Kashi Institute of Technology, Varanasi

(An Autonomous Institute Approved by AICTE)

Evaluation Scheme & Syllabus

For

Diploma 1ˢᵗ Year
(Electrical Engineering)

(Effective from Session: 2025-26)

Diploma First Year, Semester-I
Electrical Engineering

S.N.	Course Category	Course Code	Course Title	Type	Periods			FA	SA	Total	Credit
					L	T	P				
1.	HS	DHS101	COMMUNICATION SKILL – I	T	2	0	0	70	30	100	2
2.	BS	DBS101	APPLIED MATHEMATICS-I	T	3	1	0	70	30	100	4
3.	BS	DBS105	APPLIED CHEMISTRY	T	2	1	0	70	30	100	3
4.	PC	DEEPC101	FUNDAMENTALS OF ELECTRICAL ENGINEERING	T	3	0	0	70	30	100	3
5.	ES	DES101	ENGINEERING DRAWING-I	P	0	0	8	70	30	100	2
6.	ES	DES103	WORKSHOP PRACTICE – I	P	0	0	8	70	30	100	2
7.	HS	DHS103	COMMUNICATION SKILL – I LAB	P	0	0	2	70	30	100	1
8.	BS	DBS109	APPLIED CHEMISTRY LAB	P	0	0	2	70	30	100	1
9.	PC	DEEPC103	FUNDAMENTAL OF ELECTRICAL ENGINEERING LAB	P	0	0	2	70	30	100	1
10.	CCA	DCCA101	CO-CURRICULAR ACTIVITIES		-	-	-	-	-	100	0.5
11.	GP	DGP101	GENRAL PROFICIENCY		-	-	-	-	-	100	0.5
Total				**-**	**10**	**2**	**22**	**630**	**270**	**1100**	**20**

Diploma First Year, Semester-II
Electrical Engineering

S.N.	Course Category	Course Code	Course Title	Type	Periods			FA	SA	Total	Credit
					L	T	P				
1.	BS	DBS102	APPLIED MATHEMATICS –II	T	3	1	0	70	30	100	4
2.	BS	DBS104	APPLIED PHYSICS	T	2	1	0	70	30	100	3
3.	PC	DEEPC102	ANALOG ELECTRONICS	T	3	0	0	70	30	100	3
4.	ES	DES110	FUNDAMENTAL OF CIVIL& MECHINCAL ENGINEERING	T	3	0	0	70	30	100	3
5.	ES	DES114	WORKSHOP PRACTICE –II	P	0	0	8	70	30	100	2
6.	BS	DBS108	APPLIED PHYSICS LAB	P	0	0	2	70	30	100	1
7.	PC	DEEPC104	ANALOG ELECTRONICS LAB	P	0	0	2	70	30	100	1
8.	ES	DES122	FUNDAMENTAL OF CIVIL& MECHINCAL ENGINEERING LAB	P	0	0	2	70	30	100	1
9.	ES	DES112	INTRODUCTION TO IT SYSTEM LAB	P	0	0	2	70	30	100	1
10.	CCA	DCCA102	CO-CURRICULAR ACTIVITIES		-	-	-	-	-	100	0.5
11.	GP	DGP102	GENRAL PROFICIENCY		-	-	-	-	-	100	0.5
Total				**-**	**11**	**2**	**16**	**630**	**270**	**1100**	**20**

FA: Formative Assessment, **SA**: Summative Assessment, **L**: Lecture, **T**- Tutorial, **P:** Practical

Abbreviation Used:

HS: Humanities, Social Science
ES: Engineering Science
BS: Basic Science
CS: Computer Science
PC: Programme course

DETAILED SYLLABUS
DIPLOMA 1St Year

- **Electrical Engineering 1st Semester**

(Effective from Session: 2025-26)

Diploma in Electrical Engineering

Semester: I				Course Category Code :HS	

Course Code:	Course	Period / Week			Credit
		L	**T**	**P**	**C**
DHS101	**COMMUNICATION SKILL-I**	**2**	**0**	**0**	**2**

Prerequisite	After completion of the course students are able to -	Bloom's Level
Course Outcome	**CO1** *Introduce, converse, show interest and respond.*	K1,K3
	CO2 *Improve decisions through practical exercises, cases.*	K3
	CO3 *Improve Reading skills*	K3,K5
	CO4 *Present, write effectively and give feedback.*	K2,K3
	CO5 *Improve his communication related to industry based.*	K2,K3

UNIT - I	**BASICS OF COMMUNICATION FOR CAREER DEVELOPMENT**	**Contact Hours: 06**
Meaning of Communication, Role and Scope of Communication, Barriers of Communication, Types of Communication, Process of Communication, Role of Communication in Corporate field.		**CO1**

UNIT – II	**APPLICATION OF GRAMMAR**	**Contact Hours:06**
Verb, Tense, Active & Passive voice , Direct & Indirect speech		**CO2**

UNIT – III	**READING SKILLS**	**Contact Hours: 06**
Unseen passage for comprehension (one word substitution, prefixes, suffixes, antonyms, synonyms etc. based upon the passage to be covered under this topic)		**CO3**

UNIT – IV	**WRITING SKILLS**	**Contact Hours: 06**
Email writing, Letter/Report writing, CV/Resume creation, paragraph writing, notice writing.		**CO4**

UNIT 5	**INTERVIEW SKILLS &SELF ANALYSIS**	**Contact Hours : 06**
Giving self-Introduction, Telephonic Interviews, Etiquettes to follow during an interview session, Swat analysis.		**CO5**

Lecture Hour: 30	**TUTORIAL HOURS: 0**	**TOTAL: 30**

Reference Books:

