

### Basic Course Information

Semester	<b>Fall 2014</b>	Instructor Name	<b>Francisco Mayoral</b>
Course Title & #	<b>Electric Feeder Service &amp; Circuit</b>	Email	<b>Francisco.mayoral@imperial.edu</b>
CRN #	<b>10848</b>	Webpage (optional)	
Room	<b>3113</b>	Office	<b>Part-Timers:</b>
Class Dates	<b>18 Aug to Dec 13, 2014</b>	Office Hours	<b>n/a for part-time faculty</b>
Class Days	<b>Tuesday and Thursday</b>	Office Phone #	
Class Times	<b>5:30 -6:20 pm 6:30-9:45 pm</b>	Office contact if student will be out or emergency	
Units			

### Course Description

This course includes instruction in feeder service and branch load calculations for circuits and electrical appliances; introduction to and identification of electrical constructors; devices used for overprotection of loads, currents, circuits and fuses; fill requirements for boxes/raceways; principles of wiring devices, switches and receptacles and their locations; requirements for distribution equipment; settings for voltage, switch gear, circuits, and components; distribution system transformers and their characteristics; types of components; NEC requirements; methods for locating and troubleshooting problems. (Nontransferable, AA/AS degree only)

### Student Learning Outcomes

Upon course completion, the successful student will have acquired new skills, knowledge, and or attitudes as demonstrated by being able to:

1. Learn the four common box shapes, how to remove knockouts and pryout, mounting systems, and connectors that fasten wiring to boxes. (ILO1, ILO3, ILO4)
2. Discuss the rating systems for Overcurrent protective devices, equipment grounding, the operation of ground-fault circuits interrupters and arc-fault circuit interupters. (ILO1, ILO2, ILO3, ILO4)
3. Learn the four common box shapes, how to remove knockouts and pryout, mounting systems, and connectors that fasten wiring to boxes. (ILO1, ILO3, ILO4)
4. Discuss the rating systems for Overcurrent protective devices, equipment grounding, the operation of ground-fault circuits interrupters and arc-fault circuit interupters. (ILO1, ILO2, ILO3, ILO4)

### Course Objectives

Upon satisfactory completion of the course, students will be able to:

1. Demonstrate and practice electrical safety.
2. Size branch circuits over current protection devices for continuous and non-continuous duty circuits.
3. Use load calculations to determine branch circuit conductor sizes.
4. Interpret and apply NEC regulations governing conductors and size conductors for the load.
5. Size raceways conduit and conduit bodies, when given NEC requirements and tables.
6. Select and size wiring devices according to NEMA and NEC classification and requirements.
7. Calculate the power factor of any given electrical system.

### Textbooks & Other Resources or Links

1. **Modern Commercial Wiring 6<sup>th</sup> Edition by Harvey N. Holzman. ISBN 978-1-61960-854-2.**
2. **Modern Commercial Wiring 6<sup>th</sup> Edition by Harvey N. Holzman. (Workbook) . ISBN 978-1619608573**
3. **2014 NEC manual, National Electric Codes**

### Course Requirements and Instructional Methods

Below is the instructional Scale:

Breakdown (100 points)

Reviews:	20%
Shop practices:	30%
Midter:	25%
Final:	25%

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

The course grade is based on total points accumulated during the semester. There is a maximum of 100 points.

Very limited extra credit points may be available, either through some class participation activity, group work or perfect attendance. Failing to turn in regular assignments will stop you from being able to earn extra credit points and late assignments will have points subtracted.

Final Grades are calculated as follows:

Grade Points

A	90-100
B	80-89
C	70-79
D	60-69
F	Below 60

**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

- A** Focused and clearly organized. Contains advanced critical thinking and analysis. Convincing evidence is provided to support conclusions. Clearly meets or exceeds assignment requirements.
- 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.
- C** Unfocused, underdeveloped, or rambling, but has some coherence. Minimal evidence is provided to support conclusions. Several grammatical errors. Meets
- D** 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
- E** 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. This section is where faculty would list their grading practices and grading scale, including point

values

**and totals. Consider adding: final grade calculation, rubrics, late assignments, and other grading practices.**

### Attendance

- 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. For online courses, students who fail to complete required activities for two consecutive weeks may be considered to have excessive absences and may be dropped.
- Absences attributed to the representation of the college at officially approved events (conferences, contests, and field trips) will be counted as 'excused' absences.

