

BPS Mahila Polytechnic, Khanpur Kalan

Lesson Plan

Name of the Faculty

Ms. Shefali

Discipline

ELECTRONICS AND COMMUNICATION

Semester

4th

Subject

ELECTRONIC DEVICES AND CIRCUITS II

Lesson Plan Duration

15 Weeks (From Feb to June 2024)

Work Load per week

THEORY - 3 , PRACTICAL - 4

Week	Theory		Practical	
	Lecture Day	Topic	Practical Day	Topic
1st	1st	Multistage Amplifier	1st	Plot the frequency response of two stage RC coupled amplifier and calculate the bandwidth.
	2nd	Need for multistage amplifier	2nd	
	3rd	Gain of multistage amplifier	3rd	
			4th	
2nd	4	Different types of multistage amplifier like RC coupled	5th	To measure the gain of push-pull amplifier
	5	transformer coupled	6th	
	6	direct coupled	7th	
			8th	
3rd	7	frequency response and bandwidth	9th	To observe the output wave form of Hartley Oscillator
	8	Large Signal Amplifier	10th	
	9	- Difference between voltage and power amplifier	11th	
			12th	
4th	10	- Importance of impedance matching in amplifiers	13th	To observe the output wave form of Colpitt's Oscillator
	11	Class A, Class B, Class AB, and Class C amplifiers	14th	
	12	collector efficiency and Distortion in	15th	
			16th	
5th	13	Sessional	17th	
	14	Sessional	18th	
	15	Sessional	19th	
			20th	
6th	16	Graphical method of calculation (without derivation) of output power;	21st	
	17	heat dissipation curve and importance of heat sinks.	22nd	

6th	18	Push-pull amplifier, and complementary sym	23rd	To observe the output wave form of RC phase shift oscillator.
			24th	
7th	19	Single and double tuned voltage amplifiers	25th	To observe the output wave form of Wein bridge Oscillator
	20	frequency response characteristics	26th	
	21	Basic principles and types of feedback	27th	
			28th	
8th	22	Derivation of expression for gain of an amp	29th	Use of IC 555 as mono astable multivibrator a
	23	- Effect of feedback (negative) on gain, stab	30th	
	24	RC coupled amplifier with emitter bypass ca	31st	
			32nd	
9th	25	Emitter follower amplifier and its applicatio	33rd	Use of IC 555 as astable multivibrator
	26	Sinusoidal Oscillators	34th	
	27	- Use of positive feedback	35th	
			36th	
10th	28	Sessional	37th	
	29	Sessional	38th	
	30	Sessional	39th	
			40th	
11th	31	- Barkhausen criterion for oscillations	41st	. To use IC 741 (op-amplifier) as i) Inverter, ii) Adder, iii)
	32	- Different oscillator circuits-tuned collector	42nd	
	33	Hartley, Colpitts, phase shift	43rd	
			44th	
12th	34	Wien's bridge, and crystal oscillator. Their w	45th	OP AMP as Subtractor
	35	Multivibrator Circuits and Operational Amp	46th	
	36	Working principle of transistor as switch	47th	
			48th	
13th	37	- Concept of multi-vibrator: astable, monos	49th	OP AMP AS INTEGRATOR
	38	- Block diagram of IC555 and its working and	50th	
	39	- IC555 as monostable and astable multi-vib	51st	

			52nd	
14th	40	- Characteristics of an ideal operational amp	53rd	CHECKING OF FILE
	41	- IC-741 and its pin configuration	54th	
	42	Definition of differential voltage gain, CMR	55th	
			56th	
15th	43	Sessional	57th	
	44	Sessional	58th	
	45	Sessional	59th	
			60th	

BPS Mahila Polytchnic, Khanpur Kalan

Lesson Plan

Name of the Faculty Ms. Shefali
 Discipline ELECTRONICS AND COMMUNICATION
 Semester 2nd
 Subject ENGINEERING GRAPHICS
 Lesson Plan Duration 15 WEEKS
 Work Load per week 6 PRACTICAL