1. How to Win Friends and Influence People by Dale Carnegie Simon and Schuster, 1936.

2. Advance English Grammar by D.S. Paul

3. Business Communication by M. Raman, Oxford University Press.

4. Word Power Made by Easy by Norman Lewis

5. 30 days to Better English by Norman Lewis

6. Learn English Through Hindi

Diploma in Electrical Engineering

Semester : I				Course Category Code :BS	
Course Code	**Course**	**Period / Week**			**Credit**
		L	**T**	**P**	**C**
DBS101	**APPLIED MATHEMATICS-I**	3	1	0	4
Prerequisite	*At the end of this course, the students will be able to:*				**Bloom's Level**
Course Outcome	**CO1**	*Understand the concept of Arithmetic mean and Geometric mean and linear equation.*			K_2
	CO2	*Apply dot & cross product of vectors to find the solution of engineering problems and Use complex numbers in various engineering problems.*			K3,
	CO3	*Understand the concept of Relation between sides and angles of a triangle*			K2
	CO4	*Apply differential calculus and higher order to solve engineering problems.*			K3
	CO5	*Find velocity, acceleration, errors and approximation in engineering problems with application of derivatives.*			K3,K4
UNIT – I	**Algebra-I**				**Contact Hours : 08**
Arithmetic Mean: nth term, sum, Mean Geometric Mean: nth term, sum, Mean Determinants: Elementary properties of determinants of order 2 and 3, system of linear equations and solution, Cramer`s Rule					**CO1**
UNIT – II	**Algebra-II**				**Contact Hours : 08**
Vector Algebra: Dot and cross product, Scalar and vector triplet product Complex Numbers: Representation, Modulus and Amplitude, De-Moivre theorem application in solving algebraic equations.					**CO2**
UNIT – III	**Trigonometry**				**Contact Hours : 08**
Relation between sides and angles of a triangle: Statement of various formula showing relationship between sides and angles of a triangle. Inverse Circular Functions					**CO3**
UNIT – IV	**Differential Calculus-I**				**Contact Hours : 08**
Functions, limits, continuity, elementary methods of finding limit (right and left)Method of finding derivatives, functions of a function, Logarithmic Differentiation					**CO4**
UNIT – V	**Differential Calculus-II**				**Contact Hours : 08**
Higher order derivatives, Derivatives of Special Functions (Exponential, Logarithmic, and Inverse circular functions)					**CO5**
Lecture Hours : 30		**Tutorials Hours :10**			**Total : 40**

Reference Books:

1. Elementary Engineering Mathematics by BS Grewal, Khanna Publishers, New Delhi
2. Engineering Mathematics, Vol I & II by SS Sastry, Prentice Hall of India Pvt. Ltd.,
3. Applied Mathematics-I by Chauhan and Chauhan, Krishna Publications, Meerut.

Text Book

1. Applied Mathematics-I (A) by Kailash Sinha and Varun Kumar; Aarti Publication, Meerut

Diploma in Electrical Engineering

Semester: I			Course Category Code :BS		
Course Code	Course		Period / Week		Credit
			L	T	P	C
DBS105	APPLIED CHEMISTRY		2	1	0	3

Prerequisite		At the end of this course, the students will be able to:	Bloom's Level
Course Outcome	CO1	Describe the three subatomic particles in an atom. Explain the differences between protons, neutrons, and electrons. Recap the characteristics of elements in the Periodic table. Differentiate between polar and non-polar covalent	K1,K2
	CO2	Developing the basic idea about lubricant and also help us to understand the different sources of water.	K2,K3,K_5
	CO3	Student will be able to define water. Explain the role of water for human and plants. Discuss and explain water cycle.	K_2
	CO4	Identify the primary oxidation and reduction reaction for corrosion. Differentiate between general corrosion and localized corrosion.	K2,K4
	CO5	Understand how the thermodynamic of organic reaction define the direction and kinetics define the rate at which they proceed. Provides important information regarding Molecular weight, Glass transition temperature &Crystallization of Polymers.	K1,K2,K6

UNIT – I	Atomic structure, Periodic Table and Chemical Bonding	Contact Hours : 8
1. Fundamental particles- mass and charges of electrons, protons and neutrons. 2. Bohr's model of atom and limitations. 3. Atomic number, atomic mass number isotopes and isobars. 4. Definition of orbit and orbitals, shapes of s and p orbitals only, 5. Aufbau's principle, Hund's rules. Electronic configuration of elements with atomic number (Z) = 20 only. 6. Chemical bonding – General introduction about ionic bond & covalent bonds		CO1

UNIT – II	Fuels and Lubricants	Contact Hours : 8
2.1 .Definition& Classification of fuels, characteristics of good fuel. 2.2 Calorific value-higher calorific value, lower calorific value, determination of calorific value of solid or liquid fuel using Bomb calorimeter and numerical examples. Coal - types of coal and proximate analysis of coal. Gaseous fuels –chemical composition, and applications of natural gas (CNG), LPG, Lubricants: Definition properties and industrial applications		CO2

UNIT – III	Water	Contact Hours : 8
Hard water, types of hardness, causes of hardness, units of hardness–mg per liter (mgL^{-1}) and part per million (ppm) and simple numerical, Disadvantages caused by the use of hard water in domestic and boiler feed water. Primming and foaming and caustic embrittlement in boilers. Removal of hardness - Permutit process.		CO3

UNIT – IV	Corrosion and its Control	Contact Hours : 8

1. Definition of corrosion. Redox Reaction.
2. Theories of
   1. Dry (chemical) corrosion- Pilling Bedworth rule
   2. Wet corrosion in acidic atmosphere by hydrogen evolution mechanism
3. Corrosion control:
		CO4

1. Metal coatings – Zn (Sherardizing), Electroplating 2. Organic coatings - use of paints, varnishes.		
UNIT – V	**Organic compound, Polymers and Plastics periods**	**Contact Hours : 08**
1. Definition of polymer, monomer and degree of polymerization 2. Brief introduction to addition and condensation polymers with suitable examples (PE, PVC, Teflon, Nylon -66 and Bakelite) 3. Thermo plastics and thermo setting plastics.		**CO 5**
Lecture Hours : 30	**Tutorials Hours :10**	**Total :40**

Reference Books:

1. *Pradeep's New Course Chemistry for class XII (Vol. I and II)*
2. *Modern's ABC of Chemistry Class - 12 (Part 1 & 2)*
3. *Concise Inorganic Chemistry*
4. *Modern Approach to Chemical Calculations*

Diploma in Electrical Engineering

Semester : I			Course Category Code :PC		

Course Code	Course	Period / Week			Credit
		L	T	P	C
DEEPC101	FUNDAMENTAL OF ELECTRICAL ENGINEERING	3	0	0	3

Prerequisite	At the end of this course, the students will be able to:		Bloom's Level
Course Outcome	**CO1**	Identify and able to take readings on various electrical equipment's(voltmeter, ammeter, CRO, wattmeter, multi-meter)	K_2, K_4
	CO2	Determination of voltage-current relationship in a DC circuit under specific physical conditions.	K_3, K_6
	CO3	Understand the concept of magnetic circuit.	K_2
	CO4	Test a lead - acid storage battery	K_4
	CO5	Measure power and power factor in a single phase R-.L-.C. Circuit and calculation of active and reactive powers in the circuit.	K_3, K_4, K_6

UNIT – I	Overview of DC Circuits	Contact Hours : 08
Definition of basic terms, such as current, EMF, Potential Difference (PD); Ohm's Law and its limitations; Factors affecting resistors and capacitors; simple problems on series and parallel combinations of resistors with their wattage considerations. Application of Kirchhoff's current law and Kirchhoff's voltage law to simple circuits . Star – Delta connections and their conversion.		CO1

UNIT – II	DC Circuit Theorems	Contact Hours : 08
Concept of voltage source, symbol and graphical representation characteristics of ideal and practical sources. Concept of current sources, symbol, characteristics and graphical representation of ideal and practical current sources. Inter Conversion of Voltage-Source and Current Source. **Network Theorems-**Superposition principle, Thevenin's theorem, Norton's theorem, application of network theorems in solving D.C. circuit problems.		CO2

