Faculty of Engineering & Technology
P.K.University
Shivpuri (MP)

Syllabus and Evaluation Scheme

DIPLOMA

Electrical & Electronics Engineering

1ST SEMESTER

(Effective from Session: 2025-26)

Evaluation Scheme

STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME IN EEE												
SEMESTER-I												
SUBJECTCODE	**SUBJECTSNAME**	**STUDY SCHEME Periods/ Week**			**Credits**	**MARKS IN EVALUATION SCHEME**						**Total Marks of Internal & External**
						INTERNAL ASSESSMENT			**EXTERNAL ASSESSMENT**			
		L	**T**	**P**		**Th**	**Pr**	**Tot**	**Th**	**Pr**	**Tot**	
DCOMMEX101	Communication Skills-1	3	-	-	3	30	-	30	70	-	70	100
DAPPLEX102	Applied Mathematics-1	3	1	-	4	30	-	30	70	-	70	100
DAPPLEX103	Applied Physics-1	3	1	-	4	30	-	30	70	-	70	100
DELECEX104	Electrical & Electronics Engg. Materials	3	-	-	3	30	-	30	70	-	70	100
DELECEX105	Electronics Components & Devices	3	1	-	4	30	-	30	70	-	70	100
DELECEX106	Electrical & Electronics Engg. Drawing	0	0	4	3	30	-	30	70	-	70	100
DCOMMEX107	Communication Skills-I Lab	0	0	2	1	-	25	25	-	25	25	50
DAPPLEX108	Applied Physics-I Lab	0	0	2	1	-	25	25	-	25	25	50
DELECEX109	Electronics Components & Devices Lab	0	0	2	1	-	25	25	-	25	25	50
Total		15	3	10	24	180	75	255	420	75	495	750

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DCOMMEX101
COMMUNICATION SKILLS – I
(Common to all branch of Diploma engineering)

DETAILED CONTENTS

L	T	P
2	0	0

1 Basics of Communication **(13 periods)**

1.1 Definition and process of communication
1.2 Types of communication - formal and informal, oral and written, verbal and non-verbal
1.3 Communications barriers and how to overcome them
1.4 Barriers to Communication, Tools of Communication

2 Application of Grammar **(18 periods)**

2.1 Parts of Speech (Noun, verb, adjective, adverb) and modals
2.2 Sentences and its types
2.3 Tenses
2.4 Active and Passive Voice
2.5 Punctuation
2.6 Direct and Indirect Speech

3 Reading Skill **(10 periods)**

Unseen passage for comprehension (one word substitution, prefixes, suffixes, antonyms, synonyms etc. based upon the passage to be covered under this topic)

4 Writing Skill **(15 periods)**

4.1 Picture composition
4.2 Writing paragraph
4.3 Notice writing

RECOMMENDED BOOKS

1. Communicating Effectively in English, Book-I by RevathiSrinivas; Abhishek Publications, Chandigarh.
Communication Techniques and Skills by R. K. Chadha; DhanpatRai Publications, New Delhi.
High School English Grammar and Composition by Wren & Martin; S. Chand & Company Ltd.Delhi.
Excellent General English-R.B.Varshnay, R.K. Bansal, Mittal Book Depot, Malhotra
The Functional aspects of Communication Skills – Dr. P. Prsad, S.K. Katria & Sons, New Delhi
Q. Skills for success – Level & Margaret Books, Oxford University Press.
e-books/e-tools/relevant software to be used as recommended by AICTE/ NITTTR, Chandigarh.
Websites for Reference:
http://www.mindtools.com/ page 8.html – 99k
http://www.letstalk.com.in
http://www.englishlearning.com
http://learnenglish.britishcouncil.org/en/
http://swayam.gov.in

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DAPPLEX102

APPLIED MATHEMATICS- I

[Common to All Diploma Engineering Courses]

L	T	P
3	1	0

ALGEBRA-I :

1.1 Series : AP and GP; Sum, nth term, Mean

1.2 Binomial theorem for positive, negative and fractional index (without proof). Application of Binomial theorem.

1.3 Determinants : Elementary properties of determinant of order 2 and 3, Multiplication system of algebraic equation, Consistency of equation, Crammer's rule

2. ALGEBRA-II:

2.1 Vector algebra : Dot and Cross product, Scalar and vector triple product.

2.2 Complex number : Complex numbers, Representation, Modulus and amplitude Demoivre theorem, its application in solving algebraic equations, Mod. function and its properties..

