February		
Introduction to 8051 Microcontroller :-General Features.	2	February		
Internal Architecture;Signals and pin description	4	February-March		

Comparison of microprocessors and microcontrollers	1	March		
Brief idea of embedded controller	1	March		
TOTAL	49			

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E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
none
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GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL-307**

SUBJECT NAME : **LINEAR INTEGRATED CIRCUITS 8**

FACULTY NAME : **B. L. RATHORE**

DESIGNATION : **LECTURER**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME
IC Fabrication :-Basic monolithic integrated circuit;	2	August	19/8;19/8	
General IC processing steps:-Epitaxial growth;Masking and etching	2	August	26/8;26/8	
diffusion of impurity;Metallization; Transistor for monolithic circuit	2	September	2/9;2/9	
Monolithic diode;Integrated resistor;Integrated capacitor	2	September	9/9;9/9	
Concept of SSI, MSI, LSI and VLSI; Operational Amplifier :--	1	September		
OP AMP, symbol, equivalent circuit and characteristics.	1	September		
Differential amplifier and its configurations;Working of emitter coupled differential amplifier.	2	September		
Characteristics of ideal and practical OP-AMP ;Block diagram of OP AMP	2	October		
Inverting and non-inverting OP AMP;OP AMP parameters and their measurements Off set null techniques	2	October		
Adder, subtractor, differential amplifier and instrumentation amplifier;Differentiator and integrator;	2	October		
Peak detector, precision rectifier;Log and anti log amplifier;Wein bridge and RC phase-shift oscillator	3	November		
Pulse, square, triangular and sawtooth wave generator	2	November-December		
Comparator and Schmitt trigger	2	December		
Active filters (single order) – LPF and HPF	1	December		
Sample and hold circuit; Frequency selective amplifiers	2	January		
Timer Chip 555 :-Functional block diagram and working	2	January		
555 Applications as :-Saw tooth generator	1	January		
BMV, AMV and MMV; PWM and PPM	2	January		
Voltage Regulation :-Need of voltage stabilisation	1	February		
Transistor series voltage regulator – open loop and close loop	2	February		
Short circuit and overload protection circuit	1	February		

Functional diagram of IC voltage regulator chip (fixed and variable) 723 and 78XX, 79XX; Voltage regulator using OP-AMP	2	February		
Phase Locked Loop :Block diagram, working and uses of PLL	2	February		
Application for frequency multiplication translation and division	1	March		
FM demodulation	1	March		
Design of Digital Circuits :-2 bit simultaneous analog to digital converter	1	March		
Multi range DVM using suitable IC; Design of Digital Clock	1	March		
Design of 2-digit low frequency counter	1	March		
Design of traffic light controller using Ics	1	March		
TOTAL	49			

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E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
none
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none
none

GOVERNMENT POLYTECHNIC COLLEGE, KOTA (RAJ.)

SYLLABUS BREAK-UP (SESSION 2015-16)