UNIT – III	Electro Magnetic Induction	Contact Hours : 08
Concept of electro-magnetic field produced by flow of electric current, magnetic circuit, concept of magneto-motive force (MMF), flux, reluctance, permeability, analogy between electric and magnetic circuit.\ Faraday's laws of electro-magnetic induction, principles of self and mutual induction, self and mutually induced e.m.f, simple numerical problems		CO3

UNIT – IV	Batteries	Contact Hours : 08
Basic idea of primary and secondary cells, Construction, working principle and applications of Lead-Acid, Nickel- Cadmium and Silver-Oxide batteries, Charging methods used for lead-acid battery (accumulator),Care and maintenance of lead-acid battery, Series and parallel connections of batteries, General idea of solar cells, solar panels and their applications Introduction to maintenance free batteries		CO4

UNIT – V	AC Fundamentals	Contact Hours : 08
Concept of alternating quantities, Difference between ac and dc, Concepts of: cycle, frequency, time period, amplitude, instantaneous value, average value, r.m.s. value, maximum value, form factor and peak factor. Representation of sinusoidal quantities by Phasordiagrams. Equation of sinusoidal wave form for an alternating quantity and its derivation. Concept of inductive and capacitive reactance.Effect of alternating voltage Applied to a pure resistance, pure inductance and pure capacitance. Alternating voltage applied to resistance and inductance in series.		CO5

Introduction to series and parallel resonance and its conditions.
Power in pure resistance, inductance and capacitance, power in combined RLC circuits.
Power factor, active and reactive power and their significance, definition and significance of power factor.
Definition of conductance, susceptance, admittance, impedance and their units
Introduction to poly-phase A.C. systems, advantages of polyphase system over single phase system.
Relations between line and phase value of voltages and currents for star and delta connections and their phasor diagram, power in poly-phase circuits.

Lecture Hours : 40	**Tutorials Hours : 0**	**Total : 40**

Reference Books:
1. *Basic Electrical Engineering by PS Dhogal, Tata Mc Graw-Hill Education Pvt Ltd., New Delhi.*
2. *Experiments in Basic Electrical Engineering by SK Bhattacharya, KM Rastogi; New Age International (P) Ltd.; Publishers New Delhi.*
3. *Basic Electrical Engineering by Asfaque Husain, Jain Book Depot, New Delhi.*
4. *Basic Electrical Engineering by J.B. Gupta; SK Kataria and Sons, New Delhi.*

Text Book
1. *Electrical Technology by BL Theraja, S Chand and Co, New Delhi.*

Diploma in Electrical Engineering

Semester: I				Course Category Code :ES		
Course Code	Course			Period / Week		Credit
				L	T	P	C

Course Code	Course			L	T	P	C
DES101	ENGINEERING DRAWING-I			0	0	8	2
Prerequisite	*At the end of this course, the students will be able to:*			Bloom's Level			
Course Outcome	CO1	*Study & identify the different types engineering drawing instruments and different grades of pencil used in drafting and drafting of free hand lettering.*		K_1,K_2,K_4			
	CO2	*Study & sketching of different types of dimensioning methods and scaling.*		K_2,K_3			
	CO3	*Study & sketching of orthographic and isometric projection with the help of mini drafter.*		K_2,K_3,K_4,K_5			
	CO4	*Study & sketching of sectioning techniques used in engineering field and an over view of Common Symbols and Conventions used in civil & electrical engineering.*		K_2,K_3			
	CO5	*Introduction to AutoCAD and operational instructions of various commands in AutoCAD and making of at least 3sheets of various solid sections (cube, cuboids, cone, sphere etc.) using AutoCAD.*		K_3,K_5,K_6			

UNIT – I	**Introduction of Engineering Drawing**	No. of sheets:03
Introduction to drawing instruments, materials, layout and sizes of drawing sheets and drawing boards. Practice of vertical, horizontal and inclined lines, geometrical figures such as triangles, rectangles, circles, ellipses and curves, hexagonal, pentagon with the help of drawing instruments. Free hand lettering (Alphabet and numerals) upper case (Capital Letter), single stroke, vertical and inclined at 75 degree, series of 5mm of free hand lettering of height 25 mm in the ratio of 7:4.		CO1
UNIT – II	**Dimensioning Technique& Scales**	No. of sheets: 04
Necessity of dimensioning, method and principles of dimensioning, dimensioning of overall sizes, circles, threaded holes, chamfered surfaces, angles, tapered surfaces, holes, Scales – their needs and importance, type of scales, definition of R.F. and length of scale, drawing of plain and diagonal scales.		CO2
UNIT – III	**Orthographic & Isometric Projection**	No. of sheets: 08
Theory of orthographic projections, Projection of Points in different quadrant, Projection of Straight Line parallel, perpendicular & inclined to any one of the reference plane, Projection of Plane Different lamina like rectangular, triangular and circle, parallel and perpendicular tothe plane, orthographic projection of different objects, fundamentals of isometric projections, isometric views of combination of regular solids like cylinder, cone, cube and prism. To make projections, Top view, Front view and Side view of various types of Solids.		CO3
UNIT – IV	**Symbols used in engineering**	No. of sheets: 03
Civil Engineering sanitary fitting symbols, Electrical fitting symbols for domestic interior installations.		CO4
*UNIT – V	**Introduction to CAD software**	No. of sheets: 02
Basic introduction of CAD software (AutoCAD) and operational instructions of various commands in AutoCAD. At least two sheets on AutoCAD of cube, cone, pyramid, sphere and combination of above solids.		CO5

*Auto CAD drawing will be evaluated internally by Formative Assessment marks and not by Summative Assessment paper.