3. TRIGONOMETRY :

3.1 Relation between sides and angles of a triangle : Statement of various formulae showing relationship between sides and angle of a triangle.

3.2 Inverse circular functions : Simple case only

4. DIFFERENTIAL CALCULUS - I :

4.1 Functions, limits, continuity, - functions and their graphs, range and domain, elementary methods of finding limits (right and left), elementary test for continuity and differentiability. 4.2 Methods of finding derivative, - Function of a function, Logarithmic differentiation, Differentiation of implicit functions.

5. DIFFERENTIAL CALCULUS -II :

5.1 Higher order derivatives, Leibnitz theorem.

5.2 Special functions (Exponential, Logarithmic, Inverse circular and function), Definition, Graphs, range and Domain and Derivations of each of these functions.

5.3 Application - Finding Tangants, Normal, Points of Maxima/Minima, Increasing/Decreasing functions, Rate, Measure, velocity, Acceleration, Errors and approximation.

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DAPPLEX103

APPLIED PHYSICS-I

[Common to All Diploma Engineering Courses]

L	T	P
2	1	0

1. UNITS AND DIMENSIONS (4 MARKS)

S.I. Units & Dimensions of physical quantities, Dimensional formula and dimensional equation. Principle of homogeneity of dimensions and applications of homogeneity principle to: (i) Checking the correctness of physical equations, (ii) Deriving relations among various physical quantities, (iii) Conversion of numerical values of physical quantities From one system of units into another. Limitations of dimensional analysis.

2. ERRORS AND MEASUREMENT (4 Marks)

Errors in measurements, accuracy and precision, random and systematic errors, estimation of probable errors in the results of measurement(Combination of errors in addition, subtraction, multiplication and powers). Significant figures, and order of accuracy in respect to instruments,

3. CIRCULAR MOTION (5 MARKS)

Central forces. Uniform Circular motion (Horizontal and Vertical cases),angular velocity, angular acceleration and centripetal acceleration. Relationship between linear and angular velocity and acceleration. Centripetal and centrifugal forces. Practical applications of Centripetal forces. Principle of centrifuge.

4. MOTION OF PLANETS AND SATELLITES :(5 Marks)

Gravitational force, Acceleration due to gravity and its variation w..r. to height and depth from earth, Kapler's Law, Escope and orbital velocity, Time period of satellite, Geo- stationary, Polar satellites.

DYNAMICS OF RIGID BODY (ROTATIONAL MOTION) (6 MARKS)

Rigid body, Rotational motion, Moment of inertia, Theorems(Perpendicular and Parallel axis) of moment of inertia (Statement). Expression of M.I. of regular bodies (Lamina, Sphere, Disc, Cylindercal),Concept of Radius of gyration, angular momentum, Conservation of angular momentum, Torque, Rotational kinetic energy. Rolling of sphere on the slant plane . Concept of Fly wheel.

6. FLUID MECHANICS :(5 MARKS)

Surface tension, Capillary action and determination of surface tension from capillary rise method, Equation of continuity (A1V1=A2V2), Bernoulli's theorem, and its application stream line and Turbulent flow, Reynold's number.

7. FRICTION :(4 MARKS)

Introduction, Physical significance of friction, Advantage and disadvantage of friction and its role in every day life. Coefficients of static and dynamic friction and their measurements. viscosity, coeff. of viscosity, & its determination by stoke's method.

