STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME IN ELECTRICAL & ELECTRONICS ENGINEERING

Third Semester

Sr. No.	Subject	L	T	P	Total	Evaluation Scheme						
						Internal Assessment		External Assessment (Examination)				Total Marks
		Periods/Week				Theory	Practical	Theory		Practical		
						Max. Marks	Max. Marks	Max. Marks	Hrs.	Max. Marks	Hrs.	
3.1	Fundamentals of Electrical Engineering	5	-	3	8	20	30	50	2.5	50	3.00	150
3.2	Electrical and Electronics Engineering Materials	4	-	2	6	20	30	50	2.5	50	3.00	150
3.3	Electronics Devices and Circuits	5	-	3	8	20	30	50	2.5	50	3.00	150
3.4	Fundamentals of Mechanical and Civil Engineering	5	-	3	8	20	30	50	2.5	50	3.00	150
3.5	Electrical Measurement and Measuring Instruments	5	-	3	8	20	30	50	2.5	50	3.00	150
3.6	Electrical Workshop Practice	-	-	6	6	-	80	-	-	120	4.00	200
General Proficiency #		-	-	4	4	-	25	-	-	-	-	25
Indrustrial Exposure (Assesment at Inst. Level)+		-	-	-	-	-	25	-	-	-	-	25
Total		24	-	24	48	100	280	250	-	370	-	1000

General Proficiency will comprise of various co-curricular activities like games, hobby clubs, seminars, declamation contests, extension lectures, NCC, NSS and cultural activities, elementary mathematics, GS & GK etc.

\+ Industrial visit compulsory to minimum 2 industries or Departments.

Note:- 1. Each period will be 50 minutes.

2. Each session will be of 16 weeks.

3. Effective teaching will be at least 12.5 weeks.

3.1 FUNDAMENTALS OF ELECTRICAL ENGINEERING

	L	P
Periods/week	5	3

RATIONALE

For a diploma holder in electrical engineering, it becomes imperative to know the fundamentals of the subject in order to grasp the knowledge of the field. This subject will provide acquaintance with various terms knowledge of fundamental concepts of electricity, magnetism and various principles related to it.

DETAILED CONTENTS

1. (a) Application and Advantages of Electrical Energy (04 Periods)

- Different forms of energy
- Advantages of electrical energy
- Uses of electrical energy

(b) Basic Electrical Quantities

- Basic concept of charge, current, voltage, resistance, power, energy and their units
- Conversion of units of work, power and energy from one form to another

2. DC Circuits (12 Periods)

2.1 Ohm's law, resistances in series and parallel

2.2 Kirchhoff's laws and their applications in solving electrical network problems

2.3 Network theorems such as Thevenin's theorem, superposition theorem Maximum power and transfer theorem and Norton's theorem

3. Batteries (15 Periods)

3.1 Basic idea about primary and secondary cells

3.2 Working principle, construction and applications of Lead acid, Nickel Cadmium and Silver Oxide Cells

3.3 Capacity and efficiency of lead acid battery

3.4 Charging methods used for lead acid accumulator

3.5 Care and maintenance of a lead acid battery

3.6 Grouping of cells in series and parallel (simple numerical problems)

3.7 Testing of lead Acid battery for fully charged conditions and their specifications

3.8 Application of lead acid battery

3.9 Idea about batteries used in UPS

4. Magnetism and Electromagnetism: (08 Periods)

4.1 Introduction to electromagnetism, Magnetic field around a straight current carrying conductor and a solenoid and methods to find its direction, force between two parallel current carrying conductors.

4.2 Force on a conductor placed in the magnetic field

4.3 Series magnetic circuits, simple problems

4.4 Concept of hyteresis, loop and hysteresis loss.

5. Electromagnetic Induction: (10 Periods)

5.1 Faraday's Laws of electromagnetic induction

5.2 Lenz's law

5.3 Fleming's Right and Left Hand Rule

5.4 Principle of self and mutual induction

5.5 Principle of self and mutually induced e.m.f. and simple problems

5.6 Inductances in series and parallel

5.7 Energy stored in a magnetic field

5.8 Concept of eddy currents, eddy current loss

6. AC Fundamentals (06 Periods)

6.1 Concept of a.c. generation (single phase and three phase)

6.2 Difference between a.c and d.c

6.3 Concept of alternating current and voltage, equation of instantaneous values, average value, r.m.s value, form factor, power factor etc.

6.4 Concept of phasor and phase difference

6.5 Representation of alternating sinusoidal quantities by vectors

6.6 Phasor algebra (addition, subtraction, multiplication and division of complex quantities)

7. AC Circuits (15 Periods)

7.1 AC through pure resistance, inductance and capacitance

7.2 Alternating voltage applied to RL,RC and RLC series and parallel circuits (impedance triangle, phasor diagram and their solutions)

7.3 Concept of susceptance, conductance and admittance

7.4 J-notation and its application in solving problems in ac circuits