Total no of sheets making: 20

Reference Books:

1. *A Text Book of Engineering Drawing by Surjit Singh; Dhanpat Rai & Co., Delhi*
2. *Engineering Drawing by PS Gill; SK Kataria& Sons, New Delhi*
3. *Elementary Engineering Drawing in First Angle Projection by ND Bhatt; Charotar Publishing House Pvt. Ltd., Anand*
4. *Engineering Drawing I & II by JS Layall; Eagle Parkashan, Jalandhar*
5. *Engineering Drawing I by DK Goel, GBD Publication.*

Diploma in Electrical Engineering

Semester : I		Course Category Code :ES		

Course Code	Course	Period / Week			Credit
		L	T	P	C
DES103	WORKSHOP PRACTICE – I	0	0	8	2

Prerequisite		*At the end of this course, the students will be able to:*	Bloom's Level
Course Outcome	CO1	*Identify tools and equipment used and their respective functions.*	K_1, K_2, K_4
	CO2	*Identify different types of materials and their basic properties.* *Use and take measurements with the help of basic measuring tools/equipment.*	K_2, K_5
	CO3	*Select proper tools for a particular operation.* *Select materials, tools, and sequence of operations to make a job as per givens pacification /drawing.*	K_2, K_3, K_4, K_5
	CO4	*Prepare simple jobs independently and inspect the same.* *Follow safety procedures and precautionary measures.*	K_2, K_3
	CO5	*Use safety equipment and Personal Protection Equipment.*	K_3, K_5, K_6

UNIT – I	CARPENTRY SHOP	Contact Hours: 12

1.1 General Shop Talk 1.1.1 Name and use of raw materials used in carpentry shop : wood &alternative materials 1.1.2 Names, uses, care and maintenance of hand tools such as different types of Saws, C-Clamp, Chisels, Mallets, Carpenter's vices, Marking gauges, Try-squares, Rulers and other commonly used tools and materials used incarpentry shop by segregating as cutting tools, supporting tools, holding tools , measuring tools etc. 1.1.3 Specification of tools used in carpentry shop. 1.1.4 Different types of Timbers, their properties, uses & defects. 1.1.5 Seasoning of wood. 1.2. Practice 1.2.1 Practices for Basic Carpentry Work 1.2.2 Sawing practice using different types of saws 1.2.3 Assembling jack plane — Planning practice including sharpening of jackplane cutter 1.2.4 Chiselling practice using different types of chisels including sharpening of chisel 1.2.5 Making of different types of wooden pin and fixing methods. Marking measuring and inspection of jobs. 1.3 Job Practice Job 1 Marking, sawing, planning and chiselling and their practice Job II Half Lap Joint (cross, L or T–any one) Job III Mortise and Tenon joint (T-Joint) Job IV Dove tail Joint (Lap or Bridle Joint)	CO1

UNIT – II	PAINTING AND POLISHING SHOP	Contact Hours: 12

2.1. Introduction of paints, varnishes, Reason for surface preparation, Advantages of Painting, other method of surface coating ie. Electroplating etc. 2.2. Job Practice Job 1: To prepare a wooden surface for painting apply primer on one side and topaint the same side. To prepare french polish for wooden surface and polish the other side. Job II: To prepare metal surface for painting, apply primer and paint the same. Job III: To prepare a metal surface for spray painting, first spray primer andpaint the same by spray painting gun and compressor system. The sequence of polishing will be as follows: i) Abrasive cutting by leather wheel ii) Polishing with hard cotton wheel and with polishing material iii) Buffing with cotton wheel or buff wheel.	CO2

UNIT – III	ELECTRICAL SHOP	Contact Hours: 12

3.1 Study, demonstration and identification of common electrical materials with standard ratings and specifications such as wires, cables, switches, fuses, cleats, clamps and allied items, tools and accessories. 3.2 Study of electrical safety measures and protective devices. Job I Identification of phase, Neutral and Earth wires for connection to domestic electrical appliances and their connections to three pinplugs. Job II Carrying out house wiring circuits using fuse, switches, sockets, ceiling rose etc. in batten or P.V.C. casing-caping. 3.3 Study of common electrical appliances such as auto electric iron, electric kettle, Ceiling/table fan, desert cooler etc. 3.4 Introduction to the construction of lead acid battery and its working. Job III Installation of battery and connecting two or three batteries in series and parallel. 3.5 Introduction to battery charger and its functioning. Job IV Charging a battery and testing with hydrometer and celltester	CO3

UNIT – IV	SMITHY SHOP	Contact Hours: 12
4.1. General Shop Talk 4.1.1 Purpose of Smithy shop 4.1.2 Different types of Hearths used in Smithy shop 4.1.3 Purpose, specifications, uses, care and maintenance of various tools and equipments used in hand forging by segregating as cutting tools, supporting tools, holding tools, measuring tools etc. 4.1.4 Types of fuel used and maximum temperature obtained 4.1.5 Types of raw materials used in Smithy shop 4.1.6 Uses of Fire Bricks & Clays in Forging workshop. 4.2 Practice 4.2.1 Practice of firing of hearth/Furnace, Cleaning of Clinkers and Temperature Control of Fire. 4.2.2 Practice on different basic Smithy/Forging operations such as Cutting, Upsetting, Drawing down, Setting down, Necking, Bending, Fullering, Swaging, Punching and Drifting		CO4

UNIT – V	PLUMBING SHOP	Contact Hours: 12
5.1. Use of personal protective equipments, safety precautions while working and cleaning of shop. 5.2. Introduction and demonstration of tools, equipment and machines used in plumbing shop. 5.3. Introduction of various pipes and pipe fittings of elbow, nipple, socket, union etc. 5.4. Job Practice Job 1 : Preparation of job using elbow, bend and nipple Job II: Preparation of job using Union, Tap, Plug and Socket. Job III: Threading practice on pipe with die		CO5

Practical Hours : 60		Total : 60

Reference Books:

1. *Workshop Technology Vol. I, II, III by Manchanda; India Publishing House, Jalandhar.*
2. *Workshop Training Manual Vol. I, II by S.S. Ubhi; Katson Publishers, Ludhiana.*
3. *Manual on Workshop Practice by K Venkata Reddy; MacMillan India Ltd., New Delhi*
4. *Basic Workshop Practice Manual by T Jeyapoovan; Vikas Publishing House (P) Ltd., New Delhi*
5. *Workshop Technology by B.S. Raghuwanshi; Dhanpat Rai and Co., New Delhi*
6. *Workshop Technology by HS Bawa; Tata McGraw Hill Publishers, New Delhi.*

Diploma in Electrical Engineering

Semester : I				Course Category Code : HS	

Course Code	Course	Period/Week			Credit
		L	T	P	C
DHS103	**COMMUNICATION SKILL – I LAB**	**0**	**0**	**2**	**1**

Prerequisite	*At the end of this course, the students will be able to:*

Course Outcome	CO1	*Able to speak correctly in a grammatical form*
	CO2	*Improvement of Listening ability*
	CO3	*Write various types of paragraphs, notices for different purposes and composition on picture with appropriate format*
	CO4	*Reproduce and match words and sentences in a paragraph*
	CO5	*Understand the importance of effective communication*

List of practical:

1. Listening and Speaking Exercises	**CO1**
2. Self and peer introduction	
3. Newspaper Reading	**CO2**
4. Just a minute session - Extempore	
5. Greeting and starting a conversation	**CO3**
6. Discuss about likes and dislikes	
7. Group Discussion	**CO4**
8. Mock Interviews Practice	
9. Short story telling (Moral and Brief Summary)	**CO5**
10. Enrichment of English Vocabulary	

Diploma in Electrical Engineering

Semester: I			Course Category Code :**BS**		

Course Code	Course	Period / Week			Credit
		L	T	P	C
DBS109	**APPLIED CHEMISTRY LAB**	0	0	2	1

