



Veermata Jijabai Technological Institute (V.J.T.I.)

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Programme: Diploma in Electrical Engineering (DEE)

Semester: I

Implemented from: 2017-18

COURSE CODE	COURSE	GR	TEACHING SCHEME (HRS/WK)				EXAMINATION SCHEME												
			L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
								Max	Min		Max	Min	Max	Min	Max	Min			
172MA11a	Mathematics I	B	3	2		5	3	80	32	20	100	40					25@	10	125
172PH12	Physics	B	3		2	5	3	80	32	20	100	40	25**	10			25@	10	150
172HM13x	Communication Skill I	B	3	2		5	3	80	32	20	100	40					25@	10	125
172EE14	Fundamentals of Electrical Engineering	B	3		2	5	3	80	32	20	100	40			25**	10	25@	10	150
172EE15	Electrical Components And Drawing	B	1		3	4							25*	10			25@	10	50
172ME16	Engineering Graphics	B	2		3	5							50*	20			50@	20	100
172EE17	Computer Application	B			2	2											50@	20	50
172EE18	Extra Co-curricular Activity	M			1	1													
TOTAL			15	4	13	32		320		80	400		100		25		225		750

Abbreviations: B – Basic; C – Core; A – Applied; M – Management; L – Theory Lecture; T – Tutorial; P – Practical; TH – Theory Paper; IST – In-Semester Test; PR – Practical Exam; OR – Oral Exam; TW- Term Work. * Assessment by Internal Examiner ** Assessment by External And Internal Examiner @ : TW assessment by Internal Examiner Extra co curriculum activity –Activity is coordinated by teacher as per the activity mentioned in curriculum.

Curriculum Coordinator

Diploma in Electrical Engineering

Dean - Diploma



DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRICAL ENGINEERING
PROGRAMME CODE	: DEE
SEMESTER	: FIRST
COURSE TITLE	: MATHEMATICS – I
COURSE CODE	: 172MA11a

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	2	0	5	3	80	32	20	100	40					25	10	125

Course Objectives:

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

Course Outcomes:

Student should be able to

CO1	Apply properties of determinants and matrices to solve simultaneous linear equations.
CO2	Use binomial theorem for expansion and find equation of straight line, under given conditions.
CO3	Use properties and elementary operations of complex numbers to solve the problems.
CO4	Apply basic concepts in trigonometry to solve engineering problems.

Course Content:

SECTION-I								
Unit & Sub-Unit	Topics/Sub-topics		Hours	Marks	CO	R Level	U Level	A Level
I	Determinants:		6	12	1	2	2	8
	1.1	Determinant of order three.						
	1.2	Cramer's rule.						
	1.3	Properties of determinants						



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2		Binomial Theorem	8	10	2	2	3	5
	2.1	Concepts of Permutations and Combinations and problems based on ${}^n P_r, {}^n C_r$						
	2.2	Binomial Theorem with positive integral index, general term, Binomial expansion for negative integral and fractional index.						
3		Straight lines	5	8	2	1	2	3
	3.1	Equations of straight lines in different forms.						
	3.2	Angle between two straight lines, conditions for two parallel and perpendicular straight lines.						
4		Complex Numbers	6	10	3	1	2	5
	4.1	Definition of complex number, Elementary operations.						
	4.2	Argand's Diagram, Modulus, Amplitude, Polar form of a complex number.						
SECTION-II								
Unit & Sub-Unit	Topics/Sub-topics							
5		Trigonometry	16	28	4	4	4	20
	5.1	Circular measure of an angle, Conversion from degrees to radians and radians to degrees.						
	5.2	Trigonometric ratios of angle in four quadrants.						
	5.3	Compound angle formulae.						
	5.4	Allied angle formulae.						
	5.5	Product formulae, Sum or difference formulae.						
	5.6	Multiple, submultiples angle formulae.						
	5.7	Inverse trigonometric functions.						
	5.8	Properties of triangle: sine rule, cosine rule. (without proof)						
6		Matrices	8	12	1	2	2	8
	6.1	Matrices of order $m \times n$, types of matrices, equality of matrices						
	6.2	Addition and subtraction of matrices, multiplication of matrices						
	6.3	Transpose of matrix, adjoint of matrix, inverse of matrix						
	6.4	Solution of simultaneous linear equations by adjoint method.						
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxonomy).								



