

Course Name : Diploma in Electrical Engineering
Semester : First
Subject Title : Mathematics-I
Subject Code : DTMA1101

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		Pract		Oral		Termwork		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	2	-	3	100	35	25	125	50	-	-	-	-	25	10	150

Objective: -

1. To teach students basic facts, concepts and principles of mathematics as a tool to analyze engineering problems.
2. To make students well versed in the prerequisites for further studies in mathematics and engineering.

Sr.No	Contents	L	M
1	Algebra : i) Determinant of order three, Cramer's rule, properties of determinants. ii) Concepts of Permutations and Combinations and problems based on ${}^n P_r$ ${}^n C_r$ iii) Binomial Theorem with positive integral index, general term, Binomial expansion for negative integral and fractional index. . iv) Matrices of order m x n, types of matrices, equality of matrices, addition and subtraction of matrices, multiplication of matrices, transpose of matrix, adjoint of matrix, inverse of matrix, solution of system of linear equations by adjoint method.	06 03 05 08	14 06 10 14

2	Trigonometry : i) Circular measures of angles, Conversion from degree to radians and radians to degree. ii) Trigonometric ratios of any angle. iii) Addition – subtraction formulae. iv) Allied angle formulae. v) Product formulae, sum or difference formulae. vi) Multiple, submultiples angle formulae. vii) Inverse trigonometric functions. viii) Properties of triangle: sine rule, cosine rule. (without proof)	16	36
3	Straight lines : i) Equations of straight lines in different forms. ii) Angle between two straight lines, conditions for two parallel and perpendicular straight lines.	06	12
4	Complex Numbers : i) Definition of complex number, Elementary operations. ii) Argand's Diagram, Modulus, Amplitude, Polar form of a complex number.	04	08
	Total	48	100

TEXT BOOKS :

- 1) Basic Mathematics - B.M.Patel, J.M.Rawal and others - Nirali Prakashan , Revised syllabus - June 2007
- 2) Mathematics for Polytechnic - S. P. Deshpande- Pune Vidyarthi Griha Prakashan, Revised syllabus - Aug.2010

Course Name : Diploma in Electrical Engineering
Semester : First
Subject Title : Physics-I
Subject Code : DTPH1102

Teaching & Examination Schemes

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		Pract		Oral		Termwork		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	-	2	3	100	35	25	125	50	-	-	-	-	25	10	150

Objectives:

Students should be able to;

- ☐ identify different systems of units and convert units from one system to other as well as conversant with practical units.
- ☐ estimate and minimize the errors.
- ☐ select proper measuring instrument considering least count, range and precision required.
- ☐ select appropriate materials required for a specific purpose by studying properties of materials.
- ☐ analyze the relation between pressure, volume and temperature of gas and the behavior of gas.
- ☐ identify good and bad conductors of heat needed for a given task.
- ☐ identify the phenomena of interference, diffraction and polarization of light and its industrial applications.
- ☐ use the properties of laser, x-rays and photoelectric effect for various engineering applications.
- ☐ identify, analyze, discriminate and interpret logical sequence of field problems with the study of physics.