Week	Practical Day	Topic
1st	1st(3 HRS)	Introduction to use and care of drawing instruments, drawing materials, layout and sizes of drawing sheets and drawing boards.
	2nd(3HRS)	Symbols and conventions
2ND	3rd(3 HRS)	Geometrical construction-geometrical figures such as triangles, rectangles, circles, ellipses and curves
	4th(3HRS)	hexagons, pentagons bisecting a line and arc , division of line and circle with the help of drawing instrument
3rd	5th	Technical Lettering of Alphabet and Numerals
	6TH	Technical Lettering of Alphabet and Numerals
4th	7th	Necessity of dimensioning, method and principles of dimensioning
	8th	Dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes
5th	9th	equally spaced on P.C.D., countersunk holes, counter bored holes, cylindrical parts, narrow spaces and gaps, radii, curves and arches
	10th	Scales –Needs and importance (theoretical instructions), Type of scales, Definition of R.F and length of scale
6th	11th	To draw/construct plain and diagonal scales.
	12th	Theory of orthographic projections (Elaborate theoretical instructions).
7th	13th	Three views of orthographic projections of different objects of given pictorial view of a block in 1st and 3rd angle
	14th	Projection of Points in different quadrant projection of straight line
8th	15th	Projection of Plane

8th	16th	Identification of surfaces.
9th	17th	Sectioning Importance and salient features
	18th	Drawing of full section, half section, partial or broken out sections,
10th	19th	Offset sections, revolved sections and removed sections (theoretical only)
	20th	Orthographic sectional views of different objects
11th	21st	Introduction of projection of right solids
	22nd	Development of Surfaces
12th	23rd	Fundamentals of isometric projections and isometric scale
	24th	Isometric views of different laminas like circle, pentagon and hexagon
13th	25th	Isometric views of different regular solids like cylinder, cone, cube, cuboid, pyramid and prism
	26th	Isometric views from given different orthographic projections(front, side and top view)
14th	27th	Basic introduction and operational instructions of various commands in AutoCAD.
	28th	revision
15th	29th	revision
	30th	revision

Lesson Plan

Environmental Studies And Disaster Management

Week	Theory/Practical	
	Lecture Day	Topic Including(assignment/Test)
Ist	1	Unit1:- Introduction Basics of Ecology , Eco system Concept and sustainable development
	2	Sources ,advantages ,disadvantages of renewable and non-renewable energy
IIInd	1	Rain Water Harvesting
	2	Deforestation – its effects and control measures
IIIrd	1	Unit2:- Air and Noise Pollution Air Pollution: Source of Air Pollution
	2	Effect of Air Pollution on Human Health, Economy, Air Pollution control Methods
IVth	1	Noise Pollution: Sources of Noise Pollution, unit of noise ,Effect of Noise Pollution, Acceptable Noise Level, different Methods of minimizing Noise Pollution
	2	Revision of Above topics
Vth	1	Unit3:- Water and Soil Pollution Water Pollution: Impurities in water, Cause of water Pollution
	2	Sources of water Pollution. Effect of water pollution on human health
VIth	1	First Sessional Test(Tentative)
	2	First Sessional Test(Tentative)
VIIth	1	Concept of DO ,BOD, COD
	2	Prevention of water Pollution- water treatment processes
VIIIth	1	Sewage treatment ,Water quality standard
	2	Soil Pollution: Sources of soil Pollution
IXth	1	Effect and control of soil pollution
	2	Type of solid waste- House hold, Industrial, Agricultural, Bio-Medical, Disposal of Solid waste.
Xth	1	Solid waste management E-waste ,E-waste management
	2	Unit4:- Impact of Energy Usage on Environment Global Warming ,Green House Effect , Depletion of Ozone Layer
XIth	1	Second Sessional Tests(Tentative)
	2	Second Sessional Tests(Tentative)
XIIth	1	Acid Rain .Eco Friendly Material, Recycling of Material, Concept of Green Building
	2	Concept of Carbon credit and Carbon Foot Print
XIIIth	1	Unit5:- Disaster Management A Different type of Disaster ,Natural Disasters such as Flood ,Cyclone ,Earth Quake and Landslides etc.
	2	Manmade Disasters such as Fire, Industrial Pollution, Nuclear Disasters, biological Disasters.