Prerequisite	*At the end of this course, the students will be able to:*				
Course Outcome	**CO1**	*Total hardness of water can be estimated by titrating a sample of water with EDTA salt solution in presence of NH4Cl–NH4OH*			
	CO2	*The alkalinity of water can be determined by titrating the water sample with Sulphuric acid of known values of pH, volume and concentration.*			
	CO3	*Proximate analysis determines fixed carbon, volatile matter, moisture, and ash content, while ultimate analysis identifies the carbon, hydrogen, nitrogen, sulphur, and oxygen composition of solid fuels.*			
	CO4	*The permanent hardness of water can be removed by O' Hener's Method.*			
	CO5	*We can easily determine the flash and fire point of given lubricant oil by using Able's flash point apparatus..*			

List of experiment	
CO 1	1. Estimation of total hardness of water using standard EDTA solution. 2. Calibration of Analytical Apparatus.
CO 2	3. Estimation of total alkalinity of given water sample by titrating it against standard sulfuric acid solution
CO 3	4. Proximate analysis of solid fuel 5. Preparation of Standard Solution of KMnO4 or NaCl.
CO 4	6. Estimation of temporary hardness of water sample by O' Hener's Method 7. Determination of Viscosity of given solution by Viscometer.
CO 5	8. Determination of flash and fire point of given lubricating oil using Able's flash point apparatus 9. Determination of surface tension of given liquid by Stalagmometer.

Diploma in Electrical Engineering

Semester: I			Course Category Code :PC		
Course Code	**Course**		**Period/Week**		**Credit**
		L	T	P	C
DEEPC103	**FUNDAMENTAL OF ELECTRICAL ENGINEERING LAB**	**0**	**0**	**2**	**1**
Prerequisite	*At the end of this course, the students will be able to:*				
Course Outcome	**CO1**	*Identify and able to take readings on various electrical equipments(voltmeter, ammeter, CRO, wattmeter, multi-meter)*			
	CO2	*Determination of voltage-current relationship in a DC circuit under specific physical conditions.*			
	CO3	*Measure power and power factor in a single phase R-.L-.C. Circuit and calculation of active and reactive powers in the circuit.*			
	CO4	*Test a lead - acid storage battery*			
	CO5	*Measure power and power factor in a single phase R-.L-.C. Circuit and calculation of active and reactive powers in the circuit.*			

LIST OF PRACTICALS

1. Operation and use of measuring instruments viz voltmeter, ammeter, CRO, Wattmeter, multi-meter and other accessories.	**CO1**
2. Determination of voltage-current relationship in a dc circuit under specific physical conditions and to draw conclusions. 3. Measurement of resistance of an ammeter and a voltmeter. 4. Verification of dc circuits: a. Thevenin's theorem, b. Norton's theorem. 5. Observation of change in resistance of a bulb in hot and cold conditions, using voltmeter and ammeter. 6. Verification of Kirchhoff's Current and Voltage Laws in a dc circuit	**CO2**
7. To find the ratio of inductance of a coil having air-core and iron-core respectively and to observe the effect of introduction of a magnetic core on coil inductance.	**CO3**
8. Charging and testing of a lead - acid storage battery.	**CO4**
9. Measurement of power and power factor in a single phase R-L-C circuit and calculation of active and reactive powers in the circuit.	**CO5**

DETAILED SYLLABUS
DIPLOMA 1St Year

- **Electrical Engineering 2nd Semester**

(Effective from Session: 2025-26)

Diploma in Electrical Engineering

Semester: II		Course Category Code :BS			

Course Code	Course	Period / Week			Credit
		L	T	P	C
DBS102	**APPLIED MATHEMATICS-II**	**3**	**1**	**0**	**4**

Prerequisite		*At the end of this course, the students will be able to:*	**Bloom's Level**
Course Outcome	**CO1**	*Calculate simple integration by methods of integration.*	K3,K4
	CO2	*Evaluate the area under curves, surface by using definite integrals.*	K2,K3₅
	CO3	*Solve the engineering problems with numerical methods.*	K3
	CO4	*Explain the function of the system components including Processor, Motherboard and Input-output devices.*	K2
	CO5	*Understand the geometric shapes used in engineering problems by co-ordinate geometry.*	K2,K3

UNIT – I	**Integral Calculus - I**	**Contact Hours :16**
Methods of Indefinite Integration : Integration by substitution. Integration by rational functions. Integration by partial function. Integration by parts.		**CO1**
UNIT – II	**Integral Calculus - II**	**Contact Hours :12**
Meaning and properties of definite integrals, Evaluation of definite integrals. Simposns1/3rd and Simposns3/8th rule and Trapezoidal Rule: their application in simple cases.		**CO2**
UNIT – III	**Numerical solutions**	**Contact Hours :08**
Numerical solutions of algebraic equations; Bisections method, Regula Falsimethod, Newton-Raphson's method (without proof), Numerical solutions of simultaneous equations; Gauss elimination method (without proof).		**CO3**
UNIT – IV	**Co-ordinate Geometry (2 Dimension)**	**Contact Hours :08**
Equation of circlein standard form. Centre Radius form, Diameter form, and Two intercept form.		**CO4**
UNIT – V	**Co-ordinate Geometry (3 Dimension)**	**Contact Hours :08**
Straight lines and planes in space. Distance between two points in space, direction cosine and direction ratios, Finding equation of a straight line (without proof)		**CO5**
Lecture Hours :39	**Tutorials Hours :13**	**Total :52**

RECOMMENDED BOOKS:-

1. *Applied Mathematics-II by Ajay Kumar, Jai Prakash Nath Publication Meerut.*
2. *Applied Mathematics-II by H.R. Luthera, Bharat Bharati Publication Meerut.*
3. *Applied Mathematics-II by Kailash Sinha, BBP Publication Meerut.*

Diploma in Electrical Engineering

Semester: II				Course Category Code :**BS**	

Course Code	Course	Period / Week			Credit
		L	T	P	C
DBS104	**APPLIED PHYSICS**	**2**	**1**	**0**	**3**

Prerequisite	*At the end of this course, the students will be able to:*		Bloom's Level
Course Outcome	**CO1**	*Understanding the concept of measurement of physical quantity and units*	K_2
	CO2	*State and explain Newton's first law of motion,* *Identify the give example of (types of) forces,* *Compare and contrast speed, velocity and acceleration.*	$K_1, K, K_2,$
	CO3	*Understand the concept of work and how to calculate the work done by force.* *Understand the concept of the net work done on an object and how that relates to a change in speed of the object.* *Understand the concept of power.*	K_2, K_3
	CO4	*In this unit on matter, students learn to differentiate physical and chemical changes in matter. They also learn that matter is made up of small particles called atoms and molecules.*	K_2, K_4
	CO5	*Ability to understand the basic concepts of thermodynamics such as temperature, pressure, system, properties, process, state, cycle and equilibrium.*	$K_2,, K_5$