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'List of Assignments/Tutorials:

Sr. No.	Unit	Practical/Assignment	Approx. Hours	CO
1	1	Determinants	2	1
2	5	Circular measure of an angle, Trigonometric ratios	2	4
3	5	Compound angle formulae, Allied angle formulae	2	4
4	5	Product formulae, Sum or difference formulae.	2	4
5	2	Binomial Theorem.	2	2
6	5	Multiple, submultiples angle formulae.	2	4
7	5	Inverse trigonometric functions, Properties of triangle	2	4
8	6	Matrices	2	1
9	3	Straight lines	2	2
10	4	Complex Numbers	2	2

Reference books :

Sr. No.	Author	Title	Publisher and Edition
1	B.M.Patel, J.M.Rawal and others	Basic Mathematics	Nirali Prakashan.
2	S. P. Deshpande	Mathematics for Polytechnic	Pune Vidyarthi Griha Prakashan.



Curriculum Coordinator

Head
Diploma in _____

Dean - Diploma

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRICAL
PROGRAMME CODE	: DEE
SEMESTER	: I
COURSE TITLE	: Physics
COURSE CODE	: 172PH12

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME				EXAMINATION SCHEME												
L	T	P	CR	PAPE R HRS	TH		IS T	TOTAL		PR*		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	-	2	5	3	80	32	20	100	40	25	10	-	-	25	10	150

*Practical examination will be conducted by internal faculty.

Rationale:–

Physics is the foundation of any engineering discipline. Its principles, laws, rules, results and conclusions drawn from observations and predictions of various phenomena occurring in nature; play important role in solving field problems in engineering and technology.

Though the span of physics is from quark to galaxy or particle physics to astrophysics; here certain topics are carefully selected for particular discipline. These topics will provide sufficient fundamental as well as background knowledge for the particular branch. Proper attention is given to the selection of sub-topics and their depth so that student will be able to cope up with innovations and new technologies in his field.

Various phenomena, principles, laws, rules discovered and invented by physics are used for industrial, engineering and technological applications. The overall growth of various engineering disciplines, namely, mechanical, electrical, electronics, civil and environmental and so on depends upon the development of physics and its detail understanding.

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.
- understand properties of matter such as elasticity, surface tension and viscosity, principles of heat and thermodynamics and modern physics.
- analyze and use it for solving engineering problems.
- identify the phenomena of interference, diffraction and polarization of light and its industrial applications.
- identify, analyze, discriminate and interpret logical sequence of field problems with the study of physics.

Course Outcomes:

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Student should be able to

CO1	Use various systems for measurements and measuring instruments.
CO2	Understand properties of matter, elasticity, viscosity and surface tension, along with relevant formulae, applications and problem solving based on it.
CO3	Understand concepts of modern physics used in X-rays and photoelectric effect, with their applications and problems based on it.
CO4	Understand principles of heat and thermodynamics, their applications and numerical based on it.
CO5	Understand concepts used in various phenomena of optics, such as wave theory, interference, diffraction, polarization etc., along with their applications and problems based on it.

Course Content:

SECTION-I								
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level	
1.	Measurements							
	1.1	Need of measurements, requirements of standard unit, CGS, MKS, FPS and SI systems, fundamental and derived quantities/units, dimensions and dimensional analysis, problems	8	12	1	40%	40%	20%
	1.2	Vernier caliper, screw gauge, spherometer. Least counts and range of voltmeter, ammeter and thermometer.						
2.	Properties of matter							
	2.1	Elasticity – elasticity, plasticity, Hooke's law, Young's, Bulk and rigidity modulus, problems, relation between them, Searle's method of determination of Y, ultimate and breaking stress, factor of safety, wire under continuously increasing load.						
	2.2	Surface tension – cohesive and adhesive forces, sphere of influence, molecular theory of surface tension, angle of contact, capillarity (formula with derivation), problems	10	16	2	40%	40%	20%
	2.3	Viscosity – velocity gradient, Newton's law of viscosity, coefficient of viscosity, Stokes' law of viscosity, Stokes' method of viscosity, problems, laminar and turbulent flow, critical velocity, Reynold's number						
3.	Modern physics							
	3.1	X-rays – Coolidge X-ray tube, continuous characteristic and X-rays, problems, properties and applications, Moseley's law.	8	12	3	40%	40%	20%
	3.2	Photoelectric effect – Planck's theory of radiation, Einstein's photoelectric equation, problems, photocells – photo-emissive, photovoltaic and photoconductive (construction, working and applications)						

