

Basic Course Information

Semester:	Fall 2019	Instructor Name:	Ray Rose
Course Title & #:	APPL 105 Power plant Operator V	Email:	Rarose2iid.com
CRN #:	11441	Webpage (optional):	
Classroom:	ECGS Operator	Office #:	
Class Dates:	Aug.20, 2019 to Dec.10, 2019	Office Hours:	6:00a.m. -6:00p.m.
Class Days:	Wednesday	Office Phone #:	760-339-0522
Class Times:	3:00p.m. to 7:00p.m.	Emergency Contact:	Shift Supervisor on duty
Units:	4.0		

Course Description

Instruction in operating, controlling distributed control system for high pressure boilers, steam turbines, alternating current generators and associated mechanical and electrical equipment in the production of electrical energy for rankine cycle plant. (Nontransferable, nondegree applicable)

Course Prerequisite(s) and/or Corequisite(s)

ELTT4

Student Learning Outcomes

Upon course completion, the successful student will have acquired the necessary skills to be able to:

- A. Explain the different types of energy used in fossil fuel rankine cycle electrical power generation.*
- B. Explain energy transfer in the rankine cycle electrical power plant.*
- C. Explain and analyze causes of failure in fossil fuel rankine cycle electrical power plant.*
- D. Explain principles of control in modern rankine cycle electrical powerplant.*

Course Objectives

- 1. Give students working knowledge of Rankine Cycle electrical power generation plant .*
- 2. Give students working knowledge of systems and auxiliary equipment necessary for the safe operation of Rankine Cycle electrical power generation plant.*
- 3. Working knowledge of how to analyze and troubleshoot Rankine Cycle electrical power generation plant equipment and overall effect on the electrical grid.*

Textbooks & Other Resources or Links

Textbook: Steam Plant Operation (10th edition)

Authors: Woodruff, Everett; lammers, Herbert; lammers, Thomas; McGraw Hill ISBN9780071667968

Course Requirements 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 (14)**
2. **Exams (2)**
3. **Drawings (17)**
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 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.

Course Grading Based on Course Objectives

Grading Criteria:

Letter grade only

Grading policy:

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

<i>homework assignments/quiz</i>	<i>34% =170 points</i>
<i>class presentation /attendance</i>	<i>16% = 80 points</i>
<i>mid-term</i>	<i>25% =125 points</i>
<i>Final exam</i>	<i>25%=125 points</i>
<i>Total</i>	<i>100% =500 points</i>

All grades are calculated by the standard scale:

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

Attendance

[Required Information: The below information is the IVC attendance policy. Use this information in addition to any specific attendance policies you have for your course.]

- A student who fails to attend the first meeting of a class or does not complete the first mandatory activity of an online 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. It is the student’s responsibility to drop or officially withdraw from the class. See [General Catalog](#) for details.
- 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: Not showing up to class during a regular class or make-up class meeting or arriving more than 20 minutes after the beginning of the class, or leaving 20 minutes before end of class. ‘excused’ absence will only be given if due to work schedule student cannot attend class or make-up class.

Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor.
- Food and Drink is allowed not allowed in classroom. Water bottles with lids/caps are the only exception. Please comply as directed by the instructor.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Human resources Department before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the IID Policy and Procedure 4350.
- Children in the classroom: Due to IID rules and state laws, only students enrolled in the class may attend; children are not allowed.

Online Netiquette

- This class is not offered on line.

Academic Honesty

[Required language.]

Academic honesty in the advancement of knowledge requires that all students and instructors respect the integrity of one another's work and recognize the important of acknowledging and safeguarding intellectual property.

There are many different forms of academic dishonesty. The following kinds of honesty violations and their definitions are not meant to be exhaustive. Rather, they are intended to serve as examples of unacceptable academic conduct.

- Plagiarism is taking and presenting 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 understand how to "cite a source" correctly, 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 that are prohibited or inappropriate in the context of the academic assignment in question.

Anyone caught cheating or plagiarizing will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the IID Human resources department, who may place related documentation in a file. Repeated acts of cheating may result in an F in the course and/or disciplinary action. Please refer to the [IID policy and Procedure 4530](#) for more information on academic dishonesty or other misconduct. Acts of cheating include, but are not limited to, the following: (a) plagiarism; (b) copying or attempting to copy from others during an examination or on an assignment; (c) communicating test information with another person during an examination; (d) allowing others to do an assignment or portion of an assignment; (e) using a commercial term paper service.

Additional Student Services

- *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)

Any student with a documented disability who may need educational accommodations should notify the instructor or the [IID Human Resources Department](#) as soon as possible. Please contact them if you feel you need to be evaluated for educational accommodations.

Student Counseling and Health Services

[Required language.]

Students have counseling and health services available, provided by the IID Human Resources Department.

Veteran's Center

[Required language.]

The mission of the [IVC Military and Veteran Success Center](#) is to provide a holistic approach to serving military/veteran students on three key areas: 1) Academics, 2) Health and Wellness, and 3) Camaraderie; to serve as a central hub that connects military/veteran students, as well as their families, to campus and community resources. Their goal is to ensure a seamless transition from military to civilian life. The Center is located in Building 600 (Office 624), telephone 760-355-6141.

Extended Opportunity Program and Services (EOPS)

[Required language.]