UNIT – I	**Unit and Dimensions**	**Contact Hours : 08**
1.1 Need of Measurement in engineering and science, unit of a physical quantities - fundamental and derived units, systems of units (FPS, CGS and SI units) 1.2 Dimensions and dimensional formulae of physical quantities. 1.3 Principle of homogeneity of dimensions 1.4 Limitation of dimensional analysis 1.5 Accuracy and precision of instruments, rules for representing significant figures in calculation.		**CO1**

UNIT – II	**Force and Motion**	**Contact Hours : 08**
2.1 Scalar and vector quantities – examples, representation of vector, types of vectors 2.2 Addition and Subtraction of Vectors, Triangle and Parallelogram law (Statement only), Scalar and Vector Product. 2.3 Resolution of Vectors. 2.4 Force, Momentum, Statement and Derivation of Conservation of linear momentum, its applications such as recoil of gun. 2.5 Circular motion (Uniform and Non-uniform), definition of angular displacement, angular velocity, angular acceleration, frequency, time period. 2.6 Relation between linear and angular velocity, linear acceleration and angular acceleration (related numerical) 2.7 Central force, Expression and Applications of Centripetal and centrifugal forces.		**CO2**

UNIT – III	**Work, Power and Energy**	**Contact Hours :08**
3.1 Work: and its units, examples of zero work, positive work and negative work, Conservative and non-conservative force. 3.2 Friction: modern concept, types, laws of limiting friction, Coefficient of friction 3.3 Work done in moving an object on horizontal and inclined plane for rough and plane surfaces with its applications 3.4 Energy and its units: Kinetic energy and potential energy with examples and their derivation, work energy theorem. 3.6 Power and its units, calculation of power in numerical problems.		**CO3**

UNIT – IV	**Properties of Matter**	**Contact Hours :08**

4.1 Elasticity: definition of stress and strain, different types of modulii of elasticity, Hooke's law, significance of stress strain curve. 4.2 Pressure: definition, its units, atmospheric pressure, gauge pressure, absolute Pressure. 4.3 Surface tension: concept, its units, angle of contact. 4.4 Viscosity and coefficient of viscosity: Terminal velocity, Stokes's law and effect of temperature on viscosity, application in hydraulic systems. 4.5 Concept of fluid motion, stream line and turbulent flow, Equation of continuity, Bernoulli's Theorem and their applications		CO4
UNIT – V	Heat and Thermodynamic	Contact Hours : 08
5.1 Difference between heat and temperature. 5.2 Modes of transfer of heat (Conduction, convection and radiation with examples). 5.3 Different scales of temperature and their relationship. 5.4 Isothermal and Adibatic process. 5.5 Zeroth, First and second law of thermodynamics, Heat engine (concept Only), Carnot cycle.		CO5

Lecture Hours : 30	Tutorials Hours :10	Total :40

Reference Books:		
1	Text Book of Physics for Class XI (Part-I, Part-II); N.C.E.R.T., Delhi	
2	Concepts in Physics by HC Verma, Vol. I & II, Bharti Bhawan Ltd. New Delhi	
3	Comprehensive Practical Physics, Vol, I & II, JN Jaiswal, Laxmi Publications (P) Ltd., New Delhi	
4	Engineering Physics by PV Naik, Pearson Education Pvt. Ltd, New Delhi	
5	Engineering Physics by DK Bhhatacharya & Poonam Tandan; Oxford University Press, New Delhi	

Diploma in Electrical Engineering

Semester : II			Course Category Code :PEC		
Course Code	**Course**		**Period / Week**		**Credit**
			L	T	P	C
DEEPC102	**ANALOG ELECTRONICS**	3	0	0	3
Prerequisite	*At the end of this course, the students will be able to:*				**Bloom's Level**
Course Outcome	**CO1**	*Use P.N. junction as rectifier.*			K_3, K_5
	CO2	*Use Zener diode as voltage stabilizer.*			K_3, K_5
	CO3	*Use bi-polar transistors and its application as an amplifier and as a switch.*			K_3, K_5
	CO4	*Analyze amplifier and enhance the gain of amplifier and Use unipolar transistors as amplifier*			K_3, K_4
	CO5	*Identify and testing of various active and passive components such as resistor, inductor, capacitor, diode and transistor*			K_2, K_4

UNIT – I	**Semiconductor Diodes**	**Contact Hours : 08**
PN Junction, mechanism of current flow in PN junction, drift and diffusion currents, depletion layer, potential barrier, effect of forward and reverse biasing in a PN junction. Concept of junction capacitance in forward and reverse biased conditions. Breakdown mechanism. Ideal diode, Semiconductor diode characteristics, static and dynamic resistance Use of diode as half wave and full wave rectifiers (centre tapped and bridge type), relation between DC output and AC input voltage, efficiency of rectifier. Various types of diodes such as zener diode, varactor diode, schottky diode, light emitting diode, tunnel diode, photo diode; their working characteristics and applications. Zener diode and its characteristics. Use of zener diode for voltage stabilization		**CO1**

UNIT – II	**Bi-polar Transistors**	**Contact Hours : 08**
Concept of junction transistor, PNP and NPN transistors, their symbols and mechanism of current flow. Transistor configurations: common base (CB), common emitter (CE) and common collector (CC), current relation and their input/output characteristics; comparison of the three configurations. Transistor biasing, its need, operating point, effect of temperature on the operating point of a transistor and need of stabilization of operating point. Simple problems to calculate operating point in different biasing circuits.		**CO2**

UNIT – III	**Single-Stage Transistor Amplifiers**	**Contact Hours : 08**
Single stage transistor amplifier circuit in CE configuration, function of each component. And Working of single stage transistor amplifier, physical and graphical explanation, phase reversal. Concept of DC and AC load line. Voltage gain of single stage transistor amplifier using characteristics of the device. Concept of input and output impedance. AC equivalent circuit of single stage transistor amplifiers. Frequency response of a single stage transistor amplifier		**CO3**

UNIT – IV	**Multi-Stage Transistor Amplifiers**	**Contact Hours : 08**
Need of multi-stage transistor amplifiers–different types of couplings, their purpose and applications. Knowledge of various terms such as voltage gain, current gain, power gain, frequency response, decibel gain and band width. C coupled two-stage amplifiers, circuit details, working, frequency response, applications. Loading effect in multistage amplifiers. Transformer coupled amplifiers, its frequency response.		**CO4**

UNIT – V	**Field Effect Transistor (FET)**	**Contact Hours : 08**
Construction, operation, characteristics and applications of an N-channel JFET and P channel JFET. JFET as an amplifier. Types, construction, operation, characteristics and applications of a MOSFET. Comparison between BJT, JFET and MOSFET		**CO5**