Syllabus

Part I:- Theory

No	Contents	L	M
1	1. Measurements 1.1 Units Necessity of measurement, concept of unit of a physical quantity, requirements of standard unit, Various system of units (CGS, MKS, SI, FPS), conversions, practical units, fundamental and derived physical quantities and their units, dimensions and dimensional analysis	2	6
	1.2 Errors Accuracy, precision of instruments, errors, types of errors, minimization of errors, significant figures, problems	2	6
	1.3 Measuring instruments vernier caliper, dial caliper, micrometer screw gauge, spherometer, thermometer, galvanometer, voltmeter, ammeter with least count and range, errors in them and correction to it.	4	8
2	2. Properties of matter 2.1 Elasticity Deformation, restoring force, stress, strain, Hooke's law, Moduli of elasticity (Young, bulk and rigidity), relation between them, problems, stress-strain diagram for some materials (steel, aluminium, cast iron, concrete), breaking stress, factor of safety.	4	8
	2.2 Viscosity Newton's law of viscosity, coefficient of viscosity, unit, streamline and turbulent flow, critical velocity, Reynold's number, problems, Stokes' law, determination of viscosity, factors affecting viscosity.	3	6
	2.3 Surface tension Cohesive and adhesive forces, angle of contact, surface tension, capillary action, problems, factors affecting surface tension	3	6
3	3. Heat and Thermodynamics 3.1 Gas laws and specific heats Boyle's law, Charle's law, Gay-Lussac's law, Kelvin scale of temperature, general gas equation, universal gas constant, N.T.P., principal specific heats and relation between them, problems	3	10
	3.2 Expansion, heat transmission and laws of thermodynamics Expansions of solids—linear, aerial and cubical, relation between them, modes of transmission of heat, coefficient of thermal conductivity, good and bad conductors and applications, Searle's and Lee's method, laws of thermodynamics, isothermal, isobaric, isochoric and adiabatic processes, problems	5	10

4	4. Optics 4.1 Wave theory of light Huygen's theory, wavefronts, wavenormals, laws of reflection and refraction, total internal reflection, dispersion, angle of deviation, problems	3	6
	4.2 Interference and diffraction Principle of superposition, constructive and destructive interference, conditions to obtain steady interference pattern, Young's double slit experiment, diffraction, single slit and many slits diffraction, grating, applications, problems.	6	10
	4.3 Polarization Polarized and unpolarized light, qualitative treatment of polarizer and analyzer, polarimeter, applications	2	4
5	5. Modern Physics 5.1 X-rays Production of x-rays, continuous and characteristic x-rays, properties and applications of x-rays, problems, Moseley's law and its importance.	3	6
	5.2 Photoelectric effect Photoelectric effect, laws and characteristics of photoelectric effect, Einstein's photoelectric equation, problems, construction, working and applications of photocells	3	6
	5.3 Laser Spontaneous and stimulated emission, population inversion, pumping, lasing, properties and applications of laser, helium-neon laser and its applications. holography and its applications	5	8
	Total	48	100

List of Laboratory experiments (10 experiments should be performed)

1. Use of vernier caliper and observations with traveling microscope
2. Use of micrometer screw gauge and observations with spectrometer
3. Determination of Young's modulus of material of wire using Searle's apparatus.
4. Capillarity with different bores capillary tubes
5. Determination of surface tension of liquid using capillary action
6. Determination of coefficient of viscosity using Stokes' method
7. Verification of laws of photoelectric effect
8. Determination of wavelength of laser using diffraction grating
9. Calculation of grating element of given grating
10. Determination of specific rotation/optical activity of given solution with polarimeter
11. Determination of thermal conductivity of bad conductor with Lee's method
12. Determination of thermal conductivity of good conductor with Searle's method
13. Determination of refractive index of glass with Snell's law

Demonstrations:-

1. Expansion of solid/liquid after heating
2. Working of photoelectric cell
3. Newton's rings

4. Total internal reflection
5. Polaroid
6. Dispersion of light by prism

Learning Resources:-

Text Book: -

Engineering Physics by Gaur R. K. and Gupta S. L., Dhanpat Rai Publications, New Delhi, Eighth Edition, 2001.

References:-

1. Fundamentals of Physics Extended, By Halliday D., Resnik R. and Walker, Wiley – India, New Delhi, Eighth Edition, 2008.
2. Physics for scientists and Engineers by Serway R. A. and Jewett, Jr. J. W., Thomson Learning (Indian reprint), New Delhi, Sixth Edition, 2007.