SECTION-II							
Unit & Sub-Unit	Topics/Sub-topics						
4	Heat and Thermodynamics						
	4.1	Gas laws – Boyle’s law, Charle’s law, Gay-Lussac’s law, absolute zero, Kelvin scale, work done at constant pressure, Cp, Cv and Mayer’s relation, problems, isothermal, adiabatic, isobaric and isochoric processes.	10	16	4	40%	40%
	4.2	Expansion and transmission of heat – coefficients of linear, areal and cubical expansion, modes of transmission of heat, laws of thermal conductivity, coefficient of thermal conductivity, Lee’s and Searle’s methods, laws of thermodynamics, problems.					
5	Optics						
	5.1	Wave theory – wavefront, wave normal, laws of reflection and refraction, problems, Huygen’s principle, dispersion, total internal reflection.					
	5.2	Interference – principle of superposition, constructive and destructive interference, conditions to obtain interference pattern, Young’s double slit experiment, derivation of bandwidth, problems.	12	24	5	40%	40%
	5.3	Diffraction – definition, types of diffraction, single slit diffraction pattern, diffraction grating, grating element, grating formula, problems, determination of wavelength of light.					
	5.4	Polarization – polarized and unpolarized light, polarizer, analyzer, optical activity, optical rotation, specific rotation, polarimeter (principle, construction, working and applications)					
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).							

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

List of Practicals

Sr. No.	Practicals	Approx. Hours	CO
1	Study of vernier caliper and travelling microscope	2	1
2	Study of screw gauge	2	1
3	Determination of Young’s modulus by Searle’s method	2	2
4	Determination of surface tension of liquid by capillary method	2	2
5	Determination of viscosity of liquid by Stokes’ method	2	2
6	Thermal conductivity of good conductor by Searle’s method	2	4
7	Thermal conductivity of bad conductor by Lee’s method	2	4
8	Determination of wavelength of light using diffraction.	2	5
9	Determination of grating element.	2	5
10	Determination of specific rotation of liquid using polarimeter.	2	5
* Minimum 8 and maximum 12 practicals/experiment sessions to be included in a course in a term.			

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	XIth standard physics book		HSC Board, M.S. / NCERT
2	XIIth standard physics book		HSC Board, M.S. / NCERT

Reference books and Websites:

Sr. No	Author	Title	Publisher and Edition
1	Halliday D., Resnik R. and Walker	Fundamentals of physics extended	Wiley India, New Delhi, 8 th edition
2	Serway R A and Jewett, Jr. J W	Physics for scientists and Engineers	Cengage learning, New Delhi, 6 th edition
3	Verma H C	Concepts of Physics – Part I and II	Bharti Bhavan, New Delhi



Curriculum Coordinator

Head
Diploma in _____

Dean - Diploma

DIPLOMA PROGRAMME	: DIPLOMA (All branches)
PROGRAMME CODE	
SEMESTER	: FIRST
COURSE TITLE	: COMMUNICATION SKILLS I
COURSE CODE	: 171HM13x

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPER HRS	TH		IS T	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	2	-	5	3	80	32	20	100	40	-	-	-	-	25	10	125

Course Objectives: Cultivating writing skills in students by giving exposure to good language, enhancing the power of expression through vocabulary exercises, improving skills of composition, promoting coherence in thinking, assimilating and reproducing ideas and enabling the students to formulate grammatically correct sentences thereby developing their ability to communicate effectively in industry, professional fields , in academic and social circles .

- In order to develop the writing abilities in students textbooks that give exposure to language have been introduced.
- The tutorials have been incorporated to provide practice to the students to develop writing skills.
- Vocabulary exercises are given to enhance word power while writing .
- Grammar topics are taught by giving sufficient practice material to help them formulate grammatically correct sentences.
- Idioms , phrases and proverbs are introduced in order to acquire fluency and richness to their language while expressing ideas through writing .

