University of Puerto Rico
Mayagüez Campus
College of Engineering
Department of Electrical and Computer Engineering
Bachellor of Science in Electrical Engineering

Course Syllabus

1. General Information:

Alpha-numeric codification: INEL 5406
Course Title: DESIGN OF TRANSMISSION AND DISTRIBUTION SYSTEMS
Number of credits: 3
Contact Period: 45
Elective in INEL

2. Course Description:

English: Design of electric power distribution systems with special attention to distribution transformer connections and energy rates. Transmission line design with emphasis on conductor selection, sag and tension. Review of transmission line parameters..

Spanish: Diseño de sistemas de distribución con énfasis en conexión de transformadores y tarifas de energía. Diseño de líneas de transmisión con énfasis en la selección de conductores, tensión y vano en la línea. Repaso de parámetros de líneas de transmisión.

3. Pre/Co-requisites and other requirements:

Prerequisite: INEL 4415

4. Course Objectives:

The purpose of this course is to prepare students to be proficient in designing interior and exterior illumination systems.

5. Instructional Strategies:

☒conference ☒discussion ☐computation ☐laboratory

☐seminar with formal presentation ☐seminar without formal presentation ☐workshop

☐art workshop ☐practice ☐trip ☐thesis ☐special problems ☐tutoring

☐research ☐other, please specify:

6. Minimum or Required Resources Available:

All students are expected to bring a solid background in electric systems analysis. Students must work on projects by applying the technics discused in class.

7. Course time frame and thematic outline

Outline	Contact Hours
Light, eye, and vision	1.5
Color	1.5
Photometric units and terminology	2
Light sources	10
Optics and control of light	3
Luminaries	3
Lighting economics	3

Interior lighting design	9
Exterior lighting design	9
Exams	3
Total hours: (equivalent to contact period)	45

8. Grading System

☒Quantifiable (letters) ☐ Not Quantifiable

9. Evaluation Strategies (Suggested): The faculty member teaching the course will provide the student with the evaluation strategy he/she will be using throughout the semester. This will be done within the first week of classes.

	Quantity	**Percent**
☐ **Exams**	**3**	**70%**
☐ **Final Exam**	**1**	**30%**
☐ **Short Quizzes**		
☐ **Oral Reports**		
☐ **Monographies**		
☐ **Portfolio**		
☒ **Projects**		
☐ **Journals**		
☐ **Other, specify: Homework**	**____**	
TOTAL:		**100%**

10. Bibliography:

T. Gonen, Electric Power Distribution System Engineering, Mcgraw-Hill College, 1985.

J. D. Glover, M. S. Sarma, Power Systems Analysis and Design, 4th Ed., Wadsworth Publishing Co Inc., 2007.

11. According to Law 51

Students will identify themselves with the Institution and the instructor of the course for purposes of assessment (exams) accommodations. For more information please call the Student with Disabilities Office which is part of the Dean of Students office (Chemistry Building, room 019) at (787)265-3862 or (787)832-4040 extensions 3250 or 3258.

Contribution of Course to meeting the requirements of Criterion 5:

Math	Basic Science	General	Engineering Topic
			√

12. Course Outcomes **Map to Program Outcomes**

1. The student is able to apply mathematics and science fundamentals to solve or to analyze an engineering problem or principle within the course material. (a)
2. The students are able to follow logical and orderly design (c)

procedures, and complete a design to meet the given set of specification. The students document the design process, and include considerations of codes and engineering standards related to the design area.

3. Students are able to compare different alternatives to present a suitable solution. Their solution shows their ability of physical thinking, approximation and simplification. (e)
4. The work complies with safety standards, and their final design solution avoids ethical compromises. (f)
5. The students work reflect proper use of the language (Spanish or English) and their ability to communicate graphically using schematics, tables, mathematical equations, and any necessary technical documentation. (g)
6. Students prove their ability to find information related to their discipline by including a reference list of articles related to their course work. (i)
7. Students discuss different alternatives to solve their problem with emerging technologies and their associated cost, and comment on their importance and how they cope with the needs of their design. (j)
8. Students are able to make an appropriate choice and use of specialized tools, and software to complete a design. (k)

Person(s) who prepared this description and date of preparation: Lionel R. Orama. Submitted by: Lionel R. Orama, June, 19, 2008, Committee Coordinator.