8. HARMONIC MOTION (6 MARKS)

Periodic Motion , characteristics of simple harmonic motion; equation of S.H.M. and determination of velocity and acceleration. Graphical representation. Spring-mass system. Simple pendulum. Derivation of its periodic time. Energy conservation in S.H.M.. Concept of phase, phase difference, Definition of free, forced, undammed and damped vibrations, Resonance and its sharpness, Q-factor.

9. HEAT & THERMODYNAMICS: (6 MARKS)

Modes of heat transfer (Conduction, Convection and Radiation), coefficient of thermal conductivity Isothermal and adiabatic process. Zeroth First, Second Law of Thermodynamics and Carnot cycle, Heat Engine (Concept Only).

10. ACOUSTICS (5 MARKS)

Definition of pitch, loudness, quality and intensity of sound waves. Echo, reverberation and reverberation time. Sabine’s formula without Derivation. Control of reverberation time (problems on reverberation time). Acoustics of building defects and remedy.

[Common to All Diploma Engineering Courses]

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I Year I Semester
DELECEX104: ELECTRICAL AND ELECTRONICS ENGG.MATERIALS

1. Classification

Classification of materials into conducting, Semiconducting and insulating materials with reference to their atomic structure.

2. Conducting Materials

(i) Resistivity and factors affecting resistivity, such as temperature, alloying and Electrical stressing.
(ii) Super conductivity and super conducting material.
(iii) Low resistivity materials e.g. Copper, aluminum and steel, their general Properties as conductor e.g. resistivity, temperature co-efficient, mechanical Properties, corrosion, solar ability, contact resistance and practical Application Uses of mercury as conducting material.
(iv) Comparison of copper, aluminums and steel for various applications as. Electrical conductor.
(v) Low resistivity copper alloys: brass, bronze (cadmium and beryllium), their Practical application.
(vi) High resistivity materials: managing, constantan nichrome, carbon, tungsten, their practical applications.
(vii) Electric lamp materials.
(viii) Brush contact materials.
(ix) Soldering materials.
(x) Thermocouple materials, Fuse materials.

3. Insulating Materials

(i) Introduction.
(ii) Properties of insulating material.
- **Electrical properties**: Volume resistivity, Surface resistivity, Dielectric Loss, Dielectric Content, Dielectric strength.
- **Mechanical properties:-** Mechanical strength
- **Physical properties:-** Hygrscoopcity tensile and compressive strength, Abrasive resistance brittleness.
- **Thermal properties** - Heat resistance, Classification according to high permissible temperature rise, Effect of over loading on the life of an electrical appliances, Increase in rating with the use of insulating materials having higher thermal stability, Thermal conductivity.

- **Chemical properties** - Solubility, Chemical resistance, Weather ability

(iii) Insulating materials and their application-
- Definition and classification
- Thermo setting materials e.g. Phenol Formal dehyde, Resins (i.e Bakelite), Amino resins (Ureca Formaldehyde and Melamine formaldehyde), Epoxy resins their properties, Applications and Commercial names.

- Thermo Plastic materials e.g. Polyvinyl Chloride (P.V.C.), Poly Ethylene Silicon's their properties application and commercial names. Brief description of extrusion and moulding process of using plastic materials in electrical engineering.

- Natural Insulating Materials- Mica and Mica products, Asbestos and Asbestos products, Ceramic materials (Porcelain and Steatite), Glass and glass products, Cotton, Silk, Jute, Paper (Dry and impregnated), Rubber Butuman, Mineral and insulating oil for transformer, switch gear, capacitors, high voltage cables, insulating varnishes for coating and impregnation, Enamels for winding wires, Glass fiber sleeves
- Gaseous Materials e.g. Air, Hydrogen, Nitrogen and SF6

4. Magnetic Materials:

(i) Classification of magnetic materials into soft and hard magnetic materials.

(ii) Soft magnetic materials - high silicon alloy steel for transformers and low silicon alloy steel, for electric rotating machine cold rolled grain oriented and non-oriented steel, Nickel iron alloy, soft ferrites, their properties and uses.

(iii) Hard magnetic materials - tungsten steel, chrome steel, cobalt steel, alnico, hard ferrites, their properties and applications.