Lecture Hours :40	Tutorials Hours : 00	Total :40

Reference Books:

1. *Basic Electronics and Linear Circuit by NN Bhargava, Kulshreshta and SC Gupta, Tata McGraw Hill Education Pvt Ltd, New Delhi.*
2. *Electronics Devices and circuit by Boylested, Tata McGraw Hill, New Delhi.*
3. *Electronics Devices and Circuits by Millman and Halkias; McGraw Hill.*
4. *Electronic Devices and Circuits by Dharma Raj Cheruku and Battula Tirumala Krishna: Pearson Education (Singapore) Pvt Ltd., Indian Branch, 482 F.I.E Patparganj, Delhi- 92*

Text Book:

1. *Basic Electronics by JB Gupta, SK Kataria and Sons, New Delhi.*

Diploma in Electrical Engineering

Semester : II			Course Category Code :ES		

Course Code	Course	Period / Week			Credit
		L	**T**	**P**	**C**
DES110	**FUNDAMENTAL OF CIVIL & MECHINCAL ENGINEERING**	3	0	0	3

Prerequisite	*At the end of this course, the students will be able to:*	Bloom's Level
Course Outcome	**CO1** — *Identify different construction materials and check their quality.*	K_2, K_3, K_4
	CO2 — *Determine the bearing capacity of soils and select suitable foundations for heavy installations and machineries.*	K_3, K_5
	CO3 — *Identify various types of concrete and check its quality.*	K_3, K_5
	CO4 — *Apply Thermodynamics Laws. Use of various energy sources.*	K_3, K_4
	CO5 — *Have an idea of loading on machine components Application of different types of bearings principle of different lubrication systems*	K_1, K_3

CIVIL PART

UNIT – I	Construction Materials	Contact Hours : 08
Properties and uses of various construction materials such as stones, bricks, lime, content and timber with their properties, physical/field testing, elements of brick masonry.		CO1

UNIT – II	Foundations	Contact Hours : 08
Bearing capacity of soil and its importance, Types of various foundations and their salient features, suitability of various foundations for heavy, light and vibrating machines.		CO 2

UNIT – III	Concrete	Contact Hours : 08
Various ingredients of concrete, different grades of concrete, water cement ratio, workability, physical/field testing of concrete, mixing of concrete, placing and curing of concrete		CO 3

MECHANICAL PART

UNIT – IV	Introduction	Contact Hours : 08
1. Thermal Engineering Sources of Energy Definition, Concept of thermodynamic system and surroundings, Closed system, Open system, Isolated system, Thermodynamics definition of work.Zeroth law of thermodynamics Basic ideas, conventional and nonconventional forms- Thermal, Hydel, Tidal, wind, Solar, Biomass and Nuclear and their uses.		CO 4

UNIT – V	Machine Components	Contact Hours : 08
Brief idea of loading on machine components. (i) Pins, Cottor and Knuckle Joints. (ii) Keys, Key ways and spline on the shaft (iii) Bearings-Plane, Roller bearing, Journal bearing, thrust bearing, Special type bearings and their applications. (iv) Clutches and Springs Compression, Tension, Helical springs, Torsion springs, Leaf and Laminated springs. Their use and material. (v) Lubrication		CO 5

Different lubrication system for lubricating the components of machines		
Lecture Hours : 40	**Tutorials Hours :00**	**Total : 40**

Reference Books:

1. *Civil Engineering Materials by SV Deodhar and Singhai; Khanna Publishers, New Delhi*
2. *Concrete Technology by J.Jha and Sinha; Khanna Publishers, Delhi*
3. *Textbook of Concrete Technology 2nd Edition, by Kulkarni, PD Ghosh TK and Phull, YR; New Age International(P) Ltd, Publishers, New Delhi*
4. *Materials of Construction by Ghosh; Tata McGraw Hill Publishing Co. Ltd., New Delhi*
5. *Civil Engineering Materials by TTTI, Chandigarh; Tata McGraw Hill Publishing Co. Ltd., New Delhi*
6. *Concrete Technology by J.Jha and Sinha; Khanna Publishers, Delhi.*
7. *Building Construction by Jha and Sinha; Khanna Publishers, Delhi*
8. *Civil Engineering Materials by SV Deodhar and Singhai; Khanna Publishers, New Delhi*
9. *Soil Mechanics and Foundation Engineering by SK Garg; Khanna Publishers, New*

Diploma in Electrical Engineering

Semester: **II**			Course Category Code :**ES**		

Course Code	Course	Period / Week			Credit
		L	T	P	C
DES114	**WORKSHOP PRACTICE – II**	0	0	8	2

Prerequisite	At the end of this course, the students will be able to:

	CO1	*Identify tools and equipment used and their respective functions.*
Course Outcome	CO2	*Identify different types of materials and their basic properties.*
	CO3	*Identify different types of materials and their basic properties.*
	CO4	*Use and take measurements with the help of basic measuring tools/equipment.*
	CO5	*Select proper tools for a particular operation.*

List of experiment	
CO1	**1. FITTING SHOP** 1.1 Use of personal protective equipment and safety precautions while working. 1.2 Basic deburring processes. 1.3 Introduction to fitting shop tools, marking and measuring devices/equipment. 1.4 Identification of materials. (Iron, Copper, Stainless Steel, Aluminium etc.) 1.5 Identification of various steel sections (flat, angle, channel, bar etc.). 1.6 Introduction to various fitting shop operations/processes (Hacksawing, Drilling, Chipping and Filing). 1.7 Job Practice. Job I Marking of job, use of marking tools, filing and use of measuring instruments. (Vernier caliper, Micrometer and Vernier height gauge). Job II Filing a rectangular/square piece to maintain dimensions within an accuracy of ±.25 mm. Job III Making a cut-out from a square piece of MS flat using hand hacksaw and chipping Job IV Drilling and tapping practice on MS Flat.
CO2	**2. SHEET METAL SHOP** 2.1 Introduction to sheet metal shop, use of hand tools and accessories e.g. different types of hammers, hard and soft mallet, sheet and wire gauge, necessary allowance required during job fabrication, selection of material. 2.2 Introduction and demonstration of hand tools used in sheet metal shop. 2.3 Introduction and demonstration of various machines and equipment used in sheet metal shop e.g. Shearing Machine, Bar Folder, Burring Machine, 2.4 Introduction and demonstration of various raw materials used in sheet metal shop e.g. black-plain sheet, galvanized-iron plain sheet, galvanised corrugated sheet, aluminium sheet etc. 2.5 Study of various types of nuts, bolts, rivets, screws etc. 2.6 Job Practice Job I: Shearing practice on a sheet using hand shears. Job II: Practice on making Single riveted lap joint/Double riveted lap Joint. Job III: Practice on making Single cover plate chain type, zig-zag type and single rivetted Butt Joint.
CO3	**3 WELDING SHOP –I** 3.1 Introduction and importance of welding as compared to other material joining processes. Specifications and type of welding machines, classification and coding of electrodes, welding parameters, welding joints and welding positions. Materials to be welded, safety precautions. 3.2 Job Practice Job I Practice of striking arc (Minimum 4 beads on 100 mm long M.S. flat). Job II Practice of depositing beads on plate at different current levels. (Minimum 4 beads on