XIVth	1	Accidents(Air , Sea Rain and Road) , Structural Failures (Building and Bridges) , War and Terrorism
	2	B Disaster Preparedness Disaster Preparedness plan : Prediction ,Early warnings and safety measures of Disaster Psychological Response and Management (Trauma, Stress, Rumour and Panic)
XVth	1	Third Sessional Test(Tentative)
	2	Third Sessional Test(Tentative)
XVIth	1	Revision of above Syllabus
	2	Revision of above Syllabus

Lesson Plan (2nd Semester)

Mathematics

Week	Theory/Practical	
	Lecture Day	Topic Including(assignment/Test)
Ist	1	Introduction to syllabus and evaluation scheme Unit1:- Differential Calculus 1.1 Definition of function: Concept of limits (Introduction only) and problems related to four standard limits only.
	2	1.1 Definition of function: Concept of limits (Introduction only) and problems related to four standard limits only.
	3	1.1 Definition of function: Concept of limits (Introduction only) and problems related to four standard limits only.
	4	1.2 Differentiation of x^n , Sin x, Cos x, e^x by first principle.
IInd	1	1.3 Differentiation of sum, product and quotient of functions.
	2	1.3 Differentiation of sum, product and quotient of functions.
	3	1.3 Differentiation of sum, product and quotient of functions.
	4	Unit 2 Differential Calculus and Its Application 2.1 Differentiation of trigonometric functions, inverse trigonometric function, Logarithmic differentiation, successive differentiation (upto 2 nd order)
IIIrd	1	2.1 Differentiation of trigonometric functions, inverse trigonometric function, Logarithmic differentiation, successive differentiation (upto 2 nd order)
	2	2.1 Differentiation of trigonometric functions, inverse trigonometric function, Logarithmic differentiation, successive differentiation (upto 2 nd order)
	3	2.1 Differentiation of trigonometric functions, inverse trigonometric function, Logarithmic differentiation, successive differentiation (upto 2 nd order)
	4	2.2 Application of differential calculus in: (a) Rate measure (b) Maxima and minima
IVth	1	2.2 Application of differential calculus in: (a) Rate measure (b) Maxima and minima
	2	2.2 Application of differential calculus in: (a) Rate measure (b) Maxima and minima
	3	Revision
	4	Unit 3 Integral Calculus 3.1 Integration as inverse operation of differentiation with simple examples.
Vth	1	First Sessional Test(Tentative)
	2	First Sessional Test(Tentative)
	3	First Sessional Test(Tentative)
	4	3.1 Integration as inverse operation of differentiation with simple examples.
VIth	1	3.1 Integration as inverse operation of differentiation with simple examples.
	2	3.2 Simple standard integrals and related problems, Integration by Substitution method and integration by parts.
	3	3.2 Simple standard integrals and related problems, Integration by Substitution method and integration by parts.
	4	3.3 Evaluation of definite integrals with given limits. Evaluation of $\int_0^{\pi/2} \sin^n x \cdot dx$, $\int_0^{\pi/2} \cos^n x \cdot dx$, $\int_0^{\pi/2} \sin^m x \cos^n \cdot dx$, Using formula without proof (m and n being positive integers only) using pre-existing mathematical models.
VIIth	1	3.3 Evaluation of definite integrals with given limits. Evaluation of $\int_0^{\pi/2} \sin^n x \cdot dx$, $\int_0^{\pi/2} \cos^n x \cdot dx$, $\int_0^{\pi/2} \sin^m x \cos^n \cdot dx$,