The Extended Opportunity Program and Services (EOPS) offers services such as priority registration, personal/academic counseling, tutoring, book vouchers, and community referrals to qualifying low-income students. EOPS is composed of a group of professionals ready to assist you with the resolution of both academic and personal issues. Our staff is set up to understand the problems of our culturally diverse population and strives to meet student needs that are as diverse as our student population.

Also under the umbrella of EOPS our CARE (Cooperative Agency Resources for Education) Program for single parents is specifically designed to provide support services and assist with the resolution of issues that are particular to this population. Students that are single parents receiving TANF/Cash Aid assistance may qualify for our CARE program, for additional information on CARE please contact Lourdes Mercado, 760-355- 6448, lourdes.mercado@imperial.edu.

EOPS provides additional support and services that may identify with one of the following experiences:

- Current and former foster youth students that were in the foster care system at any point in their lives
- Students experiencing homelessness
- Formerly incarcerated students

To apply for EOPS and for additional information on EOPS services, please contact Alexis Ayala, 760-355-5713, alexis.ayala@imperial.edu.

Student Equity Program

[Required language.]

- The Student Equity Program strives to improve Imperial Valley College’s success outcomes, particularly for students who have been historically underrepresented and underserved. The college identifies strategies to monitor and address equity issues, making efforts to mitigate any disproportionate impact on student success and achievement. Our institutional data provides insight surrounding student populations who historically, are not fully represented. Student Equity addresses disparities and/or disproportionate impact in student success across disaggregated student equity groups including gender, ethnicity, disability status, financial need, Veterans, foster youth, homelessness, and formerly incarcerated students. The Student Equity Program provides direct supportive services to empower students experiencing insecurities related to food, housing, transportation, textbooks, and shower access. We recognize that students who struggle meeting their basic needs are also at an academic and economic disadvantage, creating barriers to academic success and wellness. We strive to remove barriers that affect IVC students’ access to education, degree and certificate completion, successful completion of developmental math and English courses, and the ability to transfer to a university. Contact: 760.355.5736 or 760.355.5733 Building 100.
- The Student Equity Program also houses IVC’s Homeless Liaison, who provides direct services, campus, and community referrals to students experiencing homelessness as defined by the McKinney-Vento Act. Contact: 760.355.5736 Building 100.

Student Rights and Responsibilities

[Required language.]

Students have the right to experience a positive learning environment and to due process of law. For more information regarding student rights and responsibilities, please refer to the IVC [General Catalog](#).

Information Literacy

[Required language.]

Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. The IVC [Library Department](#) provides numerous [Information Literacy Tutorials](#) to assist students in this endeavor.

Anticipated Class Schedule/Calendar

12/11/2019 Final exam

[Required Information – Discretionary Language and Formatting: The instructor will provide a tentative, provisional overview of the readings, assignments, tests, and/or other activities for the duration of the course. A table format may be useful for this purpose.]

Week /date	Subject	Homework Read, answer questions	Assignment due date
Week #1 8/21/2019	Class syllabus power plant Safety	Chapter one of textbook questions 1 thru 15	08/28/2019
Week #2 8/28/2019	Raw water system, Circulating water system, service water system Rankine cycle plant	Chapter one questions 16 thru 30	09/04/2019
Week #3 09/04/2019	Condensate System, feed-water system, main steam system Rankine cycle plant	Chapter two of textbook questions 1 thru 20.	09/11/2019
Week #4 09/11/2019	Saturated Steam Sys. Extraction Steam System Turbine Gland Sealing steam System	CHAPTER TWO OF TEXTBOOK questions 21 thru 43	09/18/2019
Week #5 09/18/2019	Oil Fuel System Gas Fuel System Combustion Air Sys. SCR and Ammonia Sys.	CHAPTER THREE OF TEXTBOOK questions 1 thru 17	09/25/2019
Week #6 09/25/2019	COMBUSTION PRINCIPLES AIR POLLUTION FUNDAMENTALS	CHAPTER THREE OF TEXTBOOK questions 18 thru 35	10/02/2019
Week #7 10/02/2019	COMBUSTION PROCESS Automatic Combustion Controls	CHAPTER FOUR OF TEXTBOOK questions 1 thru 22	10/09/2019
Week #8 10/09/2019	MID TERM		
Week #9 10/16/2019	NORMAL OPERATION AUTOMATIC CONTROL SYSTEMS INSTRUMENTATION	CHAPTER FOUR OF TEXTBOOK questions 23 thru 44	10/23/2019
Week #10 10/23/2019	Main steam Turbine control and Automatic Turbine Start-up	CHAPTER FIVE OF TEXTBOOK questions 1 thru 29	10/30/2019
Week #11 10/30/2019	Turbine Hydraulic system steam Turbine Generator Lube oil System	CHAPTER FIVE OF TEXTBOOK questions 30 thru 58	11/06/2019
Week #12 11/06/2019	Steam Turbine Generator Hydrogen Gas Sys. Gland Oil Sys.	Chapter six of textbook questions 1 thru 20	11/13/2019

	Steam Turbine Excitation Sys		
Week #13 11/13/2019	13.8KV and 2400v Electrical Sys. 480V Electrical Sys. UPS System	CHAPTR SIX OF TEXTBOOK questions 21 thru 39	11/20/2019
Week #14 11/20/2019	D.C. System and Emergency Lighting	Lineup, Lite -off, Raising Steam, Synchronization Rankine Cycle Plant	
Week #15 12/04/2019	Review for final exam Battery Energy Storage System		

Week #16 12/11/2019	Final Exam		

*****Tentative, subject to change without prior notice*****