



Indian Oil Corporation Limited

Syllabus for Diploma Electrical (Grade E0)

1. Introduction to Electric Generation Systems
2. Electrical Circuit Theory
3. Electrical Machines
4. Electronic Devices and Circuits
5. Power Electronics
6. Electrical and Electronic Measurements
7. Digital Electronics
8. Transducers and Signal Conditioners
9. Electric Power Transmission and Distribution
10. Microcontroller, Programmable Logic Controller and Microprocessor
11. Electrical estimation, Energy Auditing and Energy Conservation
12. Electrical Properties of Materials
13. Electrical Machine Controller
14. Control Systems – Analysis and modelling
15. Signals and Systems
16. Illumination practices
17. Building Electrification
18. Renewable Energy Power Plant



Indian Oil Corporation Limited

Syllabus for Diploma Mechanical (Grade E0)

1. Basic Mechanical Engineering
2. Computer Aided Machine Drawing
3. Material Science and Engineering
4. Fluid Mechanics and Hydraulic Machinery
5. Manufacturing Engineering
6. Thermal Engineering
7. Measurements & Metrology
8. Strength of Materials
9. Advanced Manufacturing Processes
10. Theory of Machines & Mechanisms
11. Industrial Engineering & Management
12. Design of Machine Elements
13. Production and Operations Management
14. Pneumatic Tools and system



Indian Oil Corporation Limited

Syllabus for Diploma Safety (Grade E0)

- 1. Introduction to Industrial Safety:** Fundamentals of Industrial Safety, Importance of Workplace Safety, Safety Laws and Regulations, Occupational Health and Safety Standards, Safety Management Systems (SMS), Hazard Identification and Risk Assessment (HIRA), Personal Protective Equipment (PPE), Emergency Response Planning, Accident Investigation and Reporting. **Behavior-Based Safety (BBS):** Human factors in safety, motivation, safety culture development, and psychological aspects of accidents.
- 2. Industrial Hazards and Risk Management:** Types of Industrial Hazards (Physical, Chemical, Biological, Ergonomic), Fire and Explosion Hazards, Electrical Hazards and Safety Measures, Chemical Exposure and Toxicity Management, Noise and Vibration Hazards, Confined Space Safety, Working at Heights Safety, Machine Guarding and Lockout/Tagout (LOTO), Radiation Hazards and Control Measures.
- 3. Fire Prevention and Safety Management:** Causes and Classification of Fires, Fire Prevention Strategies, Fire Detection and Alarm Systems, Fire Extinguishers: Types and Usage, Fixed Fire Suppression Systems (Sprinklers, CO₂, Foam), Emergency Evacuation Procedures, Fire Safety Drills and Training, Flammable and Combustible Material Handling.
- 4. Electrical Safety and Hazard Control:** Basics of Electrical Safety, Electrical Accidents and Their Causes, Electrical Protective Devices (Circuit Breakers, Fuses, RCDs), Earthing and Grounding Systems, Electrical Maintenance Best Practices, Lockout/Tagout (LOTO) Procedures, Safe Use of Electrical Tools and Equipment,
- 5. Mechanical Safety and Machine Maintenance:** Introduction to Mechanical Hazards, Safe Use of Industrial Machinery, Importance of Preventive Maintenance, Lubrication and Wear Prevention, Bearing and Gear Maintenance, Vibration Analysis for Fault Detection, Failure Modes and Effects Analysis (FMEA), Safety in Heavy Machinery Operations.



Indian Oil Corporation Limited

- 6. Chemical Safety and Hazardous Material Handling:** Classification of Hazardous Substances, Safety Data Sheets (SDS) and Labeling, Safe Storage and Transportation of Chemicals, Chemical Spill Management and Response, Toxicology and Exposure Limits, Personal Protective Measures for Chemical Handling, Hazardous Waste Management and Disposal, Industrial Ventilation and Fume Control. Safety mandates for bulk storage tanks, pipelines, gas cylinders, and hazardous chemical transportation.
- 7. Construction Safety:** Safety in excavation, scaffolding, demolition, piling, and working at heights.
- 8. Maintenance Safety:** Confined space entry protocols, work permits, and safety during shutdowns.
- 9. INDUSTRIAL LEGISLATION & LABOUR LAWS:** The Factories Act, 1948: Roles and Responsibility of Safety officer, detailed study of Chapters IV (Safety), IV-A (Hazardous Processes), and V (Welfare), The Environment Protection Act, 1986: Rules on hazardous waste management, air, and water pollution control boards, The Petroleum Act, The Explosives Act, and The Building and Other Construction Workers (BOCW) Act.