

EN 139

Advanced 4th Class Power Engineering Lab

2 Credits

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Reviewer: Reg Lee

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EN 139 Version: 2



Advanced 4th Class Power Engineering Lab

Calendar Description

This course is about the safe and efficient operation of a power plant with all the associated equipment.

Rationale

This course is mandatory for ABSA certification in conjunction with the Heavy Oil Operations Technician or Heavy Oil Power Engineering program. EN 139 gives students hands on opportunity to become familiar with the care and control of a power plant and associated equipment.

Prerequisites

EN 138

Co-Requisites

EN 110 and EN 114, and EN 210 and EN 214

Course Learning Outcomes

Upon completion of this course, students will be able to

Building off EN 138 students advance their knowledge on plant wide systems and include the following:

1. demonstrate placing a load on the steam turbine and generator while maintaining a balanced plant.
2. explain the turbine auxiliary systems and operate.
3. demonstrate basic knowledge of a refrigeration system.
4. explain how a leak test on a refrigeration system is performed.
5. demonstrate how check and locate the safety devices of a refrigeration system.
6. identify components of a black start generator.
7. place load on an emergency system.
8. demonstrate how to lock out an internal combustion engine.
9. demonstrate how perform a lockout on a boiler.
10. demonstrate how to perform a wet lay up on a Boiler and explain how to do a dry layup.

Resource Materials

CSA B51 and B52

ASME Academic Extract Volume 1 and Volume 2

PanGlobal Academic Supplement

Conduct of Course

This course is 35 hours of lab -- seven labs 5 hours each.

This course is taught in our two power engineering labs.

The emphasis is hands on practice and application of power engineering principles.

Evaluation Procedures

The course is a pass or fail course. 100% attendance is mandatory.

Grade Equivalents and Course Pass Requirements

This course grade awarded for this course is recorded as a "P" for Pass or "F" for Fail.

Attendance

Attendance is recorded at each session. Students must maintain a 100% hourly attendance record in this course.

Course Units/Topics

1. Worksite safety
2. Water treatment
3. Deaerator operation
4. Boiler feed water system operation
5. Low pressure boiler operation
6. Plant auxiliary system operation
7. High pressure boiler operation
8. High pressure steam header operation
9. Steam turbine driven electric generator operation.



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