Course Outcomes:

Student should be able to

CO1	To acquire the ability to formulate grammatically correct sentences
CO2	To improve power of expression in written communication
CO3	To develop coherence in thinking, comprehending and expressing one's ideas in one's own language

Course Content



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SECTION-I								
Unit & Sub-Unit		Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
I	1	A)Modern Trailblazers- textbook 1 B) Delights in prose- textbook 2 a) Five to six chapters from the prescribed textbooks b) Power point presentation based on texts as well as drawing parallels from industry c) Inviting speakers from the industry to deliver lectures connected with the topics in the text.	14	22	CO 3	30%	50%	20%
	2	Word formation from the text. a) Use of technical vocabulary b) correct spellings c) synonyms d) powerful expression	3	3	CO 2	20%	20%	60%
	3 A	Short composition a) Paragraph writing - Coherence - Correct grammar - good vocabulary - proper structure b) Description of an object or a product or a situation. -use of technical words - development of ideas	5	8	CO 3	20%	20%	60%
	3 B	Comprehension passages a) Summarization of passages in one's own words.(Newspaper articles, general articles etc) b) Identifying the theme of the passage precisely and enumerating the sub points	4	7	CO 3	30%	50%	20%

SECTION-II								
Unit & Sub-Unit	Topics/Sub-topics							
II	1	Vocabulary Building a) Synonyms b) Antonyms c) Homophones d) One word substitutes e) Homonyms	5	10	CO 2	20%	40%	40%
	2	A) Application of grammar a) Correction of common errors in English b) Sentence structure B) short official letters a) leave applications b) seeking permission from authority c) grievance letter (campus situations)	4 6	15	CO 1	30%	50%	20%
	3	Use of refined language a) Idioms b) Proverbs c) Phrases	7	15	CO 2	40%	40%	20%
	TOTAL		48	80				

Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

List of Assignments/Tutorials:

Sr. No.	Practical/Assignment	Approx. Hours	CO
1.	Synonyms	2	CO 2
2.	Antonyms	2	CO 2
3.	Homophones	2	CO2
4.	Homonyms	2	CO 2
5.	One word substitute	2	CO 2
6	Phrases	2	CO2
7	Idioms	2	CO 2

8	Proverbs	2	
9	Sentence structure	2	CO 1
10	Correction of Errors	2	CO 1
11	Comprehension a) Summarizing PPT Presentation b) Recapping the speech delivered	4	CO 3
12	Composition writing a) short letters	4	CO 3

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	Board of Editors – Chief Editor-Ajay R. Tengse	Delights in Prose	Orient Black Swan, First edition, 2014
2	Akshay V. Dhote Hitendra V. Dhote	Modern Trailblazers	Orient Black Swan, First edition, 2013

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	Oxford	Dictionary	Oxford University
2	Sanghita sen Alankrita Mahendra Priyadarshi Patnaik	Communication Language and Skills	Cambridge university Press, First published, 2015
3	B.V Pathak	English semester I	Nirali Prakashan, Fourth Edition, 2007
4	Green David	Contemporary English Grammar, structure and composition	Macmillan, India, First edition, 2000
5	Raymond Murphy	Essential English Grammar	Cambridge university Press, third Edition, 2011

Curriculum
Coordinator

Head of
Diploma in

Sharma

Dr. H. K. Singh
Dean - Diploma

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRICAL ENGINEERING
PROGRAMME CODE	: DEE
SEMESTER	: FIRST
COURSE TITLE	: FUNDAMENTALS OF ELECTRICAL AND ELECTRONICS ENGINEERING
COURSE CODE	: 173EE14

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
3	-	2	5	3	80	32	20	100	40	-	-	25	10	25	10	150

Course Objectives:

After studying this subject, students will be able to

1. Understand basic laws and definitions.
2. Analyze the basic electric circuit.
3. Understand the construction and the working principle of the passive components.
4. Understand the nature of basic electrical and electronics components.

Course Outcomes:

Student should be able to

CO1	Explore the fundamental, mathematical and engineering technological principles for understanding electrical and electronics engineering.
CO2	Understand the capability and limitations of passive components and active devices.
CO3	Able to solve series, parallel and series-parallel circuits.

Course Content:

SECTION-I							
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Electrical terminologies:	4	8	1	3	3	2
1.1	Electricity and Electrical System						
1.2	Electric charge: Electron charge, Movement of Electrons, electron current and conventional current.						