	M.S. plate at four setting of current level). Job III Preparation of lap joint using arc welding process. Job IV Preparation of T-joint using gas welding or arc welding on 100 mm x 6 mm MS Flat
CO4	**4 FOUNDRY SHOP** 4.1 Study of metal and non metals .2Study and Sketch of the Foundry tools 4.3 Study and sketch of Cupola and pit furnace 4.4 To prepare green moulding sand and to prepare moulds (single piece and double piece pattern sweep mould) 4.5.Casting of non ferrous (lead or aluminium)
CO5	**5 MACHINE SHOP** 5.1 Study and sketch of lathe machine 5.2 Study and Sketch of grinders, milling machine, drilling machine and CNC machine. 5.3 Plain and step turning and knurling practice. 5.4 Study and sketch of planning/shaping machine and to plane a rectangle of cast iron.

Diploma in Electrical Engineering

Semester: II			Course Category Code :**BS**		
Course Code	Course		Period/Week		Credit
		L	T	P	C
DBS108	**APPLIED PHYSICS LAB**	**0**	**0**	**2**	**1**

Prerequisite	*At the end of this course, the students will be able to:*	
Course Outcome	**CO1**	*Understand the concept of rotational motion of a rigid body and its applications*
	CO2	*Describe conservation of energy and its applications*
	CO3	*Express physical work in term of heat and temperature; Measure temperature in various processes on different scales (Celsius, Kelvin, Fahrenheit etc.)*
	CO4	*Distinguish between conduction, convection and radiation, identify the different methods for reducing heat losses*
	CO5	*Understand the laws of thermodynamics, Carnot cycle and their applications.*

List of practical:

1. To find radius of wire and its volume and the maximum permissible error in these quantities by using both venire-calipers and screw gauge. 2. To find the value of acceleration due to gravity on the surface of Earth by using a simple pendulum.	**CO1**
3. To determine the atmospheric pressure at a place using Fortin's Barometer. 4. To verify the parallelogram law of forces.	**CO2**
5. To study the conservation of energy of a ball or cylinder rolling down an inclined plane. 6. To find the Moment of Inertia of a flywheel about its axis of rotation.	**CO3**
7. To determine the viscosity of glycerin by Stokes' method.	**CO4**
8. To determine the force constant of the spring using Hook's law.	**CO5**

Diploma in Electrical Engineering

Semester :II				Course Category Code :PC	
Course Code	**Course**	**Period/Week**			**Credit**
		L	**T**	**P**	**C**
DEEPC104	**ANALOG ELECTRONICS LAB**	-	-	2	1
Prerequisite	*At the end of this course, the students will be able to:*				
Course Outcome	**CO1**	*Use P.N. junction as rectifier.*			
	CO2	*Use Zener diode as voltage stabilizer.*			
	CO3	*Use bi-polar transistors and its application as an amplifier and as a switch.*			
	CO4	*Analyse amplifier and enhance the gain of amplifier and Use unipolar transistors as amplifier*			
	CO5	*Identify and testing of various active and passive components such as resistor, inductor, capacitor, diode and transistor*			

LIST OF PRACTICALS

1. To plot V-I characteristics of a Semiconductor diode and to calculate its static and dynamic resistance	**CO1**
2. To plot V-I characteristics of a zener diode and finding its reverse breakdown voltage. 3. Fabrication of a zener diode voltage stabilizer circuit using PCB. 4. Observation of input and output wave shapes of a half-wave rectifier and verification of relationship between dc output and ac input voltage.	**CO2**
5. Plotting input and output characteristics of a transistor in CE configuration.	**CO3**
6. Plotting input and output characteristics of a transistor in CB configuration.	**CO4**
7. Identification and testing of electronic components such as resistor, inductor, capacitor, diode, transistor and different types of switches used in Electronic circuits 8. Measurement of resistances using multimeter and their comparison with colour code values	**CO5**

Diploma in Electrical Engineering						
Semester :II				**Course Category Code :ES**		
Course Code	**Course**		**Period/Week**			**Credit**
		L	**T**		**P**	**C**
DES122	**FUNDAMENTAL OF CIVIL & MECHINCAL ENGINEERING LAB**	-	-		2	1
Prerequisite	*At the end of this course, the students will be able to:*					
Course Outcome	**CO1**	*Identify different types of Pins and Cotter.*				
	CO2	*Have an idea of loading on machine components.*				
	CO3	*Application of different types of bearings.*				
	CO4	*Identify various types of Brick and check its quality*				
	CO5	*Identify various types of concrete and check its quality*				

LIST OF PRACTICALS

1. Study and Sketch of Pins and Cottor	**CO1**
2. Study and Sketch of Keys and Key ways	**CO2**
3. Study and sketch of Couplings and Clutches 4. Study and Sketch of Bearings.	**CO3**
5. Testing of bricks (a) Shape and size (b) Soundness test (c) Water absorption (d) Crushing strength	**CO4**
6. Testing of concrete a) Slump test b) Compressive Strength of concrete cube 7. Fineness test of cement.	**CO5**

Diploma in Electrical Engineering					
Semester: II			Course Category Code :**ES**		
Course Code	Course		Period/Week		Credit
			L	T	P	C

Course Code	Course	L	T	P	C
DES112	**INTRODUCTION TO IT SYSTEM LAB**	**0**	**0**	**2**	**1**

Prerequisite	*At the end of this course, the students will be able to:*	
Course Outcome	**CO1**	*Identify Computer Hardware Components, Network Components and Peripherals.*
	CO2	*Explain the role of an Operating System.*
	CO3	*Install System and Application Software.*
	CO4	*Explain the function of the system components including Processor,Motherboard and Input-output devices.*
	CO5	*Use Word Processing Software to prepare document*

INTRODUCTION TO IT SYSTEM LAB

1. Familiarization with Computer System and it speripheral devices. 2. Familiarization with Operating System.	**CO1**
3. Practice of internal and external commands of DOS. 4. Creation and Management (Rename, delete, search of file and folders).	**CO2**
5. Installing and uninstalling of news of tware using control panel. 6. Installation of Operating Systems.	**CO3**
7. Changing System Dateand Time. 8. User Account creation and its feature on Windows Operating System.	**CO4**
9. Internet browsing using browsers. 10. Using of Search Engine to get information from internet.	**CO5**