### Classroom Etiquette

- Electronic Devices: Cell phones and electronic devices must be turned off and put away during class, unless otherwise directed by the instructor. **Consider**: specifics for your class/program
- Food and Drink are prohibited in all classrooms. Water bottles with lids/caps are the only exception. Additional restrictions will apply in labs. Please comply as directed.
- Disruptive Students: Students who disrupt or interfere with a class may be sent out of the room and told to meet with the Campus Disciplinary Officer before returning to continue with coursework. Disciplinary procedures will be followed as outlined in the General Catalog.
- Children in the classroom: Due to college rules and state laws, no one who is not enrolled in the class may attend, including children.

### Academic Honesty

- 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 will receive a zero (0) on the exam or assignment, and the instructor may report the incident to the Campus Disciplinary Officer, 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 General School Catalog 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 Help – Discretionary Section and Language

- **Blackboard** support center: <http://bbcrm.edusupportcenter.com/ics/support/default.asp?deptID=8543>
- **Learning Labs:** There are several ‘labs’ on campus to assist you through the use of computers, tutors, or a combination. Please consult your college map for the Math Lab, Reading & Writing Lab, and Study Skills Center (library). Please speak to the instructor about labs unique to your specific program.
- **Library Services:** There is more to our library than just books. You have access to tutors in the Study Skills Center, study rooms for small groups, and online access to a wealth of resources.

### Disabled Student Programs and Services (DSPS)

**Required Language:** Any student with a documented disability who may need educational accommodations should notify the instructor or the Disabled Student Programs and Services (DSP&S) office as soon as possible. The DSP&S office is located in Building 2100, telephone 760-355-6313, 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 pre-paid Student Health Fee. We now also have a fulltime mental health counselor. For information see <http://www.imperial.edu/students/student-health-center/>. The IVC Student Health Center is located in the Health Science building in Room 2109, telephone 760-355-6310.

### Student Rights and Responsibilities

**Required Language:** Students have the right to experience a positive learning environment and due process. For further information regarding student rights and responsibilities, please refer to the IVC General Catalog available online at [http://www.imperial.edu/index.php?option=com\\_docman&task=doc\\_download&gid=4516&Itemid=762](http://www.imperial.edu/index.php?option=com_docman&task=doc_download&gid=4516&Itemid=762)

### Information Literacy

**Required Language:** Imperial Valley College is dedicated to helping students skillfully discover, evaluate, and use information from all sources. Students can access tutorials at <http://www.imperial.edu/courses-and-programs/divisions/arts-and-letters/library-department/info-lit-tutorials/>

### Anticipated Class Schedule / Calendar

The instructor will provide a tentative, provisional overview of the readings, assignments, tests, or other activities for the duration of the course. The faculty may find a table format useful for this purpose.

Date or Week	Activity, Assignment, and/or Topic	Pages/ Due Dates/Tests
Week 1 Aug 19 - 21	Syllabus & Introduction. Math review	Pages 224 to 229
Week 2 Aug 26 - 28	Electrical Fundamentals review: Basic electrical circuits units, Alternating current. Last day to add August 30	Pages 9 to 24
Week 3 Sep 2-4	Safety: cause of accidents, accident prevention.	Pages 25 to 30
Week 4 Sep 9-11	Tools: Standard construction tools, electrical tools.	Pages 31 to 40
Week 5 Sep 16- 18	Electrical prints, specifications, and codes.	Pages 41 to 56
Week 6 Sep 23-25	Wiring Methods: general rules	Page 58 to 60

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Week 7 Sep 30 Oct 2	Wiring Methods: wiring methods	Page 61 to 72
Week 8 Oct 7-9	Conductors Mid term examination October 9	Pages 73 to 90
Week 9 Oct 14-16	Boxes and Conduit Bodies	Pages 91 to 100
Week 10 Oct 21-23	Overcurrent Protection	Pages 101 to 102
Week 11 Oct 28-30	Overcurrent Protection	Pages 103 to 108
Week 12 Nov 4-6	Service and Distribution Last day to drop with W November 8	Pages 111 to 115
Week 13 Nov 13	November 11 no class (Veterans day) Service and Distribution	Page 116
Week 14 Nov 18-20	Service and Distribution	Pages 117 to 118
Week 15 Nov 24 to 29	Campus closed Thanksgiving week	
Week 16 Dec 2-4	Transformers	Pages 119 to 125
Week 17 Dec 9-11	Transformers Final examination December 11	Pages 126 to 134