

Hydroelectric Plant Operating Technician

Qualifications

Minimum age - Adult

Education - High School Diploma / GED or equivalent

Experience – Two Years

Examination - Written (Oral or Practical when necessary)

Minimum time in previous grade – One year

Prime Mover Horsepower (unsupervised) - Unlimited

Curriculum at the Minimum:

- General Safety
- Hydraulic Principles
- Available Head
- Available Flow
- Conversion to Power
- Power Station Layout
- Principal Components
- Pump Storage Plants
- Service Water Systems
- Fire Protection Systems
- Compressed Air Systems,
- Dewatering Arrangements
- Drains and Sumps
- Oil Systems
- Common Elements of Auxiliary Equipment
- Effect of Head on Turbine Design
- Types of Turbines (Pelton, Francis, Kaplan)
- Characteristics of Different Turbines
- Function of Major Components
- Bearings and Lubrication Systems
- Draft Tube Setting and Tail Race
- Penstocks
- Shut-Off Valves
- Gates
- Surge Protection
- Turbine Runner Cavitation
- Anti-Cavitation Arrangements
- Generation Principles
- Bearings and Lubrication System
- Air Brake System
- Stator Cooling
- Number of Poles
- Speed and Frequency
- Rotor Field
- Stator Winding
- Stator Leads
- Neutral Grounding

- Isolated Phase Bus
- Excitation Systems
- Synchronizing
- Operating Parameters
- Sensors, Indicators
- Recorders
- Alarms
- Hydraulic Governors
- Governor Regulation
- Speed and Power Output Controls
- Gate Limiter
- Over Speed Protection
- Other Protective Devices
- Water Level Control and Regulation
- Effects On Environment