Power Plant Maintenance Electrician
Job Description
The Power Plant Maintenance Electrician is qualified to work in electrical power engineering, especially with electricity-generating power plants and electrical machines.

Tasks involve installing and maintaining electrical equipment that drive, extend, and modify power plants. The Power Plant Maintenance Electrician is qualified to install and maintain meters, controllers, regulators, drives, and signalling equipment. They are capable of maintaining, repairing, winding, and insulating electrical machines.

Power Plant Maintenance Electricians work independently performing operational maintenance tasks within operating power plants, while complying with relevant laws, safety regulations, documents, and instructions.

Tasks and Competences
On the basis of the graduate's vocational training, the Power Plant Maintenance Electrician is qualified to perform assignments in maintaining electrical systems and equipment in power stations.

The graduate is competent to:
- Practice industrial safety
- Read, apply, and draft technical documents
- Manufacture mechanical parts and joints
- Assemble and wire mechanical, electromechanical, and electrical components to structural components
- Lay and connect wires and cables
- Understand electro-technical principles and maintain such elements
- Measure direct and alternating current strengths and test component parts and structures
- Assemble, wire, and mount structural components, equipment, and parts of a power plant
- Test, measure, and adjust structural components and equipment
- Design power station systems and components
- Install and commission structural components, devices, and parts of a power plant
- Measure non-electrical values and test technical control and instrumentation elements
- Handle protective devices in the power station
- Maintain, troubleshoot, and repair operational material and power supply plants including lighting and signal systems

Career and Employment Opportunities
Power plant electricians work in the energy production sector in industrial power plants, and in large processing industries such as cement and petrochemical factories. They are also employed in factories that require maintenance technicians to service electrical machines and systems, and control and instrumentation technology.

Trainees who perform well are competitive in the labour market and have a good chance to continue working at the same company after graduation as a skilled worker or elsewhere in this professional field without an initial training phase.

Following graduation, the field provides other career opportunities. Work experience in the industry and further job-related training provide the opportunity to upgrade to positions such as Foreman, Senior Electrician, or Production Supervisor, coordinating shop floor activities, and ensuring safety, quality, productivity, and maintenance.

Check training programs for local or regional training providers on the Internet or other sources (e.g. www.ntvet.com) and contact the HRD & Service Centre.

Training Organisation
Comparative advantage through innovative training sequences
- Dual Training over a 3-year period
- Three training and learning locations:
  - Technical Secondary Schools
  - Power Plant Training Centres
  - Public or Private Power Plants
- First year: 2 days per week are spent on classroom training, studying technical subjects such as Technology, Technical Math, and Drawing, and general subjects such as Arabic, English, and Religion. Four days per week are spent on training in a power plant training centre. One week is spent on hands-on training in a power station.
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- Second year: 2 days per week are spent on classroom training, studying technical subjects such as technology, technical math, and drawing, and general subjects such as Arabic, English, and Religion. Two days per week are spent on training in a power plant training centre and 2 days on hands-on training in a power station.

- Third year: 2 days per week are spent on classroom training, studying technical subjects such as technology, technical math, and drawing, and general subjects such as Arabic, English, and Religion. One day each week is spent on training in a power plant training centre and 3 days on hands-on training in the power station.

The trainee receives hands-on training in his respective company to develop necessary technical skills and understanding of typical shop floor activities.

The company training is enhanced by the provision of structured practical training in the workshops and laboratories of power plant training centres to learn basic knowledge of manual, machining, and processing skills, including safety and environmental measures.

On 2 days a week, the Technical Secondary School (TSS) teaches theoretical and general subjects. At the end of the third year, the trainee takes a practical and theoretical final examination.

Training Contents
- Fundamentals of the metal trade
- Workplace safety, environmental protection, energy utilisation
- Production technology
- Metal trade materials
- Mechanical drawing
- Fundamentals of electrical engineering
- Capacitors and coils
- Electrical engineering materials
- Electrical drawing
- Introduction to protective measures
- Electrical measurements
- Electrical technology and electronics
- Alternating current circuits

- Single-phase alternating current
- Three-phase alternating current
- Electronics
- Rectifier circuits
- Digital electronics
- Electrical machinery and transformers
- Rotary electrical machines
- Contactor controls and logic gates
- Control engineering
- Power electronics
- Automatic controls
- Power plants and protection devices

Examination and Certificate
Annual midterm examinations are obligatory and at the end of the third year, the trainee takes a practical and theoretical final examination.

On receiving a suitable grade, the Minister of Education awards the graduate a certificate at the level of Technical Secondary School for the theoretical part of the studies.

For the practical part of the course, a certificate is awarded by the respective power plant training centre and the Mubarak–Kohl Initiative (MKI).

Admission Regulation
(Selection of Trainees)
Successful applicants have:
- A preparatory school leaving certificate
- At least minimum marks, according to the Ministry of Education, to enter a corresponding TSS
- Proof of medical fitness
- Successfully complete an aptitude test and a personal interview

Application forms are available at Fayed Training Centre or HRD & Service Centre.

Locations of Training
- Fayed—Training Centre and the Abu Sultan and Attaka (Suez) Power Plants
- Cairo—Shoubra el-Kheima Training Centre and Power Plant
- Alexandria—Abu Qir Training Centre and Power Plant
Power Plant Maintenance Electrician

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