Course Name : Diploma in Electrical Engineering
Semester : First
Subject Title : Chemistry-I
Subject Code : DT-CY-11-03

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		Pract		Oral		Termwork		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
3	-	2	3	100	35	25	125	50	-	-	-	-	25	10	150

Objectives:

1. To understand mole concept and volumetric analysis.
2. To represent the formation of bonds in molecules.
3. To describe the mechanism of redox reactions.
4. To identify the properties of organic compounds related to engineering applications.

Syllabus

Part I: Theory

Sr. No.	Contents	L	M
1	Mole Concept, Atomic weight, Equivalent weight & Molecular weight Definitions of atoms, molecules, Mole in terms of number, mass, volume, Definitions of equivalent weight and atomic weight of an element, Molecular weight of molecule, Determination of percentage composition of an element in a given molecule.	6	10
2	Acid, base and salt Definitions & classification of acids & bases(Theories), pH & pOH, inorganic/ organic Acids & bases, Basicity of an acid and acidity of a base, Equivalent weight of acids, bases, Acid base indicators, salts & types of salts: Normal, Acidic, Basic, Mixed, Double salt	5	10
3	Solution Solution, Concentrations of solution: Grams per litre, Percentage by weight or volume, Normality, Molarity, Molality. Volumetric analysis, Titrations, Acid base titration, Acidimetry, Alkalimetry, Redox titration,	6	15

	Iodometric titrations, Complexometric titration, Precipitation titration.		
4	Redox Reactions Introduction, Oxidation, Reduction, Electron transfer concept, Oxidising & reducing agents, Redox reactions in aqueous reactions, Oxidation number & rules for assigning oxidation number, Balancing of the chemical reaction	6	15
5	Chemical bonds & Chemical Kinetics Chemical bond and theory of electrovalency, types of chemical bonds, Chemical reaction, types of chemical reaction, Reversible reactions, irreversible reactions, Rate of chemical reaction, Rate equation and rate law, order of reaction, Molecularity of reaction, Integrated rate equation, half life of reaction, Methods for the determination of rates of reactions.	7	15
6	Ionic equilibrium Electrolytes, Degree of dissociation & ostwalds dilution law, Hydrolysis & Degree of hydrolysis, common ion effect, solubility product and their application	5	10
7	Electrochemistry Electrochemistry, Electrochemical reactions, Construction and working of electrochemical cell & electrolytic cell, Faradays I & II laws of electrolysis, Applications of electrolysis: electroplating & refining, Electrochemical cells and batteries, Construction, working and applications of dry cells, Lead acid storage battery, fuel cells	8	15
8	Organic Chemistry Introduction: Types of chemistry, Catenation property of Carbon element, Organic compounds, its properties and applications, Classification: by structure and functional group, Homologous series, Alkanes, alkenes and alkyenes: Definition, General formula, Names and structure of first five members, Isomerism, Properties and Uses.	5	10
	Total	48	100

Part II:- Practicals

List of Practicals

- To study the use of indicators, pH papers and litmus papers for identification of acid, base and neutral solutions from the given set of solutions.
- To standardize HCl solution using N/10 Na_2CO_3 .
- To standardize NaOH solution using N/10 $\text{C}_2\text{H}_2\text{O}_4$ solution.
- To determine the strength of acetic acid/ succinic acid using NaOH solution.
- To standardize KMnO_4 solution using N/10 $\text{C}_2\text{H}_2\text{O}_4$ solution.
- To determine strength of the mixture of $\text{H}_2\text{SO}_4 + \text{C}_2\text{H}_2\text{O}_4$ using NaOH and KMnO_4 solution.
- To determine the amount of ferrous sulphate or ferrous ammonium sulphates in the given solution using KMnO_4 solution.
- To standardize $\text{K}_2\text{Cr}_2\text{O}_7$ solution using N/10 $\text{Na}_2\text{S}_2\text{O}_3$ solution.
- To determine the amount of ferrous sulphate or ferrous ammonium sulphates in the given solution using $\text{K}_2\text{Cr}_2\text{O}_7$ solution.
- To determine the amount of copper sulphate in the given solution using $\text{Na}_2\text{S}_2\text{O}_3$ solution.
- To standardize EDTA solution using N/10 ZnSO_4 solution.
- To determine the amount of copper sulphate in the given solution using EDTA

- solution.
13. To standardize AgNO_3 solution using NaCl solution.
 14. To determine the amount of HCl and HNO_3 per litre of the given solution using NaOH & AgNO_3 solution.
 15. To characterize the following organic compounds for saturation, unsaturation and functional group: acetic acid, succinic acid, ethanol, ethylene diammine etc.