1.3	Potential Difference and EMF: Idea of electric potential.						
1.4	Work, Power and Energy						
2	Resistance and ohms law:						
2.1	Resistance, unit of resistance, factors affecting resistance and ohms law,						
2.2	Effect of temperature and Temperature coefficient.(Numerical)						
2.3	Types of resistors and resistor color code method.						
2.4	Resistive circuits: Series resistive circuit and equivalent resistance derivation and voltage division in series resistive circuit. Parallel resistive circuit and equivalent resistance derivation and current division in series resistive circuit. (Numerical)	10	16	1, 2, 3		4	4 8
2.5	Concepts of conductor and insulator.						
3	Electrostatics and Capacitance:						
3.1	Static Electricity: Absolute and Relative Permittivity, Electrostatic laws and electric field						
3.2	Electric Flux, Electric Flux Density and Electric field Strength						
3.3	Capacitance, unit of capacitance, dielectric strength, energy stored in capacitor, parallel plate and cylindrical capacitor with working (no derivation). Charging and discharging of capacitor and time constant.	10	16	1, 2, 3		4	4 8
3.4	Types of Capacitors and different methods to read value of capacitors.						
SECTION-II							
4	Magnetism and Electromagnetism :						
4.1	Introduction to magnetism and magnetic field						
4.2	Absolute and Relative Permeability of a Medium, Laws of Magnetic Force, Magnetic field strength, Flux & Flux Density, MMF & Magnetic circuit.						
4.3	Magnetic field due to electric current, Electromagnetic, magnetic field near straight conductor and at the centre of current carrying coil, Force on current carrying conductor. Flemings Left hand and Right hand rules.	10	16	1		6	6 4
4.4	Problems based on calculation of Ampere Turns and magnetic circuits						
5	Electromagnetic Induction :						
5.1	Production of induced EMF and current, Faraday's Laws of Electromagnetic Induction, Lenz's Law.	8	12	1			

	5.2	Statically & Dynamically Induced EMF, self inductance, mutual inductance, coupling coefficient				6	6	4
	5.3	BH curve, energy stored in a magnetic field,						
6		Inductors:						
	6.1	Types of inductor: On basics of core type and shapes. Air core, Iron core, Toroidal, solenoid	6	12	1, 2, 3	4	4	4
	6.2	Inductor in series and parallel,						
	6.3	Transformer: Principle and types (Step up and Step down).						
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).								

Practical Course Outcomes:

Student should be able to

CO1	Get the knowledge of basic measuring instruments and basic components.
CO2	Understand the rules for connecting electrical measuring instruments to electric circuit for measuring equivalent resistance, capacitance, inductance, current and voltage.
CO3	Design and construct simple circuits to accomplish a specific function.
CO4	Understand the use of MULTISIM for circuit analysis.

List of Practicals/Assignments/Tutorials:

Sr. No.	Unit	Practical/Assignment	Approx. Hours	CO
1	2	To study DMM.	1	1
2	2	To measure the value of resistor using color code method and DMM.	1,5	1,2
3	2	To find equivalent resistance of Series-Parallel Circuits.	2	1,2,3,4
4	2	To verify voltage division rule.	1,5	1,2,3,4
5	2	To verify Current division rule.	1,5	1,2,3,4
6	2	To verify ohms law.	1	1,3
7	3	To find value different types of capacitor.	1	1,2,3
8	3	To find equivalent Capacitance of Series-Parallel Circuits.	2	1,2,3,4
9	5	To study different types of inductors.	1	1
10	3	To identify charging and discharging of capacitor and find time constant.	2	1,3
11	5	To find inductance of standard shape (Solenoid and Torrid) coil.	2	1,3

*Note : Atleast some practical should be conducted using multisim.

Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	B L Theraja, A K Theraja	Electrical Technology	S Chand and Company Limited. Volume - I
2	D. P. Kothari, I. J. Nagrath	Basic Electrical Engineering	TMH
3	J B Gupta	Basic Electrical Engineering	S K Katariya and sons

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	Vincent Del Toro	Electrical engineering Fundamentals	PHI
2	D P Kothari, Mahima Jain, Shefali Jagwani	Electrical and Electronics Materials	Alpha Science International Limited, 2015

**Curriculum Coordinator****Head
Diploma in Electrical
Engineering****Dean - Diploma**

Course Name :	Diploma in Electrical Engineering
Course Code :	DEE
Semester :	Second
Subject Title :	Electrical Components & Drawing
Subject Code :	172EE15

Teaching and Examination Scheme:-

Teaching Scheme				Paper Hours	Examination Scheme										Total Marks	
L	T	P	CR		Theory		Test	Total		P		OR		TW		
					Max	Min		Max	Min	Max	Min	Max	Min	Max		Min
1	-	3	4	-	-	-	-	-	25	10	-	-	25	10	50	

Rationale:-

Students have learned engineering drawing in Semester I course. In industry large numbers of symbols and schemes are used in Electrical & Electronics drawing. It is required to understand and use these symbols in residential and industrial wirings. Also basic knowledge of different types of wires, cables and materials used in conductors, insulators, semiconductors and devices is essential for efficient operation and understanding the impact of the engineering solutions in societal and environmental contexts and demonstrate the knowledge and need for sustainable development.

