

### Basic Course Information

Semester	<b>Fall 2017</b>	Instructor	<b>Ray Rose</b>
Course Title & #	<b>Power Plant Operator 108</b>	Email	<b>RA Rose@IId .com</b>
CRN #	<b>CCRN #11251</b>	Website	
Room	<b>ECGS Maintenance building lunch room</b>	Office	<b>Imperial Irrigation District</b>
Class Dates	<b>Aug.16,2017 thru Dec.08, 2017</b>	Office Hours	
Class Days	<b>Wednesday</b>	Phone #	<b>760-356-4518 760-554-8742</b>
Class Times	<b>3:00 P.M. to 7:30 P.M.</b>	Contact for absence or emergency	

### Course Description

Instruction operating and controlling distributed control system, steam turbines, Electrical generators, Heat Recovery Steam Generators, and associated mechanical and electrical equipment in the production of electrical energy. (Nontransferable, non-degree applicable)

### Student Learning Outcomes

1. Upon course completion, the successful student will have acquired new skills, knowledge demonstrated by being able to:
2.
  1. Explain the different types of energy used in fossil fuel electrical power generation.
  2. Explain energy transfer in the electrical power generation.
  3. Explain and analyze causes of failure in fossil fuel electrical power generation plants.
  4. Explain principles of control in modern fossil fuel electrical power generation.

### Course Objectives

1. 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.

### Textbooks & Other Resources or Links

1. Textbook: Combined-Cycle Gas & steam Turbine Power Plants, Authors: Rolf Kehlhofer, Bert Rukes, Franz Stirnmann, Frank Hanneman

### Course Grading Based on Course Objectives

Grading Criteria:

Letter grade only

Grading policy:

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

homework assignments/quiz                      34% =170 points

class presentation /attendance                16% = 80 points

mid-term    25% =125 points

Final exam    25%=125 points

Total    100% =500 points

All grades are calculated by the standard scale:

A=100-90%

B=89-80%

C=79-70%

D=69-60%

F=59% and below

The course grade is based on total points accumulated during the semester. There is a maximum of 500 points.

Final Grades are calculated as follows:

Percentage	Grade	Points	Grade
90-100%	A	450-500	A
80-89%	B	400-449	B
70-79%	C	350-399	C
60-69%	D	300-349	D
Below 60%	F	0-299	F

Grading Rubrics: In addition to the percentages and points listed above the following grading rubric (standards expected) will be used when grading student assignments. The description that best fits your work will be the assigned grade.

Grade	Rubric or Standard Expected
<b>A</b>	Focused and clearly organized. Contains advanced critical thinking and analysis. Convincing evidence is provided to support conclusions. Clearly meets or exceeds assignment requirements.
<b>B</b>	Generally focused with some development of ideas, but may be simplistic or repetitive. Evidence is provided to support conclusions. Occasional grammatical errors. Meets assignment requirements, but does not exceed.
<b>C</b>	Unfocused, underdeveloped, or rambling, but has some coherence. Minimal evidence is provided to support conclusions. Several grammatical errors. Meets minimum assignment requirements.
<b>D</b>	Unfocused, underdeveloped, and/or rambling. Limited evidence is used to support conclusions. Serious grammatical errors that impede overall understanding. Does not address the assignment requirements
<b>F</b>	Unfocused, underdeveloped, and/or rambling. Incomplete or too brief. No evidence is used to support conclusions. Serious grammatical errors that block overall understanding. Does not meet assignment requirements. Minimal to no student effort.

7. Late assignments will not be accepted. Student will hand in assignment the week it is due.

8. Students will not be allowed to take missed, quizzes, mid-term exam or final exam.

### **Course Assignments and Instructional Methods**

Assignments are designed to elicit your demonstration of critical thinking, understanding and application of the course concepts, and your proficiency in the subject matter.

#### Required Activities or Assignments

1. Quizzes (13)
2. Exams (2)
3. Drawings (10)
4. Presentation (14)

Teaching Methods: During this class you will have opportunity to participate in a variety of presentation and teaching methods. Lectures, including material not covered in your readings, class and group discussions requiring your active participation, student oral presentations, field trips will supplement your required readings.

Out of Class Assignments: The Department of Education policy states that one (1) credit hour is the amount of student work that reasonably approximates not less than one hour of class time and two (2) hours of out-of-class time per week over the span of a semester. WASC has adopted a similar requirement. Out of class assignments

for this course includes reading assignments, study time for exams/quizzes, and completion of required course assignments. Students should actively read the assignment prior to class, bring any questions to class, and take careful notes during class.

