

**INDICATIVE SYLLABUS FOR CBT (RESPECTIVE DISCIPLINE) :**  
**POST: DIPLOMA ENGINEER TRAINEES (ELECTRICAL)**

**Electrical Basics :** Fundamentals, Magnetic circuit, A.C. Theory, Generation of Elect. Power, Conversion of Electrical Energy, Wiring and Power Billing, Measuring Instruments, Introduction to renewable power generation

**Electrical Engineering Material:** Conducting materials, Semiconducting materials, Insulating materials, Dielectric materials, Magnetic materials, Material for special purposes

**DC/AC Machine & Transformer:** DC Generators, DC motors, Single phase transformer, Auto transformer, Three phase transformer, Induction motor, Alternator, Synchronous Motor, Single Phase induction motor  
AC commutator motors, Special Electric Machine, Three phase transformers

**Analog Circuits/ Electronics:** P-n junction diode, Special semiconductor devices, Rectifier circuits & filters, Transistors, Transistor circuits, Transistor amplifiers & oscillators, Field effect transistor, Operational amplifiers

**Electrical Measurements & Measuring Instruments:** Measuring instruments, Analog ammeters and voltmeters, Wattmeter and measurement of power, Energy meters and measurement of energy, Measurement of speed, frequency and power factor, Instrument transformer, Measurement of resistance, Measurement of inductance and capacitance, Digital instruments

**Control System:** Signal flow graph, Time response of the system, Analysis of stability, Frequency response of system, Nyquist plot.

**Digital Electronics:** Number Systems and Codes, Logic Gates, Boolean Algebra, Combinational Circuits, Sequential Circuits, Logic Families, Counters, Registers, Digital to analog converters, Analog to Digital Converters, Display Devices

**Generation, Transmission & distribution of Electrical Power:** Generation of electricity, Transmission of electric power, Overhead line, Performance of short & medium lines, EHV transmission, Distribution System, Underground cable, Economic Aspects, Types of tariff, Substation

**Circuit and Network Theory:** Circuit elements and laws, Magnetic circuits, Network analysis, Network theorems, Ac circuit and resonance, Coupled circuits, Transients, Two-port network, Filters

**Microprocessor:** Introduction to microprocessor & Microcontroller, 8085A microprocessor Architecture, Instruction set of Intel 8085A, 8085 A programming, Memory and I/O Interfacing, Peripheral Interface, Interfacing DAC & ADC, Application of 8085 A

**Power Electronics & Drives:** Thyristor, Firing Circuits For Thyristor, Phase Controlled Rectifier, Inverter, Chopper, Cyclo Converter, Power Semiconductor Devices, Thyristor Applications, A.C & D.C Drives

## **INDICATIVE SYLLABUS FOR CBT (RESPECTIVE DISCIPLINE) :**

### **Post- DIPLOMA ENGINEER TRAINEE (CIVIL)**

**Civil Engineering Materials :** Stone, Bricks, Clay Products And Refractory Materials, Cement , Sand, Gravel, Morrum And Fly Ash, Mortar And Concrete ,Timber, Paint, Varnish And Distemper, Iron And Steel, Bituminous Materials ,Plastics , Heat Proofing And Acoustic Materials.

**Construction Technology:** Introduction To Construction Technology, Site Investigation, Foundations, Walls, Damp Proofing, Arches And Lintels, Doors And Windows,Floors, Roofs, Stairs, Surface Finishes, General Idea Of Seismic Planning, Design Of Building, Construction Machineries.

**Structural Analysis:-** Trusses And Frames, Slope And Deflection, Fixed Beam, Continuous Beam, Slope Deflection Method, Moment Distribution Method, Three Hinged Arches.

**Transportation Engineering:** Introduction To Transportation Engineering, Road Geometric, Road Materials, Road Pavements, Hill Roads, Road Drainage, Road Maintenance, Construction Equipment ,Traffic Studies, Landscaping And Arboriculture, Introduction To Railways Transportation, Permanent Way, Track Materials, Geometric For Broad Gauge, Points And Crossings, Laying And Maintenance Of Track, Introduction To Bridges, Bridge Site Investigation, Hydrology And Planning, Bridge Foundation, Bridge Substructure And Approaches, Permanent Bridges, Culvert And Causeway, Introduction To Docks And Harbors Break Waters Docks, Introduction To Airport Engineering, Components Of An Airport, Tunnel Engineering.