5. Semiconductor Materials:

Introduction, semiconductor and their applications Different semiconductor materials used in manufacturing various semiconductor (Si & Ge), Material used for electronic components like resister, capacitor, diode, transistors and inductors.

6. Special Purpose Materials:

Materials used in transistor and IC manufacturing, PC BS, computer memory devices (name of such materials to beadded) Ferrous and non ferrous materials. Thermistor, Sensistor, Varistor and their practical Application.

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I Year I Semester

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DELECEX105: ELECTRONIC COMPONENTS & DEVICES

1. INTRODUCTION TO ELECTRONICS:

1.1. Application of Electronics in different fields.

1.2. Brief introduction to active components and devices.

2. PASSIVE COMPONENTS:

2.1. Resister- Working characteristics/properties, Resistors- Carbon film, metal-film, carbon composition, wire wound and variable type (presets and potentiometers) constructional details, characteristics (size, voltage, tolerance temperature and frequency dependence and noise

Consideration, specification Testing, mutual comparison and typical applications, Voltage Dependent Resistor (VDR).

2.2. Capacitors- Working characteristics/properties, Capacitors- polyster, Metallized polyster, ceramic paper mica and electrolytic tantalum and solid aluminium types; construction details and testing, specifications, mutual comparison & typical applications. 2.3. Inductors, Transformers and RF coils- Working characteristics/properties Methods of manufacture of inductors, RF coils and small power and AF transformer and their testing. Properties of cores. Needs and type of shielding.

3. VOLTAGE AND CURRENT SOURCES:

3.1. Concept of constant voltage sources, symbol and graphical representation, characteristics of ideal and practical voltage sources.

3.2. Concept of constant current source, symbol and graphical representation, characteristics of ideal and practical current sources.

3.3. Conversion of voltage source into a current source and vice-versa

3.4 Concept of floating and grounded D.C. supplies.

4. SEMICONDUCTOR DIODE:

4.1. P-N junction diode, Mechanism of current flow in P-N junction drift and diffusion currents, depletion layer, potential barrier, P-N junction diode characteristics, zener & avalanche breakdown, concept of junction capacitance in forward & reverse bias conditions.

4.2. Semiconductor diode characteristics, dynamic resistance & their calculation from diode characteristics, dynamic resistance of diode in terms of diode current. Variation of leakage current and forward voltage with temperature (No derivation).

4.3. Diode (P-N junction) as rectifier, Half wave rectifier full wave rectifier including bridge rectifier, relationship between D.C. output voltage and A.C. input voltage rectification efficiency and ripple factor for rectifier circuits, filter circuits shunt capacitor, series inductor, capacitor input filter, bleeder resistance, working of the filters and typical applications of each type.

4.4. Different types of diodes, characteristics and typical application of power diodes, zener diodes, varactor diodes, point contact diodes, tunnel diodes, LED's and photo diodes.

4.5. Important specifications of rectifier diode and zener diode.

5. INTRODUCTION TO BIPOLAR TRANSISTOR:

5.1. Concept to bipolar transistor as a two junction three terminal device having two kinds of charge carriers, PNP and NPN transistors, their symbols and mechanisms of current flow, explanation of fundamental current relations. Concept of leakage current (ICBO) effect of temperature on leakage current. Standard notation for current and voltage polarity.

5.2. CB, CE and CC configurations.

(a) Common base configuration (CB): inputs and output characteristics, determination of transistor parameters (input and output) dynamic resistance, current amplification factor.

(b) Common emitter configuration: current relations in CE configuration, collector current in terms of base current and leakage current (ICEO), relationship between the leakage current in CB and CE configuration, input and output characteristics, determination of dynamic input and output resistance and current amplification factor B from the characteristics.

(B) Common collector configuration: Expression for emitter current in terms of base current and leakage Current in CC configuration.

5.3 Comparison of CB and CE configuration with regards to dynamic input and output resistance, current gain and leakage current performance of CE configuration for low frequency voltage amplification. Typical application of CB configuration in amplification.