Course Objectives:

At the end of Diploma Program, student will be able to

1. Understand meaning of different symbols used in electrical & electronics circuits.
2. Understand use of different components, instruments, cables, wires and devices used in wiring and circuit diagrams.
3. Select and draw proper schemes for residential and industrial wiring.

Course Outcomes:

At the end of Diploma Program, student will be able to

CO 1	To distinguish different components and symbols used in electrical & electronics circuits.
CO 2	To interpret and draw electrical wiring and circuit diagrams.
CO 3	To select proper schemes, instruments and materials for sustainable development.



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Course Content:

Part-I: Theory

Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level
1	Industrial Electrical & Electronic Symbols:						
	1.1 Switches, Relays, Circuit Breaker, Fuses	4		1,2			
	1.2 Pilot Lights, Bells, Buzzer, Horn, Siren, Batteries, Meters.						
	1.3 Resistors, Capacitors, Inductors, Coils, Transformers, AC & DC Motors,						
	1.4 Wiring, Connections						
	1.5 Semiconductor Devices like Diodes, Transistors, SCR, Optoelectronic Devices & Others						
2	Types of wiring diagrams:						
	2.1 a) Circuit (or Schematic) diagram b) Looping-In Wiring diagram c) Joint-Box Wiring diagram d) Single Line diagram.	6		1, 2, 3			
	2.2 Residential (House) Wiring of: a) Hall b) Kitchen c) Bedroom						
	2.3 Use of 2-way, intermediate switches in staircase wiring, Godown wiring.						
	2.4 Office Wiring.						
	2.5 Three-phase to single-phase conversion Industrial wiring						
3	Components.						
	3.1 Identifications and colour code of different components: Resistors, Capacitors, Inductors.	6		1, 2, 3			
	3.2 Different types of wires and cables, standard wire gauge and current ratings.						
	3.3 Bread Board and its connection.						
	3.4 Measurements using DMM.						
	3.5 Materials used for components: Insulator, Conductors and Semiconductors.						
<p>Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms’s Revised Taxonomy).</p>							



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Part II:- Drawing Term work:

1. Industrial Electrical & Electronic Symbols.
2. Wiring for 3 loads with 3 switches at one location.
3. Wiring for 3 loads with 3 switches at different locations.
4. Staircase wiring 1 lamp with 2 switches.
5. Corridor lighting with 3 switches.
6. Residential wiring for Kitchen, Hall, bedroom.
7. Distribution wiring of phases for different locations.
8. Buzzer wiring diagram.
9. Three-phase to singles-phase conversion schemes.
10. Types of cables with current ratings.
11. Types of wires standard wire gauge and current ratings.
12. Types of fans with sizes.

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	1	2	3	2	1	1		1		2
CO2	2	3	3	2	1	2	1	2	2	1
CO3		3	2		2	3	2	2		2

Reference Books :

- 1) Electrical & Electronics Drawing by Charles J Baer and J R Ottaway
- 2) Electronic Engineering Drawing by A K Mittal, Asian Publishers.
- 3) Electrical & Electronics Drawing by Charles J Baer and J R Ottaway
- 4) Electronic Engineering Drawing by A K Mittal, Asian Publishers.
- 5) Electrical Engineering Drawing, by K.L. Narang
- 6) Electrical Engineering Drawing, by S.K. Bhattacharya
- 7) Electrical Drawing & Estimating, by C.R.Dargan
- 8) Electrical Drawing - Part B, by Dr. H.P. Inamdar
- 9) Electrical Domestic Appliances, by Prof. D.U. Tatpuje
- 10) Study of Electrical Appliances, by K.B. Bhatia
- 11) Electrical Drawing & Workshop, by J.A. Rajani & Kale



Curriculum Coordinator



Head
Diploma in Electrical
Engineering



Dean - Diploma



DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRICAL ENGINEERING
PROGRAMME CODE	: DEE
SEMESTER	: FIRST
COURSE TITLE	: ENGINEERIN GRAPHICS
COURSE CODE	: 172ME16

TEACHING AND EXAMINATION SCHEME:

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
2	-	3	5		-	-				50	20	-	-	50	20	100

Course Objectives:

1. To understand geometry of shapes, drawing conventions, definitions and drawing procedures.
2. To imagine shapes of solid objects in two and three dimensions and draw their different views.
3. To imagine internal details of solid objects from given views and use of drawing conventions.