**Irrigation Engineering :** Introduction to Irrigation Engineering, Hydrology, Water Requirement of Crops, Flow Irrigation, Diversion Head Works, Regulatory Works, Cross Drainage Works, Dams, Water Logging and Drainage, Ground Water Hydrology.

**Estimating:** Introduction to Estimating, Detailed Estimate of Building As Per Pwd Specifications And Standards, Analysis of Rates, Administrative Setups Of Engineering Organizations, Detailed Estimate Of Culverts And Bridges, Estimate Of Irrigation Structures, Detailed Estimate Of Roads, Pwd Accounts Works.

**Structural Design:** Introduction To Design And Detailing, Working Stress Method Of Design, Limit State Method (Lsm) Of Design, Limit State Of Collapse Of Singly Reinforced Members In Bending, Limit State Of Collapse In Shear, Bond Anchorage, Development Lengths And Slicing (Lsm), Beams (Lsm) Two Way Slabs (Lsm), Axially Loaded Short Columns (Lsm), Ductile Detailing Of Reinforced Concrete Structures, Design Of Steel, Design Of Timber Structures (Limit State),Structural Steel Fasteners And Connections, Design Of Tension Members, Design Of Compression Members, Design Of Column Bases And Foundations, Design Of Steel Beams, Design Of Timber Structures, Stair Case (Rcc-Ism), Design Of Footings (Rcc-Ism)

**Construction Management:** Introduction To Construction Management, Construction Planning, Materials Management, Site Management, Construction Organization, Labor Management, Equipment Management, Quality Control, Monitoring Progress in Construction Works, Safety Management in Construction Works

**Advanced Construction Technology:** Concrete Mixed Design, Handling And Transporting Of Concrete, Earthquake Resistant Construction, Building Services, Construction And Earth Moving Equipment.

**INDICATIVE SYLLABUS FOR CBT (RESPECTIVE DISCIPLINE) :**

**POST: DIPLOMA ENGINEER TRAINEES (MECHANICAL)**

**Mechanics :** Fundamentals of Engineering Mechanics, Equilibrium, Friction, Centroid & moment of Inertia, Simple Machines, Dynamics

**Theory of Machines:** Simple mechanism, Friction, Power Transmission, Governors and Flywheel, Balancing of Machine, Vibration of machine parts

**Strength of Material:** Simple stress& strain, Thin cylinder and spherical shell under internal pressure, Two dimensional stress systems, Bending moment& shear force, Theory of simple bending, Combined direct & Bending stresses, Torsion Mechanical

**Measuring Instruments:** Introduction to measurement, Linear measurement, Angular measurement, Limits fits and tolerances, Transducers, Strain measurement, Measurement of Pressure, Temperature measurement

**Pneumatics & Hydraulics:** Properties of Fluid, Fluid Pressure and its measurements, Hydrostatics, Fluid Flow, Flow through pipe, Impact of jets, Hydraulic turbines, Hydraulic Pumps

**Production Design:**

**Engineering Drawing & Design/Design Calculation:**

**Automobile Engineering & Hybrid Vehicles:**

**Manufacturing Processes (Drilling, Milling, Boring)/ Manufacturing Technology:** Tool Materials, Cutting Tools, Lathe Machine, Shaper, Planning Machine, Milling Machine, Slotter, Grinding, Internal Machining operations, Surface finish, lapping

**Manufacturing Processes/ Heat & Surface Treatment, Heat & Mass Transfer: Metrology and Measurements/Tolerance Limits, Fits:**

**Thermal Engineering/ Power Plant Engineering:** Concepts and terminology, Energy and Work Transfer, First Law of thermodynamics, Second Law of Thermodynamics, Working substances, Ideal gases and real gases, Vapor Power Cycles, Gas Power cycles, Fuels and Combustion, Heat Transfer, Refrigeration cycles, Power Plant Engineering/Introduction, Steam Power Plant, Nuclear Power Plant, Diesel engine power plant, Hydel Power Plant