Learning Resources:-

Text Books: -

1. Essentials of Physical chemistry, B. S. Bhal & G. D. Tuli, Edition: 18th (2010) S Chand Group, New Delhi 110 055, INDIA.
2. Selected Topics in Inorganic Chemistry, Wahid U Malik, R.D.Madan, Tuli G. D., Edition: 17th (2006), S Chand Group, New Delhi 110 055, India

Reference Books:-

1. A Textbook of Organic Chemistry, Bahl, Arun, B.S. Bahl, Edition: 18th (2006) S Chand Group, New Delhi 110 055, India

Course Name : Diploma in Electrical Engineering
Semester : First
Subject Title : Communication Skills-I
Subject Code : DTHU1104

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme												Total Marks
L	T	P		Theory		Test	Total		Pract		Oral		Termwork			
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min		
3	2	-	3	100	35	25	125	50	-	-	-	-	25	10	150	

Objectives:

1. Comprehend the given passage
2. Answer correctly the questions on seen and unseen passages
3. Increase the vocabulary
4. Apply rules of grammar for correct writing

Syllabus

Sr.No.	Content	L	M
1.	Text : Communication Skills-I compiled by Mrs. R. Thomas & Mrs. K. Krishnamurthy 1.1 Vocabulary-Understanding meaning of new words from text 1.2 Comprehension- Responding to the questions from text 1.3 Identifying parts of speech.	24	50
2.	Application of Grammar 2.1 Verbs 2.2 Tenses Do as directed (active/passive, direct/indirect, affirmative/negative/assertive, question tag, remove too, reported speech)	16	20
3.	Paragraph Writing 3.1 Definition – Types of paragraphs 3.2 How to write a paragraph.	03	10
4.	Vocabulary Building 4.1 Word Formation 4.2 Technical Jargon 4.3 Use of synonyms/ antonyms/homonyms/paronyms	05	20

	4.4 One word substitute.		
	Total	48	100

List of Assignments:

1. Building Vocabulary – (4hrs – 2 assignments)
 - i) 25 words for each assignment from the glossary given in the text book at the end of each chapter
 - ii) Technical Jargon- (2 hrs-1 assignment)
2. Grammar – (4 hrs – 2 assignments)
 - i) Insert correct parts of speech in the sentences given by the teachers. (16 sentences – two each, from different part of speech)
 - ii) Punctuate the sentences given by the teachers. (10 sentences)
3. Conversational Skills: Role Plays (8 hrs)
 - i) Students are going to perform the role on any 6 situations, given by the teacher.
 - ii) Dialogue writing for the given situations. (2 assignments)
4. Write paragraphs on given topics (6 hrs-2 sentences)
 - i) Four types of paragraph to be written in **2 assignments** covering two types one assignments.
5. Newspaper Report Writing (4 hrs- 2 assignments)
 - i) Write any two events from the newspaper as it is.
 - ii) Write any two events on the situations given by the teacher.
6. Errors in English – (4 hrs- 2 assignments)
 - i) Find out the errors and rewrite the sentences given by the teacher. (20 sentences)

Term work: will consist of 9 assignments based on above syllabus

Learning Resources:

Text Books:

Communication Skills I-
Compiled by Mrs. Thomas & Mrs. Krishnamurthy, H&M Dept , 2009

Reference Books:

1. Contemporary English grammar, structure and composition by David Green
Publisher Macmillan First edition, 2000.
2. English grammar and composition, R. C. Jain, Macmillan, India, First edition, 2005.
3. Thesaurus, Rodgers, Oriental Longman
4. Dictionary, Oxford, Oxford University
5. Dictionary, Longman, Oriental Longman
6. English for Practical purposes, Patil Z. N. et al, Macmillan, India, 2004
7. English at Workplace, Sanyal Mukti, Macmillan, India

Course Name : Diploma in Electrical Engineering
Semester : First
Subject Title : Elements of Electrical & Electronics Engineering
Subject Code : DTEE1105

Teaching and Examination Scheme:☒

Teaching Scheme			Paper Hours	Examination Scheme										Total Marks	
L	T	P		Theory		Test	Total		P		OR		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max		Min
3	-	-	3	100	35	25	125	50	-	-	-	-	-	-	125

Objectives:☒

Students should be able to :

- 1) Recognize the component and type of component.
- 2) Recognize the material used for the type of component.
- 3) Understand the construction and the working principle of the component.
- 4) Understand the specifications (ratings) of the component.
- 5) Test the component.

Syllabus

Part I:- Theory

Sr. No	Contents	L	M
1	RESISTORS : Basic concepts. Ohm's Law. Fixed and Variable type. Fixed : Carbon composition, carbon film, metal film, Ceramic & Vitreous Enamel wire-wound types. Variable : Rheostat, Carbon track and wire-wound potentiometers (Linear & Non-Linear), Preset resistors. Their construction, power rating, tolerance (accuracy) temperature coefficient, and typical applications. E6, E12 & E24 series of resistors. Colour Code of Standard Resistors.	7	15

2	<p>CAPACITORS : Fixed and Variable type.</p> <p>Fixed : Ceramic, Mica, Polyester and Electrolytic</p> <p>Variable : Air Gang and Trimmer.</p> <p>Their construction, voltage rating & typical applications.</p> <p>Colour Coding of capacitors.</p>	7	15
3	<p>INDUCTORS : Construction & application of air core, iron core, ferrite core, inductor coils(winding) used in Motors, Generators, Transformers, Tube-light chokes, D.C. power supply Filter chokes, loudspeakers and ignition system of vehicles.</p>	7	15
4	<p>CABLES/WIRES : Types: flexible, hook-up, coaxial and fiber optic. Multi-core Power and Control cables.</p> <p>Their construction and applications.</p>	4	10
5	<p>SWITCHES : Types: Slide, Toggle, Push to ON, Push to OFF, Rocker, Rotary & Reed switches. Their construction & applications.</p>	4	10
6	<p>RELAYS : Construction, rating & working principle of general purpose relay, Reed relay.</p>	4	10
7	<p>SEMICONDUCTOR & OPTOELECTRONIC DEVICES :</p> <p>PN JUNCTION DIODES :Germanium and Silicon.</p> <p>LIGHT DEPENDENT RESISTOR. (LDR)</p> <p>LED's : Light Emitting Diodes – Red, Green, Yellow, Blue and Bicolor type.</p> <p>DISPLAYS : Seven Segment LED Display, 5 x 7 Dot Matrix LED Display, Liquid Crystal Display (LCD).</p> <p>Their construction, operation and applications.</p>	12	20
8	<p>i) Breadboard, Printed Circuit Board (PCB): Types and applications.</p> <p>ii) Soldering iron, solder wire and soldering techniques.</p>	3	5
TOTAL		48	100

Learning Resources:-

Text Book: - Electronic Circuits Handbook, 3rd Edition by Michael H Tooley. (BPB Publications).

Reference Books:-

1. Basic Electronics and Linear Circuits, 4th Edition by N N Bhargava, D C Kulshreshtha & S C Gupta. (Tata McGraw – Hill Publishing Company Limited)
2. Electronic Components & Materials, 2nd Edition by S M Dhir , (Tata McGraw - Hill Publishing Company Limited).
3. Electronic Components and Materials, 2nd Edition by Grover & Jamwal (Dhanpat Rai & Sons).