5.4 Transistor as an amplifier in CE configuration.

(a) D C load line, its equation and drawing it on collector characteristics.

(b) Determination of small signal voltage and current gain of a basic transistor amplifier using CE output characteristic and DC load line, Concept of power gain as a product of voltage gain and current gain.

6 TRANSISTOR BIASING AND STABILIZATION OF OPERATING POINT:

6.1 Different transistor biasing circuits for fixing the operating points, effect of temperature on operating point. Need and method for stabilization of operating point. Effect of fixing operating point in cut-off or saturation region on performance of amplifier.

6.2 Calculation of operating point for different biasing circuits, use of Thevenin's theorem in analyzing potential divider biasing circuit.

6.3 Simple design problems on potential divider biasing circuit.

7. SINGLE STAGE TRANSISTOR AMPLIFIERS:

7.1 Analysis of Single Stage CE, CB and CC amplifier.

7.2 Single stage CE amplifier circuits with proper biasing components.

7.3 AC load line and its use in:

(a) Calculation of current and voltage gain of a single- stage amplifier circuit.

(b) Explanation of phase reversal of the output voltage with respect to input voltage.

8. FIELD EFFECT TRANSISTOR (FET)

8.1 Construction, operation, characteristics and Biasing of Junction FET.

8.2 Analysis of Single Stage CS, CG and CD amplifiers. (Only Brief Idea)

9. MOSFET:

9.1 Construction, operation, Characteristics and Biasing of MOSFET in both depletion and Enhancement modes.

9.2 Analysis of Single Stage CS, CG and CD amplifiers. (Only Brief Idea)

10. CMOS:

10.1 Construction, operation and Characteristics of CMOS in both depletion and enhancement modes.

10.2 Use of CMOS as Invertors, Different application of CMOS, CMOS IC.

10.3 Comparison of JEET, MOSFET and Bipolar transistor.

LIST OF BOOKS

1. Bhargava, Kulshreshtha & Gupta - "Baisc Electronics & Linear Circuits" - Tata Mcgraw-Hill.
2. Malvino, A. P. - "Electrinics Principles" - Tata Mcgraw- Hill.
3. Sedra, Adel S. Smith, Kenneth. C. " Micro Electronics Circuits" - Oxford University Press 5th Edtion
4. Sombir Sing - Electronic Components Devices- Jai Prakesh Nath Publication Meerut

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I Year I Semester

L T P
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DELECEX106: ELECTRICAL & ELECTRONICS ENGG. DRAWING

C O N T E N T S

NOTE : Latest Indian Standards Code of Practice to be followed.

1. Drawing, instruments and their uses. 1 Sheet

1.1 Introduction to various drawing, instruments.
1.2 Correct use and care of Instruments.
1.3 Sizes of drawing sheets and their layouts.

2. Lettering Techniques 2 Sheet

Printing of vertical and inclined, normal single stroke capital letters.
Printing of vertical and inclined normal single stroke numbers.
Mini Drafter and their use.

3**. Introduction to Scales 2 Sheet**

Necessity and use, R F
Types of scales used in general engineering drawing.
Plane and diagonal scales.

4. Conventional Presentaion : 1 Sheet

Thread (Internal and External), Welded joint, Types of lines,
Conventional representation of materials,
Conventional representation of machine parts.

5. Principles of Projection 1 Sheet

(a) Orthographic, Pictorial and perspective.

Concept of horizontal and vertical planes.
Difference between I and III angle projections. Dimensioning techniques.

(b) Projections of points 1 Sheet

6. Orthographic Projections of Simple 2 Sheet

given orthographic pictures

Concept of sectioning

Cases involving cutting plane parallel to one of the reference planes and perpendicular to the others.
Cases involving cutting plane perpendicular to one of the reference planes and inclined to the others plane, true shape of the section

7. Free hand sketching **1 Sheet**

Isometric views of simple job like carpentry joints, pipe & rod cutting section, Anvil, Swage Block, Vernier calipers, Trysquare, Step Pulley, Flonge coupling, etc

8. PRACTICE ON AUTO CAD : **2 Sheet**

Concept of AutoCAD, Tool bars in AutoCAD, Coordinate System, Snap, Grid and Ortho mode. Drawing Command - Point, Line, Arc, Circle, Ellipse. Editing Commands - Scale, Erase, Copy, Stretch, Lengthen and Explode. Dimensioning and Placing text in drawing area. Sectioning and hatching. Inquiry for different parameters of drawing.