Course Outcomes:

Student should be able to

CO1	Understand geometry of shapes, drawing conventions, definitions and drawing procedures.
CO2	Imagine shapes of solid objects in two and three dimensions and draw their different views.
CO3	Imagine internal details of solid objects from given views and use of drawing conventions
CO4	Understand computer aided drafting tool and capable to draw Sectional as well as non Sectional Orthographic Projections.

Course Content:

SECTION – I								
Unit & Sub-Unit	Topics/Sub-topics	Hours	Marks	CO	R Level	U Level	A Level	
1	Drawing Instruments & their uses				30	30	40	
	1.1 Letters & Numbers (Single stroke Vertical)	1		1				

	1.2	Convention of Lines & it's applications	1		1			
	1.3	Geometrical constructions	2	3	2			
2		Orthographic Projections				20	30	50
	2.1	Planes of projections – HP, VP & PP Orthographic projections of points.	1		2			
	2.2	Orthographic Projections of simple machine parts.	7	12	2			
3		Pictorial Views-				20	30	50
	3.1	Isometric Projections and Isometric Views. (No problems with slots on inclined surfaces)	5	10	2			
SECTION – II								
Unit & Sub-Unit	Topics/Sub-topics							
4		Sectional Orthographic Projections				20	30	50
	4.1	Sectional Orthographic Projections of simple machine parts.(Full Section in one view)	13	20	3			
5		Computer aided Drafting				30	30	40
	5.1	Demonstration & practice of drafting software to the students.	4	5	4			
Legends: R- Remember, U – Understand, A – Apply and above levels (Blooms's Revised Taxonomy).								

Notes: This specification table shall be treated as a general guideline and actual distribution of marks may slightly vary from table. But the questions from each topic should be asked as per marks weightage. Numerical questions are to be asked only if specified.

List of Practicals/Assignments/Tutorials:

The students should workout the problems on the following topics preferably on quarter imperial drawing sheets during the practicals.

Sr. No.	Unit	Practical/Assignment	Approx. Hours	CO
1	1	One sheet on Letters, Numbers, & Convention of Lines & it's applications.		1
2	2	Four sheets on Orthographic Projections.		2
3	4	Four sheets on sectional Orthographic Projections.		3
4	3	Three sheets on Isometric Projections.		2



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Text Books:

Sr. No.	Author	Title	Publisher and Edition
1	N D Bhatt	Engineering Drawing	Charotar Publishers,49 th Edition 2010
2	S.T.Ghan, M.V.Rawalani	Engineering Graphics & Engineering	Nirali Publications-seventh Edition-2009

Reference books and Websites:

Sr. No.	Author	Title	Publisher and Edition
1	D.A.Jolhe	Engineering Drawing	TATA McGraw Hill- 2008
2	Arunoday Kumar	Engineering Graphics	Tech-Max publication ,Pune

**Curriculum Coordinator****Head
Diploma in _____**
Dean - Diploma

DIPLOMA PROGRAMME	: DIPLOMA IN ELECTRICAL ENGINEERING
PROGRAMME CODE	: DEE
SEMESTER	: FIRST
COURSE TITLE	: Computer Application
COURSE CODE	: 172EE17

TEACHING AND EXAMINATION SCHEME:-

TEACHING SCHEME					EXAMINATION SCHEME											
L	T	P	CR	PAPER HRS	TH		IST	TOTAL		PR		OR		TW		TOTAL MARKS
					Max	Min		Max	Min	Max	Min	Max	Min			
-	-	2	2		-	-				-	-	-	-	50	20	50

Rationale:

Computer plays very important role in human lives. Computers are now affecting every sphere of human activity and bringing about many changes in industry, government, education, medicine, scientific research, law, social sciences and even in arts like music and painting.

Course Objectives:

At the end of this course, student will be able to

4. Understand the Components of computer system.
5. Analyze the operating system (windows 7/8).
6. Excel in handling software tools present in operating system.
7. Implement Document, Presentations.

