

# Power Plant Operation



The mission of the Power Plant Operation program is to graduate individuals demonstrating skills which would make them desirable employees in the field of power plant operation.

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**Length of Course:** 280 clock hours, 40 training days

**Enrollment:** January and March

**Training Hours:** 8:30 a.m. to 3:30 p.m., Monday through Friday

**Certificate Level:** Power Plant Operator

### **Occupational Levels:**

Diesel Plant Operator

Assistant Diesel Plant Operator

### **Prerequisites:**

Students train in a working power plant. The 60-260 kw electric sets represent sets used in Alaska. Students learn basic generator set operational skills up to troubleshooting the alternator section. Engine and auxiliary system maintenance and troubleshooting are covered. Waste management skills are also presented. Skills that lead to proficiency in operating the power plant, to optimize its efficiency and decrease operational costs, are stressed.

### **TABE tests scores for this program must be:**

**Reading** 552

**Combined Math** 552

For specific program entry guidelines and testing requirements in reading and mathematics, contact the Admissions Office at (800) 478-5389.

Physical requirements of the occupation are the ability to lift 100 lbs., carry 50 pounds, and stoop, kneel, crawl, walk, and stand continuously. The work also requires good finger dexterity and the ability to distinguish colors accurately.

# Power Plant Operation

Electrical power in Alaska is commonly generated by diesel generator sets. To keep these sets properly maintained and operating, skilled operators are essential, especially in rural settings where these sets can be the only source of a community's power.

Power Plant students train in a working power plant. Using a combination of hands-on and classroom instruction, students learn to perform routine maintenance and make common repairs on diesel-electric sets and related equipment.



## Program Requirements

Occupational levels of Diesel Plant Operator and Assistant Diesel Plant Operator will be assigned upon successful completion of the training program, based on the student's proficiency of the program's competencies.

Students spend 60 percent of the course operating and maintaining diesel generator sets representative of installations in rural Alaska. The remainder of the course is spent in classroom instruction.

To achieve a Power Plant Operator certificate, students must complete the following requirements: Related Studies, Safety, Routines, Tools of the Trade, Diesel Engines, Lubrication, Cooling, Diesel Fuel System, and Electrical Theory and Generators.

### Related Studies

Contact Hours: 43

Participate in school safety orientation, complete achievement tests, obtain First Aid & CPR card, participate in resume writing.

### Safety

Contact Hours: 20

Follow safety procedures in normal and emergency power-plant operation situations.

### Routines

Contact Hours: 20

Perform daily power-plant routines.

### Tools of the Trade

Contact Hours: 14

Use required hand and measuring tools, meters, and fasteners to perform power-plant maintenance.

### Diesel Engines

Contact Hours: 30

Explain operating theory of diesel engines; perform basic maintenance and troubleshooting procedures.

### Lubrication

Contact Hours: 10

Describe the operation of engine lubrication systems; perform normal lubrication system service.

### Cooling

Contact Hours: 10

Describe the operation of engine cooling systems; perform normal cooling system service.

### Diesel Fuel System

Contact Hours: 20

Describe the operation of diesel fuel systems; perform normal fuel system service; troubleshoot and replace defective fuel system components.

### Electrical Theory and Generators

Contact Hours: 113

Explain electrical theory fundamentals; apply to servicing and troubleshooting generator set DC electrical systems; describe the operating principles of AC generator sets; diagnose and repair common AC generator set component failures; operate single and parallel generator sets under load conditions.