Section B

1. ELECTRICAL & ELECTRONICS SYMBOLE :

1. Draw the standard symbols of the following :

(Different pages of ISI standard IS; 2032 may be referred):

1.1 (a) Resistors Capacitors: Fixed, preset, variable, electrolytic and ganged types.

(b) Inductors : Fixed, tapped and variable types, RF & AF chokes, Air cored, Solid cored & laminated cored.

(c) Transformers : Step-up, step-down. AF & RF types, Auto-transformer, IF transformer.

(d) Electrical Symbols i.e Ammeter, Voltmeter, Wattmeter, Energy meter, Frequency Meter, Thermister, Thermo couple.

(e) Draw standard symbols of NOT, AND, NAND, OR, NOR XOR, Expandable & Tristate gates, Op, Amp, Ic, Flip-flops (Combination of 2,3,4 input gates should be drawn).

Antenna, Chassis, Earth, Loudspeaker, Microphone, Fuse Indicating lamp, Coaxial cable, Switches-double pole single throw (DPST), Double pole throw (DPT) and Rotary types, terminals and connection of conductors.

2. ACTIVE DEVICES AND TELEPHONE COMPONENT :

Semiconductor : Rectifier diode, Zener diode, Varacter diode, Tunnel diode, Photo, Light emitting diode (LED), Bipolar transsitor, junction field effect transistor (JFET), Mosfet, Photo transistor, Uni junction transistor (UTJ), Silicon control rectifier (SCR), Diac, Triacs outlines (with their types numbers e.g TO3, TO5, TO18, TO39, TO65 etc) of the different types of semiconductor diodes, Transistors Scrs, Diacs, Triacs and ICs (along with indicators for pin identification etc.)

Telephone components :

Telephone Instrument/Components : Transmitter, Receiver, Filters & Hybrid transformer.

3. WIRING DIAGRAM

Connection wiring diagrams.

3.1 Point to point pictorial.

3.2 Highway or trunk line, Simple wiring diagram i.e. staircase wiring, wiring diagram of single bulb control, one bulb with one fan and one socket control, tube light connection diagram.

3.3 Base line or air line.

Exercise on reading & interpreting of wiring diagrams.

Graphical Representation of Data : Use of various graph paper and perparation of diagram from given data. Bar charts, pie graph, pictorial graph.

4. ROUGH SKETCH OF CIRCUIT DIAGRAM :

Draw the following circuit diagram : (With the help of rough sketch/clues given).

4.1 Circuit diagram of a Wein's bridge oscillator.

4.2 Circuit diagram of a Battery eliminator.

4.3 Circuit of Emergency light.

4.4 Circuit diagram of Voltage stabilizers.

4.4 Circuit diagram of Fan regulator.

5. CONVERSION OF SIZE (A1,A2,A3, AND A4) :

5.1 Given the block diagram of a radio receiver on A-4 size, enlarge the same to A-2 size.

5.2 Bloack of diagram of Electronic Multi Meter in A1-A3-A4.

5.3 Block diagram of a TV receiver in A-1/A-2 size, reduce it to A-3 size.

5.4 Convert a rough block diagram sketch on A-4 size to a finished block diagram on A-2 size.

6. PCB LAYOUT :

P.C.B layout of a single electronic circuit on a graph sheet. Keeping in view the actual size of the components.