### Attendance

- A student who fails to attend the first meeting of a class will be dropped by the instructor as of the first official meeting of that class. Should readmission be desired, the student's status will be the same as that of any other student who desires to add a class.
- Regular attendance in all classes is expected of all students. A student whose continuous, unexcused absences exceed the number of hours the class is scheduled to meet per week may be dropped. Students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- 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 will attend class on Thursday from 9:00a.m. to 1:30p.m. (Or shall confer with instructor to schedule make-up class in the same week). Otherwise student will be marked absent from class for that week.
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### Academic Dishonesty

- Plagiarism is to take and present as one's own the writings or ideas of others, without citing the source. You should understand the concept of plagiarism and keep it in mind when taking exams and preparing written materials. If you do not clearly understand how to correctly 'cite a source', you must ask for help.
- Cheating is defined as fraud, deceit, or dishonesty in an academic assignment or using or attempting to use materials, or assisting others in using materials, or assisting others in using materials, which are prohibited or inappropriate in the context of the academic assignment in question. Anyone caught cheating will receive a zero (0) on the exam or assignment, the incident will be reported to Apprenticeship program coordinator, and a document may be placed in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the General School Catalog for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to the following:
  - plagiarism
  - copying or attempting to copy from others during an examination or on an assignment;
  - communicating test information with another person during an examination;
  - allowing others to do an assignment or portion of an assignment
  - use of a commercial term paper service

### Classroom Etiquette

- 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. 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.
- 4. Electronic Devices: Cell phones and electronic devices must be turned off and put away during class. These disruptions are considered disrespectful behavior to others in the class and the instructor.
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception.

- Disruptive Students: Most of you are here to learn, but some students are not as serious. To preserve a productive learning environment, students who disrupt or interfere with a class may be sent out of the room and told to meet with the apprenticeship coordinator, before returning to continue with coursework. Disciplinary procedures will be followed as outlined in IID policy and Procedure 4350.

**Additional Help**

- You are allowed to ask any journeyman operator questions pertaining to your homework or drawings or procedures which may be discussed in class.  
Library Services: All technical manuals pertaining to the equipment covered in class is in #1 control-room.

**Disabled Student Programs and Services (DSPS)**

Non-applicable

**Student Counseling and Health Services**

Refer to IID Policy and Procedures

**Student Rights and Responsibilities**

Students have the right to experience a positive learning environment; students who disrupt that environment can be asked to leave the class. Faculty and students also have the right of due process. For further information regarding student rights and responsibilities please refer to the IVC General Catalog available online at [www.imperial.edu](http://www.imperial.edu)

**Class Schedule**

Below is a list of weekly activities and assignments that will assist you in meeting the course objectives and the Student Learning Outcomes. Please review carefully and often as the list may include reading assignments, exams, field trips, projects, presentations, etc.

DATE	SUBJECT	Homework READ,ANSWER QUESTIONS	ASSIGNMENT DUE
08/16/2017 Week 1	CLASS SYLLABUS #3 circulating water system. Station switching proc. #4. 2400v beaker racking in and out of service	CHAPTER seven OF TEXTBOOK question 1 thru 7	08/23/2017
08/23/2017 Week 2	Imperial county Air Pollution Control district Rule 110, 111, 400 General Permit conditions Unit#3	CHAPTER seven OF TEXTBOOK questions 8 thru 14	08/30/2017
08/30/2017 Week 3	31 &32 HRSG blowdown system demineralized water system treated water system.	CHAPTER eight OF TEXTBOOK Questions 1thru 5	09/06/2017
09/06/2017 Week4	#3 Condensate system #3 feedwater system Steam and water sampling system	CHAPTER eight OF TEXTBOOK questions 6 thru 10	09/13/2017

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09/13/2017 Week 5	GT 31 &32 parameters GT Interconnects #3 Main steam system Low Pressure steam system	CHAPTER nine OF TEXTBOOK Questions 1 thru 5	09/20/2017
09/20/2017 Week 6	SST-600 basic course Introduction technical description instrumentation operation	CHAPTER nine OF TEXTBOOK questions 6 thru 10	09/27/2017
09/27/2017 Week 7	SST-600 basic course Generator Routine maintenance limits and protection	CHAPTER ten OF TEXTBOOK Questions 1 thru 5	10/04/2017
10/04/2017 Week 8	MID-TERM EXAM	Chapter ten of textbook questions 6 thru 10	10/11/2017
10/11/2017 Week 9	SGT-800 Basic course KKS Designation system Gas turbine prime MBA Turbine System Auxiliary systems overview SGT-800	CHAPTER eleven OF TEXTBOOK questions 1 thru10	11/18/2017
10/18/2017 Week 10	SGT-800 basic course MBH 10 Cooling and sealing air MBJ start system MBK Gear System MBL Air Intake Filter system MBP Gas Fuel system	CHAPTER twelve OF TEXTBOOK questions 1 thru 10	10/25/2017
10/25/2017 Week 11	SGT-800 basic course MBV Gear system MPS Drying system OFA Instrument air system SAG ventilation system SDB compressor operation	CHAPTER thirteen OF TEXTBOOK	11/01/2017
11/01/2017 Week 12	SGT-800 basic course SFY Gas detection system SGJ Fire Protection and extinguishing System	Chapter fourteen of textbook	11/08/2015

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	MKA Generator System Electrical Overview SGT-800		
11/08/2017 Week13	GT-800 basic course Maintenance general information Measuring equipment OH Siemens	Chapter fifteen of text book	11/15/2017
11/15/2017 Week 14	Powerhouse UPS system Powerhouse UPS system Operation Unit 3 D.C. Systems	chapter sixteen of textbook	11/29/2017
11/29/2017 Week 15	Startup of second CT and HRSG Steam synchronization (coupling) Second CT/HRSG shutdown (2X! to 1X1)		
12/06/2017 Week 16	Plant disturbances Steam turbine trip (1X1) Steam Turbine trip (2X1) Final exam		