Course Outcomes:

At the end of Diploma Program, student will be able to

CO 1	Realize the local and global impact of computing on individuals, organizations and society.
CO 2	Analyze a problem, and identify and define the computing requirements appropriate to its solution.
CO 3	Use and apply current technical concepts and practices in the core of computer applications.



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Course Content:**Part-I: Syllabus**

Unit & Sub-Unit	Topics/Sub-topics	Hours	CO	R Level	U Level	A Level
1	Introduction to Windows 7/8	4	1,2			
	1.1 Working with Windows 7/8 desktop, start icon, taskbar.					
	1.2 The Recycle Bin and deleted files. Creating shortcuts on the desktop					
2	The Windows 7/8 accessories	4	1, 2, 3			
	2.1 WordPad – editing an existing document					
	2.2 Use of Paint – drawing tools					
	2.3 The Calculator, Clock					
3	The Windows Explorer	2	1, 2, 3			
	3.1 The Windows Explorer window, concept of drives. Switching drives, Folder creation, Moving or copying files, Renaming, Deleting files, and folders					
	3.2 Installing a printer driver, Setting up a printer Default and installed printers Controlling print queues.					
4	Working with Microsoft word	6				
	4.1 Introduction to Parts of a Word Window (Title bar, Menu bar, Tool bar, the Ruler, Status area)					
	4.2 Creating new document, Opening an existing document To insert a second document into an open document Editing a document, Deleting text, replacing text, moving and copying text Page setup Margins and gutters Changing fonts and front size To make text bold, italic or underline Line spacing Centering, right alignment and					

		left alignment Page breaks					
	4.3	Headers and footers Putting page numbers in headers and footers					
	4.4	Borders and shading Templates and wizards Working the Graphics Drawing objects Using frames, position objects Mail merge Using word and Word documents with other applications					
5		Preparing worksheet with Excel	6				
	5.1	Introduction to worksheets. Creating a simple Worksheet.					
	5.2	Inserting and deleting cells, rows and column Moving between worksheets, saving worksheet, workbook, Formatting and customizing data					
	5.3	Formulas, functions and named ranges creating, manipulating & changing the chart types.					
6		Preparing presentations with Microsoft Power Point.	6				
	6.1	Introduction to Ms Power Point Power Point Elements Templates Wizards Views Color Schemes					
	6.2	Adding text, adding title, moving text area, resizing text boxes, adding art. Starting a new slide Starting a Slide show Saving Presentation ,Printing Slides					
	6.3	Creating Graphs Displaying slide show and adding multi-media					
7		Using Internet Browsers	4				
	7.1	Connecting to the Internet The Internet Explorer program window. The on-line web tutorial Using hyperlinks, Responding to an email link on a web page Searching the Internet.					
	7.2	Searching the web via Microsoft Internet Explorer, using Google - Commonly used search engines Favorites, security & customizing					

		Explorer, Organizing Favorite web sites, Customizing options – general, security, contents, connection, programs, advanced							
	7.3	Composing Emails, responding emails, concepts of CC and BCC in mails.							

CO-PO Mapping

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	1	2	3	2	1	1		1		2
CO2	2	3	3	2	1	2	1	2	2	1
CO3		3	2		2	3	2	2		2

Reference Books :

- 12) Introduction to computing systems, by Patt and Patel, Tata McGraw-Hill Publishing Company, Second Edition, 2007
- 13) Computer Knowledge by Shikha Agarwal.
- 14) Computer Awareness by Sanjay Soni, Unique Publications.
- 15) A handbook of Computers by Jigyasa Sharma, Unique Publication.



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Course Name : Diploma in Electrical Engineering
 Course Code : DEE
 Semester : First
 Subject Title : Extra Co-curricular activity
 Subject Code :

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
-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	

Course Content:

Part-I: Syllabus

Unit & Sub-Unit	List of Activity	Hours	CO	R Level	U Level	A Level
1.	Introduction to college by Head of Department					
2.	Lecture by Ragging committee					
3.	Introduction to administration office					
4.	Visit to administration office					
5.	Visit to scholarship section					
6.	Visit to Railway concession office					
7.	Introduction to Examination					
8.	Visit to exam section					
9.	Introduction to Library					
10.	Visit to Library					

Curriculum
Co-ordinators

Head
Diploma in
Electrical Engg.

Dean - Diploma