SUBJECT CODE : **EL-310**

SUBJECT NAME : **MANAGEMENT & ENTREPRENEURSHIP**

FACULTY NAME : **B. L. RATHORE**

DESIGNATION : **LECTURER**

TOPIC	LECTURE / PRACTICAL CLASSES REQUIRED TO COVER TOPIC	MONTHS IN WHICH THE TOPIC WILL BE COVERED	ACTUAL DATE OF COVERING OF THE TOPIC	REASON FOR NOT COVERING THE TOPIC IN DUE TIME
Principles of Management :--Management, administration and organisation, difference between them.	1	August	22/08/15	
Scientific management : Meaning, characteristics, object and advantage : Taylor's scientific management – Fayol's principles of management, functions of management	2	August-September	22/08; 05/09	Rakshabandhan on 29/08
Types of ownership, sole trading, partnership, joint stock, co-operative and public enterprise	1	September	05/09/15	
Types of organisation, different types and their charts.Importance of human relation professional ethics	1	September		
Need for leadership, leadership qualities Motivation.	1	September		
Human Resources Development :--- Introduction, object and functions of human resource development department	1	September		
Recruitment, sources and methods of selection, need for effective training, method of training, duties of supervisor / Foremen, Role of HRD in industries	1	September		
Wages and Incentives :---Definition and requirements of a good wage system methods of wage payment	1	September		
Wage incentives - type of incentive, difference in wage incentive and bonus. incentive to supervisor.	1	September		
Material Management:--Purchasing Functions and duties of purchase department organisation of purchase department,methods of purchasing,	1	October		
purchase order contracts, legality of contracts types of contracts i.e. piece work contract, lumpsum contract, item rate contract, percentage contract, merits and limitation of each contract system,	2	October		
departmental execution of works, rate contract - D.G.S & D and C.S.P.O. tender, necessity, types of tenders, tendering procedure, earnest money and security money	2	October		
Store and store keeping : Functions and duties of store department, location and layout of store, bin cards, store ledger, receipt and	1	October		

issue procedure of materials, physical verification of stores, disposal method of unserviceable articles and protection of stores.	1	October		
Sales : function and duties of sales department sales promotion advertisement service after sales.	1	October		
Financial Management :---Function and duties of finance department.	1	November		
Brief idea of journal, ledger, trial balance, trading account, profit and loss account, balance sheet.	1	November		
Cheques (crossed and bearer), draft, promissory note, letter of credit, brief idea of cost accounting. Numerical problems.	1	November		
Marketing Management :---Concept of Marketing Problems of Marketing	1	November		
Pricing policy Distribution channels and methods of marketing	1	December		
Entrepreneurship :---Entrepreneurship and Entrepreneur; Need of Employment and Opportunities	1	December		
Essential Characteristics of a good Entrepreneur; Industrial Policy.	1	December		
Classification of industries- Tiny, small scale , Medium scale, Large scale, Handicraft, Ancillary	1	December		
Type of industries- Production, Job based & Service	1	January		
Entrepreneurial Development :---Product identification/ selection, Site selection	1	January		
Plant layout; Institutional support needed Pre-market survey	1	January		
Entrepreneurship Support System:--Role of District Industries Centre in setting up industry.	1	January		
Function of NSIC, SISI, NISIET, NRDC, SSIC, SIDO, NMTC, KVIC, RSMML.	1	January		
Role of state finance corporation, state electricity corporations, pollution control board, BIS, I.S.O. etc.	2	January		
Setting up SSI :---Registration of SSI Allotment of land by RIICO	1	January		
Preparation of project report;Structure of organisation;Building construction	1	February		
Establishment of machines. Tax System and Insurance :-----	1	February		
Idea of income tax, sales tax, excise duty and custom duty; Industrial and fire insurance, procedure for industrial insurance.	1	February		
Financial Sources for SSI :---Various institutions providing loans for industries	1	February		
Various types of loans ; Subsidies.	1	February		
Labour Legislation and Pollution Control Acts :- -Industrial acts : factory act 1948	1	February		

Workmen's compensation act 1923 Apprentices act 1961	1	February		
Water pollution contract act 1974 and 1981 Air pollution contract act 1981	1	February		
Environmental protection act 1986 Forest (animal conservation act 1972)	1	March		
Pollution control provisions in motor vehicle act.	1	March		
Project Report :--Procedure of preparing a project report	1	March		
Format of project report; Preparation of project report for some SSI items.	1	March		
ISO : 9000 Series of Quality System :-- Definition of few important terms related to ISO quality system	1	March		
Various models for quality assurance in ISO : 9000 series; Various elements of ISO : 9001 model (20 points)	1	March		
Benefits by becoming an ISO : 9000 company	1	March		
Introduction to total quality management (TQM)	1	March		
TOTAL	50			

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E-CONTENTS PROVIDED TO STUDENTS RELATED TO TOPIC
none
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