		Using formula without proof (m and n being positive integers only) using pre-existing mathematical models.
	2	Unit4:- Application of Integration, Numerical Integration and Differential Equations 4.1 Application of integration for evaluation of area under a curve and axes (Simple problems).
	3	4.1 Application of integration for evaluation of area under a curve and axes (Simple problems).
	4	4.2 Numerical of integration by Trapezoidal rule and Simpson's 1/3 rd Rule using pre-existing mathematical models.
VIIIth	1	4.2 Numerical of integration by Trapezoidal rule and Simpson's 1/3 rd Rule using pre
	2	Differential, Equations 4.3 Definition, order, degree, Type of differential Equation, Linearity, Formulation of ordinary differential equation (up to 1 st order), solution of ODE (Ist order) by variable separation method.
	3	4.3 Definition, order, degree, Type of differential Equation, Linearity, Formulation of ordinary differential equation (up to 1 st order), solution of ODE (Ist order) by variable separation method.
	4	Revision
IXth	1	Second Sessional Test(Tentative)
	2	Second Sessional Test(Tentative)
	3	Second Sessional Test(Tentative),.
	4	4.3 Definition, order, degree, Type of differential Equation, Linearity, Formulation of ordinary differential equation (up to 1 st order), solution of ODE (Ist order) by variable separation method.
Xth	1	Unit 5 Statistics and Software:- Statistics 5.1 Measures of Central Tendency: Mean, Median, Mode
	2	5.1 Measures of Central Tendency: Mean, Median, Mode
	3	5.2 Measures of Dispersion: Mean deviation, Standard deviation
	4	5.2 Measures of Dispersion: Mean deviation,Standard Deviation
XIth	1	5.2 Measures of Dispersion: Mean deviation,Standard Deviation
	2	Software 5.3 Sci lab Software- Theoretical Introduction.
	3	5.3 Sci lab Software- Theoretical Introduction.
	4	5.4 Basic difference between MATLAB and Sci Lab Software,
XIIth	1	5.4 Basic difference between MATLAB and Sci Lab Software,
	2	5.5 Calculations with MATLAB or Sci Lab – (a) Representation of matrix (2*2 order), (b) Additional , Subtraction of matrices (2*2 order) in MATLAB or Sci Lab
	3	5.5 Calculations with MATLAB or Sci Lab – (a) Representation of matrix (2*2 order), (b) Additional , Subtraction of matrices (2*2 order) in MATLAB or Sci Lab
	4	Revision
XIIIth	1	Third Sessional Test (Tentative).
	2	Third Sessional Test (Tentative).
	3	Third Sessional Test (Tentative).
	4	Revision
XIVth	1	Revision
	2	Revision
	3	Revision
	4	Revision
XVth	1	Revision
	2	Revision
	3	Revision
	4	Revision

Lesson Plan

Physics (2nd Semester)

Week	Theory		Practical	
	Lecture Day	Topic(Including Assignments)	Practical Day	Topic
1st	1	Unit1:- Wave Motion and its Applications 1.1 Waves: Definition ,types(mechanical and electromagnetic wave) 1.2 Wave Motion -transverse and longitudinal with examples, terms used in wave motion like displacement,amplitude,time period,frequency,wave length,wave velocity,relationship among wave velocity,frequency and wave length	1	1) Familiarization with apparatus (resistor, rheostat, key ammeter, voltmeter, telescope, microscope etc. (Group-1)
	2	1.3 Simple Harmonic Motion(SHM): Definitions , Examples 1.4 Cantilever : Definitions , Formula of Time Period(Without Derivation)	2	1) Familiarization with apparatus (resistor, rheostat, key ammeter, voltmeter, telescope, microscope etc. (Group-2)
2nd	1	1.5 Free, forced and resonant vibrations with examples. 1.6 Sound waves: Types (infrasonic, audible, ultrasonic) on the basis of frequency, noise, coefficient of absorption of sound, echo	1	2) To find the time period of a simple pendulum. (Group-1)
	2	Unit2:- Optics:- 2.1 Reflection and refraction of light with laws, refractive index 2.2 Lens: Introduction, lens formulae (no derivation), power of lens and simple numerical problems	2	2) To find the time period of a simple pendulum. (Group-2)
3rd	1	2.3 Total internal reflection and its applications, critical angle and conditions for total internal reflection	1	3) To study variation of time period of simple pendulum with change in length of pendulum.(Group-1)
	2	2.4 Superposition of waves (concept only), definition of interference, diffraction and polarization of waves	2	3) To study variation of time period of simple pendulum with change in length of pendulum. (Group-2)