NOTE :

A. The drawing should include dimension with tolerance where ever necessary, material list according to I.S. code. 25% of the drawing sheet should be drawn in first angle projection and rest 75% drawing sheet should be in third angle figure

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DCOMMEX107

COMMUNICATION SKILLS – I LAB

[Common to All Diploma Engineering Courses]

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LIST OF PRACTICALS

1. Listening and Speaking Exercises
2. Self and peer introduction
3. Newspaper reading
4. Just a minute session-Extempore
5. Greeting and starting a conversation
6. Leave taking
7. Thanking
8. Wishing well
9. Talking about likes and dislikes
10. Group Discussion
11. Listening Exercises.

INSTRUCTIONAL STRATEGY

Student should be encouraged to participate in role play and other student centred activities in class room and actively participate in listening exercises

MEANS OF ASSESSMENT

Assignments and quiz/class tests, mid-semester and end-semester written tests
Actual practical work, exercises and viva-voce
Presentation and viva-voce.

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I Year I Semester

DAPPLCE108

APPLIED PHYSICS LAB

[Common to All Diploma Engineering Courses]

L	T	P
0	0	2

List of Experiments-: (Any eight)

1.Vernier Calipers: To determine the volume of a spherical / cylindrical body and a test tube by measuring its dimensions using vernier calipers.

2.Screw gauge: To determine diameter of a wire, a solid ball and thickness of glass plate using screw gauge.

3.Spherometer: To determine radius of curvature of a spherical surface using a speedometer.

4. Mercury thermometer: To measure room temperature and temperature of a hot bath using mercury thermometer and convert it into different scales.

5 To find the time period of a simple pendulum and determine acceleration due to gravity

6. Stoke's law: To find the coefficient of viscosity of a given liquid by measuring the terminal velocity of a spherical body.

7. Parallelogram law of forces: To verify parallelogram law of forces and find the mass of the given body.

8. Moment bar: To determine the mass of the given body using moment bar.

9. U-tube apparatus: To determine the relative density of liquid using U-tube apparatus.

10. Flywheel: To find the moment of inertia of a flywheel.

11. Simple pendulum: To determine acceleration due to gravity at a place by measuring the time period of a simple pendulum

12. Resonance column: To determine the velocity of sound in air at room temperature using resonance column apparatus

13. Cantilever: To find the time period of oscillations of a cantilever

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L	T	P
0	0	2

DELECEX109: ELECTRONIC COMPONENTS & DEVICES

LIST OF PRACTICALS:-

1. Semiconductor diode characteristics :

   (i) Identifications of types of packages, terminals and noting different ratings using data books for various types of semiconductor diodes (Germanium, point contact, silicon low power and high power and switching diode).
   (ii) Plotting of forward V-I characteristics for a point contact and junction P-N diode (Silicon & Germanium diode).

2. Rectifier circuits using semiconductor diode, measurement of input and output voltage and plotting of input and output wave shapes

   (i) Half wave rectifier.
   (ii) Full wave rectifier (center tapped and bridge rectifier circuits)

3. To Plot forward and reverse V-I characteristics for a zener diode.
4. To Plot wave shapes of a full wave rectifier with shunt capacitor, series inductor and n filter circuit.
5. To Plot the input and output characteristics and calculation of parameters of a transistor in common base configuration.
6. To Plot input and output characteristics and calculation of parameters of a transistor in common emitter configuration
7. Transistor Biasing circuits

   (i). Measurement of operating point (Ic & Vce) for a fixed bias circuit.
   (ii).Potential divider biasing circuits.
   (Measurement can be made by changing the transistor in the circuits by another of a same type number.
8. Plot the FET characteristics and determination of its parameters from these characteristics.
9. Measurement of voltage gain and plotting of the frequency response curve of a JFET amplifier circuits.
10. Measurement of voltage gain and plotting of the frequency response curve of a MOSFET amplifier circuits.
11. Single stage Common Emitter Amplifier Circuits

    (i). Measurement of voltage gain at 1 KHZ for different load resistance.
    (ii) Plotting of frequency response of a single stage amplifier circuit.
    (iii) Measurement of input and output impedance of the amplifier circuit.
12. Familiarization with lan instrument(Multimeter/CRO), etc.