Imperial Irrigation District Apprenticeship Program

Power plant Operator VIII

Course Syllabus- Fall 2012

Instructor: Ray Rose

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CCRN #10404
Class meetings: Monday 0400P.M. thru 8:30P.M.

Location: powerhouse building third floor conference room

Textbook: Steam Plant Operation (9^{th}e)
Authors: Woodruff, Everett; Lammers, Herbert; Lammers; Thomas, Mcgraw Hill ISBN9780071667968

Prerequisite: Power Plant operator APPL107

Course Philosophy:
This course will give students the understanding of Electrical Power Generation Plant operation and the equipment associated with the successful operation and maintenance of electrical power Generation plants.

Measureable Course Objectives and Minimum Standards for Grade of "C"
1.Practice standard safety procedures appropriate to the power plant industry standards.
2. Practice proper use of appropriate personal protection equipment.
3. Understand combustion turbine generator principles of operation.
4. Explain gas turbine generator excitation control and station auxiliaries.
5. Explain General Electric gas turbine performance characteristics.
6. Explain water and steam circuit, combustion gas circuit, natural gas fired and oil fired boilers.
7. Explain instrumentation used and operation of automatic controls in combined cycle power plants.
8. Explain air pollutants, environmental regulations for boilers and gas turbines.
9. Explain control for nitrogen oxide, sulfur dioxide, water pollution, waste water treatment.

Institutional learning outcomes:
1. Critical problem solving : casualty control in power plants,
2.Personal responsibility: students show up on time every time
3. Information Literacy: How to use Standard Operating Procedures
4. Global awareness: Alternative energy sources.

Student learning Outcomes (SOLs): page2-3

upon course completion, the successful student will have acquired new skills, knowledge demonstrated by being able to:

1. Explain the different types of energy used in fossil fuel electrical power generation.
2. Explain energy transfer in the electrical power generation plant cycle.
3. Explain and analyze causes of failure in fossil fuel electrical power plants.
4. Explain principles of control in modern fossil fuel electrical power generation.

Grading Criteria:
Letter grade only

Grading policy:

The student's grade will depend on the following areas:

homework assignments	35%
class presentation	15%
mid-term	25%
Final exam	25%
Total	100%

All grades are calculated by the standard scale:

A=100-90% B=89-80% C=79-70% D=69-60% F=59% and below

Class rules and Expectations:

1. Students are expected to be actively involved the learning process so failure is not a good choice; apply yourself, study, attend class regularly, ask for help if needed, and always do your best.

2. Students will attend class meetings regularly. After second absence the apprenticeship coordinator for IID will be notified.

3 ABSENCES. What constitutes an absence? Not showing up to class during a regular class meeting or arriving more than 20 minutes after the beginning of the class, or leaving 20 minutes before end of class. If class is missed because of work schedule student shall confer with instructor to schedule make-up class in the same week. Otherwise student will be marked unexcused absent from class for that week.

4. Excused absence will be granted only in the case of family medical emergency to student or immediate family member (wife, child, mother or father). Any class time missed will be made-up the following semester. Pay increase will be held until completion of classroom hours I.A.W. IID Joint Apprenticeship Council directive.

5. Unexcused absence: Will be reported to IID Apprenticeship Coordinator for further action and direction from IID Joint Apprenticeship Council. After missing four scheduled class meetings student may be dropped by instructor I.A.W. Apprenticeship Instructor Guide PAGE 13 AP5075.

6. Tardiness. What constitutes a tardy? Arriving within first 20 minutes after beginning of class or leaving within the last 20 minutes before the end of class.

7. Late assignments will not be accepted. Only for medical emergency, student will hand in assignment that week.

8. Students will not be allowed to make-up an exam or final exam.

9. Classroom Etiquette:-in class, it is expected to treat instructor and fellow students with respect. Do not interrupt each other.

10. Academic integrity- If a student is found cheating on an exam or assignment he will receive a grade of zero for the test or assignment. If cheating is repeated the student will receive an “F” for the class and will be referred to apprenticeship coordinator and J.A.C. for disciplinary action.

11. Homework: the purpose of homework is to provide students with additional practice to reinforce concepts and to get ready for class. For each chapter in the text book you will answer questions at the end of the chapter each homework assignment is due the following scheduled class meeting.

12. Calendar:

DATE	SUBJECT	READ,ANSWER QUESTIONS	ASSIGNMENT DUE	% of COURSE
8/20/2012	CLASS SYLLABUS PROJECT MANAGEMENT &PURCHASING AND CONTRACT ADMIN	CHAPTER ONE OF THEXTBOOK	8/27/12	5.0
8/27/2012	GAS TURBINE CROSS SECTION INLET AND EXHAUST SYSTEM GE DUAL FUEL SYSTEM	CHAPTER TWOOF TEXTBOOK	9/4/2012	10.0
9/4/2012	STARTING DEVICE SYSTEM, INLET GUIDE VANE CONTROL GT AIR ACCESSORY SYSTEMS	CHAPTER THREEOF TEXTBOOK	9/10/2012	10.0
9/10/2012	GT L.O. ACESSORY SYTEMS GT WATER ACCESSORY SYSTEMS GT PACKAGE SUPPORT	CHAPTER FOUR OF TEXTBOOK	9/17/2012	10.0
9/17/2012	WATER AND STEAM CIRCUIT COMBUSTION GAS CIRCUIT FOSSIL FUELS	CHAPTER FIVE OF TEXTBOOK	9/24/2012	8.0
9/24/2012	COMBUSTIOM PRINCIPLES AIR POLLUTION FUNDAMENTALS	CHAPTER SIX OF TEXTBOOK	10/08/2012	10

10/1/2012	COMBUSTION PROCESS GAS TURBINE WITH HRSG	CHAPTER SEVEN OF TEXTBOOK	10/15/2012	11.0
10/08/2012	MID-TERM EXAM			
10/15/2012	NORMAL OPERATION AUTOMATIC CONTROL SYSTEMS INSTRUMENTATION	CHAPTER EIGHT OF TEXTBOOK	10/22/2012	9.0
10/22/2012	ELECTRICAL THEORY TURBINE GENERATOR PREVENTIVE MAINTAINENCE SAFETY	CHAPTER NINE OF TEXTBOOK	10/29/2012	6.0
10/29/2012	AIR POLLUTION CONCERNS ENVIRONMENTAL REGULATIONS CEMS	CHAPTER TEN OF TEXTBOOK	11/5/2012	7.0

11/5/2012	NITROGEN OXIDE CONTROL SOx CONTROL WATER POLLUTION13.8Kv,2400v,	CHAPTER11 OF TEXTBOOK	11/13/2012	6.0
11/13/2012	WASTE WATER TREATMENT SOLID WASTES SOLOID POLLUTION CONTROL	CHAPTR12 OF TEXTBOOK	11/19/2012	5.0
11/19/2012	STEAM TURBINE LUBE OIL SYSTEM AND GOVERNOR CONTROL	CHAPTER 13 OF TEXTBOOK	11/26/2012	3.0
11/26/2012	Review for final exam			
12/5/2012	Final exam			