4th	1	2.5 Introduction of Microscope, Telescope and their applications	1	4) To determine and verify the time period of Cantilever (Group-1)
	2	Revision of above topics	2	4) To determine and verify the time period of Cantilever.(Group-2)
5th	1	First Sessional Test(Tentative)	1	Revision and Viva-voce (Group-1)
	2	First Sessional Test(Tentative)	2	Revision and Viva-voce (Group-2)
6th	1	UNIT3:- Electrostatics and Electricity 3.1 Electric charge, unit of charge, conservation of charge	1	5) To verify Ohm's laws by plotting a graph between voltage and current (Group-1)
	2	3.2 Coulomb's law of electrostatics Assignment 1	2	5) To verify Ohm's laws by plotting a graph between voltage and current (Group-2)
7th	1	3.3 Electric field, electric lines of force (definition and properties), electric field intensity due to a point charge 3.4 Definition of electric flux, Gauss law (statement and formula)	1	6) To study colour coding scheme of resistance. (Group-1)
	2	3.5 Capacitor and capacitance (with formula and unit) 3.6 Electric current and its SI Unit, direct and alternating current	2	6) To study colour coding scheme of resistance. (Group-2)
8th	1	3.7 Resistance, conductance (definition and unit) 3.8 Series and parallel combination of resistances	1	7) To verify laws of resistances in series combination (Group-1)
	2	3.9 Ohm's law (Statement and formula) Assignment 2	2	7) To verify laws of resistances in series combination (Group-2)
9th	1	Second Sessional Test(Tentative)	1	Revision and Viva-voce (Group-1)
	2	Second Sessional Test(Tentative)	2	Revision and Viva-voce (Group-2)
10th	1	Unit 4 Classification of Materials and their Properties 4.1 Definition of energy level, energy bands 4.2 Types of materials (conductor, semiconductors (introduction only)	1	8) To verify laws of resistance in parallel combination .(Group-1)

	2	4.3 Introduction to magnetism, type of magnetic materials: Diamagnetic, paramagnetic and ferromagnetic materials with examples 4.4 Magnetic field, magnetic lines of force, magnetic flux 4.5 Electromagnetic induction (definition)	2	8) To verify laws of resistance in parallel combination.(Group-2)
11th	1	Unit5 Modern Physics 5.1 Laser: Introduction, principle, absorption, spontaneous emission, stimulated emission population inversion 5.2 Engineering and medical applications of laser	1	9) To find resistance of galvanometer by half deflection method (Group-1)
	2	5.3 Fibre optic: Introduction to optical fibers (definition, principle and parts), light propagation, fiber types (mono-mode, multi-mode), applications in medical, telecommunication and sensors.	2	9) To find resistance of galvanometer by half deflection method (Group-2)
12th	1	5.4 Nanotechnology: Introduction, definition of nanomaterial's with examples, properties at nano scale, applications of nanotechnology (brief)	1	10) To verify laws of reflection of light using mirror (Group-1)
	2	Assignment 3 and Revision of above topics	2	10) To verify laws of reflection of light using mirror (Group-2)
13th	1	Third Sessional Test(Tentative)	1	Revision and Viva-voce (Group-1)
	2	Third Sessional Test(Tentative)	2	Revision and Viva-voce (Group-2)
14th	1	Revision of above topics	1	11) To verify laws of refraction using glass slab.(Group-1)
	2	Revision of above topics	2	11) To verify laws of refraction using glass slab.(Group-2)
15th	1	Revision of above topics	1	12) To find the focal length of a concave lens, using a convex lens.(Group-1)
	2	Revision of above topics	2	12) To find the focal length of a concave lens, using a convex lens.(Group-2)