Course Name : Diploma in Electrical Engineering
Semester : First
Subject Title : Basic Workshop Practice- I
Subject Code : DLME1106

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		Pract		Oral		Termwork		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
1	-	3	-	-	-	-	-	-	-	-	-	-	50	20	50

Objectives:

The student will be able to

- ☐ Know basic workshop processes.
- ☐ Read and interpret job drawing.
- ☐ Identify, select and use various marking, measuring, holding, striking and cutting tools & equipments.
- ☐ Operate, control different machines and equipments.
- ☐ Inspect the job for specified dimensions.
- ☐ Produce jobs as per specified dimensions.
- ☐ Adopt safety practices while working on various machines.

Syllabus

Part I - Theory

Sr.No.	Contents	L
01	ENGINEERING MATERIALS: Introduction. Different types of ferrous and non-ferrous materials. Properties of Engineering materials.	3
02	CARPENTRY SHOP: Introduction. Various types of woods. Different types of tools, machines and accessories.	3
03	FITTING SHOP: Introduction Various marking, measuring, cutting, holding and striking tools. Different fitting operation like chipping, filing, right angle, marking, drilling, tapping etc. Working Principle of Drilling machine, Tapping dies, its use. Safety precautions and safety equipments.	3

04	SMITHY SHOP: Introduction. Different forging tools and Power Hammer. Different forging processes like shaping, caulking, fullering, setting down operations etc. Safety precautions and safety equipments.	3

Part II- Practical's

Sr.No.	List of Practicals
01	CARPENTRY SHOP: Demonstration of different wood working tools / machines Demonstration of different wood working processes, like planing, marking, chiseling, grooving, turning of wood etc. One simple job involving any one joint like mortise and tenon, dovetail, bridle, half lap etc.
02	WOOD TURNING: One simple job involving turning, step turning, ball turning operation on wood.
03	SMITHY SHOP: Demonstration of different forging tools and Power Hammer. Demonstration of different forging processes like shaping, caulking, fullering, setting down operation etc. One job like hook peg, flat chisel or any hardware item.
04	FITTING SHOP: Demonstration of different fitting tools and drilling machines and power tools. Demonstration of different operations like chipping, filing, drilling, tapping, cutting etc. One simple fitting job involving practice of chipping, filing, drilling, tapping, cutting etc.

Learning Resources

Text Books:

1. Mechanical Workshop Practice-K.C.John-PHI Learning Pvt Ltd. EEE 2010

Reference Books:

1. B.S. Raghuvanshi- Workshop Technology – Dhanpat Rai and sons, New Delhi, 9th Edition, 2002
2. S.K. Hajra Chaudhary- Workshop Technology Vol I & II – Media Promotors and Publisher, New Delhi. 8th edition , 1986

Course Name : Diploma in Electrical Engineering
Semester : First
Subject Title : Engineering Graphics- I
Subject Code : DL-ME-11-07

Teaching & Examination Scheme

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		Pract		Oral		Termwork		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
2	-	4	-	-	-	-	-	50	20	-	-	50	20	100	

Objectives:

The student will be able to

- ☐ Understand the fundamentals of Engineering Drawing
- ☐ Read and interpret object drawings.

