

DIPLOMA (ELECTRICAL) – PART FIVE

Optional Early Certificate: - Certificate (Electrical)

Syllabus:-

Sr. No.	Module Code	Name of Module	Credits	Total Marks
1	EE41-21	English-III	5	100
2	EE41-22	Digital Electronics	5	100
3	EE41-23	Utilization of Electrical Energy & Traction	5	100
4	EE41-24	Microprocessors	5	100
5	EE41-25	Entrepreneurship Development & Management	5	100

Module Name: English-III

- 1. The Seven C's of the Effective Communication:** Completeness, Conciseness, Consideration, Concreteness, Clarity, Courtesy, Correctness.
- 2. Communication:** Its interpretation: Basics, Nonverbal Communication, Barriers to Communication.
- 3. Business Communication at Work Place:** Letter Components and Layouts, Planning a letter, Process of Letter writing, Email Communication, Memo and Memo Reports, Employment Communication, Notice Agenda and Minutes of Meeting, Brochures.
- 4. Report Writing:** Effective Writing, Types of Business Reports, Structure of Reports, Gathering Information, Organization of the Material, Writing Abstracts and Summaries, Writing Definitions, Visual Aids, User Instruction Manual.
- 5. Required Skills:** Reading Skills, Note-making, Précis Writing, Audio Visual Aids, Oral Communication.
- 6. Mechanics of Writing:** Transitions, Spelling Rules, Hyphenation, Transcribing Numbers, Abbreviating Technical and Non-Technical Terms, Proof Reading.

Module Name: Digital Electronics

1. Multiplexers and De-Multiplexers:

- Basic Functions and Block Diagram of MUX and DEMUX. Different Types.

2. Latches and Flip Flops:

- Concept and Types of Latch With Their Working and Applications
- Operations Using Waveforms and Truth Tables of RS, T, D, JK, Master/ Slave JK Flip Flops.
- Difference between a Latch and a Flip Flop

3. Counters:

- Binary Counters
- Divide by N Ripple Counters (Including Design), Decade Counter.
- Pre Settable and Programmable Counters
- Down Counter, Up down Counter
- Synchronous Counters (Only Introduction)
- Difference between Asynchronous and Synchronous Counters
- Ring Counter with Timing Diagram

4. Shift Register:

- Introduction and Basic Concepts Including Shift Left right.
- Serial in Parallel Out, Serial in Serial Out, Parallel in Serial Out, Parallel in Parallel Out.
- Universal Shift Register
- Buffer Register, Tristate Buffer Register

5. Memories:

- Basic RAM Cell, N X M Bit RAM, Expansion of Word Length and Capacity, Static and Dynamic RAM. Basic idea of ROM, PROM, EPROM, and EEPROM.

6. A/D and D/A Conversion:

- General Principle of A/D and D/A Conversion and Brief Idea of Their Applications. Binary Resistor Ladder Network Methods of D/A Conversion. Dual Slope and Successive Approximation Types of ADCs.

Module Name: Utilization of Electrical Energy

1. Illumination: Nature of Light, Curve of Relative sensitivity of human eye and wave length, Definition, flux, solid angle, luminous intensity, Calculation of number of light points for interior illumination, Different sources of light, Main requirements of proper lighting, Principles of street lighting.

2. Electrical Heating: Introduction, Advantages of Electrical Heating, Heating Methods, Resistance Heating, Dielectric Heating.

3. Electric Welding: Welding methods, Principles of resistance welding, welding equipment, Principle of arc production, electric arc welding principle, characteristics of arc; carbon and metallic arc welding,

power supply, advantages of coated electrode, comparison of AC and DC welding, welding control and welding control circuits.

- 4. Electrochemical Process:** Need of electro-deposition, Applications of Faraday's laws in electro-deposition, Objectives of Electroplating, Factors governing electro deposition, Equipments and accessories and its applications, Principle of anodizing and its applications, Electroplating on non-conducting materials.
- 5. Electrical Circuits Used in Refrigeration and Air Conditioning and Water Coolers:** Brief description of vapour compression refrigeration cycle, refrigerator, air-conditioner and water cooler.
- 6. Electrical Drives:** Advantages of Electric Drives, Characteristics of Different mechanical loads, Types of motors used in electric drive, Electric braking, Plugging, Rheostatic Breaking.

Module Name: Microprocessors

- 1. Introduction:** A brief history of computers and networks, History of Microprocessor.
- 2. Basic of Computer Hardware:** Parts of computer, processors, buses, register set, stack pointer, external storage, Input / Output overview, Data representation, Interrupts, Compiler, Interpreter, Assembler, Linker, Object and Source Code.
- 3. 8085 8-Bit Microprocessor:** Pin and Functional Description, Basic System Timing, 8085 Instruction Format, Addressing Modes of 8085, Flow Charts, Designing of a Counter.
- 4. 80C86 CMOS 16-Bit Microprocessor:** Pin and Functional Description, External Interface, Read / Modify / Write, Basic system timing, 8086 in maximum and minimum mode, 8088 8-bit Microprocessor, The 8088 Compared to the 8086.

Module Name: Entrepreneurship Development and Management

- 1. Entrepreneurship:** Definition of Entrepreneur, Internal and External Factors, Functions of an Entrepreneur, Entrepreneurial Motivation and Barriers, Classification of Entrepreneurship, Theory of Entrepreneurship, Concept of Entrepreneurship, Development of Entrepreneurship, Culture, Stages in Entrepreneurial Process.
- 2. Creativity and Entrepreneurship Plan:** Idea Generation, Screening and Project Identification, Creative Performance, Feasibility Analysis: Economic, Marketing, Financial and Technical, Project Planning: Evaluation, Monitoring and Control Segmentation, Creative Problem Solving: Heuristics, Brainstorming, Synectics, Value Analysis, Innovation.
- 3. International Entrepreneurship Opportunities:** The Nature of International Entrepreneurship, Importance of International Business to the Firm, International Versus Domestic' Entrepreneurship, Stages of Economic Development, Institutional Support for New Ventures: Supporting Organizations, Incentives and Facilities, Financial Institutions and Small Scale Industries, Govt. Policies for SSIs.
- 4. The Personal Enterprise Environment:** Family and Non Family Entrepreneur, Role of Professionals, Professionalism Vs Family Entrepreneurs, Role of Woman Entrepreneur, Venture Capital, Nature and Overview, Venture Capital Process, Locating Venture Capitalists.