

Diploma Trainee (DT): Mechanical

Item Grid:

Phase	Section	Topics
I	Aptitude	General English
		Quantitative aptitude &
		Reasoning ability
II	Technical - Mechanical	Mechanics
		Theory of Machine
		Strength of Materials
		Mechanical Measuring Instruments
		Pneumatics & Hydraulics
		Production Design
		Engineering Drawing & Design/Design Calculation
		Manufacturing Processes(Drilling, Milling, Boring)/ Manufacturing Technology
		Manufacturing Processes/ Heat & Surface Treatment, Heat & Mass Transfer
		Metrology and Measurements/Tolerance Limits, Fits
		Thermal Engineering/ Power Plant Engineering

Detailed syllabus provided below for PHASE I:

General English

1. Reading comprehension
2. Verbal Ability
3. Antonyms
4. Synonyms
5. Grammar (sentence correction)
6. Idioms
7. Analogies

Quantitative aptitude

1. Arithmetic progression
2. Algebra
3. Permutation and combination
4. Percentages
5. Ratio & Proportions
6. Time-Speed-Distance

Reasoning ability

1. Positional/Seating arrangement
2. Directional Problem
3. Non-verbal reasoning

4. Assumption, premise, conclusion, linear and matrix arrangement
5. Clocks, calendars, binary logic
6. Coding & Decoding
7. Series

Detailed Syllabus provided for Phase II

Mechanics

1. Fundamentals of Engineering Mechanics
2. Equilibrium
3. Friction
4. Centroid & moment of Inertia
5. Simple Machines
6. Dynamics

Theory of Machines

1. Simple mechanism
2. Friction
3. Power Transmission
4. Governors and Flywheel
5. Balancing of Machine
6. Vibration of machine parts

Strength of Material

1. Simple stress& strain
2. Thin cylinder and spherical shell under internal pressure
3. Two dimensional stress systems
4. Bending moment& shear force
5. Theory of simple bending
6. Combined direct & Bending stresses
7. Torsion

Mechanical Measuring Instruments

1. Introduction to measurement
2. Linear measurement
3. Angular measurement
4. Limits fits and tolerances
5. Transducers
6. Strain measurement
7. Measurement of Pressure
8. Temperature measurement

Pneumatics & Hydraulics

1. Properties of Fluid
2. Fluid Pressure and its measurements
3. Hydrostatics
4. Fluid Flow
5. Flow through pipe
6. Impact of jets
7. Hydraulic turbines
8. Hydraulic Pumps

Production Design

Engineering Drawing & Design/Design Calculation

Manufacturing Processes (Drilling, Milling, Boring)/ Manufacturing Technology

1. Tool Materials
2. Cutting Tools
3. Lathe Machine
4. Shaper
5. Planing Machine
6. Milling Machine
7. Slotter
8. Grinding
9. Internal Machining operations
10. Surface finish, lapping

Manufacturing Processes/ Heat & Surface Treatment, Heat & Mass Transfer

Metrology and Measurements/Tolerance Limits, Fits

Thermal Engineering/ Power Plant Engineering

1. Concepts and terminology
2. Energy and Work Transfer
3. First Law of thermodynamics
4. Second Law of Thermodynamics
5. Working substances
6. Ideal gases and real gases
7. Vapor Power Cycles
8. Gas Power cycles
9. Fuels and Combustion
10. Heat Transfer

11. Refrigeration cycles
12. Power Plant Engineering/Introduction
13. Steam Power Plant
14. Nuclear Power Plant
15. Diesel engine power plant
16. Hydel Power Plant