Syllabus

Part I- Theory

Sr.No	Contents	L
1	Drawing Instruments & their uses- 1.1 Letters & Numbers (Single stroke Vertical) 1.2 Convention of Lines & it's applications 1.3 Geometrical Constructions involving construction of tangential arcs & common tangents.	4

2	Engineering Curves- 2.1 Ellipse by following Methods 1. Directrix Focus Method 2. Arcs of Circles Method 3. Concentric Circles method 4. Rectangle/Oblong Method 2.2 Parabola by following Methods 1. Directrix Focus Method 2. Rectangle Method 3. Tangent Method 2.3 Hyperbola by Eccentricity Method Rectangular Hyperbola 2.4 Cycloid, Epicycloid & Hypocycloid (Starting Point of the curve to be the point of contact at the beginning) 2.5 Involute of a circle (Full Involute only) Involute of a regular polygon 2.6 Archimedian spiral (starting with center only) 2.7 Helix on a cylinder	7
3	Projections of points & straight Lines- Planes of projections – HP, VP & PP Orthographic projections of points, Projections of Straight Lines with lines inclined to both the reference planes.(Lines to be considered in first quadrant only. Simple problems excluding HT & VT of a line)	5
4	Projections of Planes- Projections of circular, square, rhombus, triangular, regular pentagonal & hexagonal plane surfaces with surfaces inclined to one reference plane & perpendicular to other. (excluding side view)	6
5	Orthographic Projections - Projections of simple machine parts with surfaces parallel to at least one of the planes of projection. (Excluding sectional Views)	8
6	Introduction to Computer Drafting - Introduction to different commands in the drawing software	2

Part II- Practicals

- A. The students should workout the problems on the following topics on half imperial drawing sheets during the practicals.
1. One sheet on problems from geometrical constructions, lettering & types of lines
 2. Three Sheets on the topic of Engineering Curves.
 3. Two Sheets on Projections of Points & projections of Straight Lines.
 4. Two Sheets on Projections of Planes.
 5. Four Sheets on the topic of Orthographic Projections. B.
- Demonstration of drafting software to the students.

Text Books:-

Engineering Drawing –N.D.Bhatt - Charotar publishing House, 49th Edition
2010

Reference Books:-

1. Engineering Drawing- D.A.Jolhe - TATA McGraw Hill, 2008
2. Engineering Graphics- K.R.Mohan – Dhanpatrai publishing co. 1st edition-2009

Course Name : Diploma in Electrical Engineering
Semester : First
Subject Title : Electrical & Electronic Engineering Workshop - I
Subject Code : DLEE1108

Teaching and Examination Scheme:

Teaching Scheme			Paper Hours	Examination Scheme											Total Marks
L	T	P		Theory		Test	Total		P		OR		TW		
				Max	Min		Max	Min	Max	Min	Max	Min	Max	Min	
-	-	2	-	-	-	-	-	-	-	-	-	-	25	10	25

Objectives:-

The student should be able to:

- 1) Identify various types of components.
- 2) Use multimeter for measuring various quantities like voltage(dc & ac), current, resistance.
- 3) Assemble and test components on breadboard.
- 4) Solder one simple circuit on a general purpose PCB.

Practical's :-

List of Laboratory Experiments:-

Drawing of symbols/conventions of various Electrical & Electronic components used in Engineering.

1. To identify the value, tolerance of resistors and capacitors by colour code.
2. To measure the value of resistor/s using multimeter.
3. To test rheostat, linear potentiometer, logarithmic potentiometer, preset variable resistors.
4. Testing of LDR on multimeter.
5. Testing of Germanium, Silicon PN diodes on multimeter.
6. Use of breadboard & testing of different colour LED's, 7 segments LED Display on breadboard.
7. Testing of switches by measuring their contact resistance on multimeter.
8. Wiring and soldering of one circuit on a general purpose PCB.
9. Wiring and testing of AC 230V, 50 Hz extension supply board.
10. To observe motors, generators, transformers and identify the Inductor coils (windings) used therein.

NOTE: The students should bring Digital Multi Meter (DMM), soldering iron, Wire strippers (Cutters), & blade with them in the laboratory.

Learning Resources:-

Reference Books:-

- 1) Electronic Circuits Handbook, 3rd Edition by Michael H Tooley (BPB Publications).
- 2) Basic Electronics and Linear Circuits, 4th Edition by Bhargava, Kulshrestha And Gupta (Tata McGraw - Hill Publishing Company Limited).