Instructor: M. H. Shwehdi, Ph.D., Office: Bldg. 14 Room 261, Phone: 2712 (Coordinator)

Textbook:

Reference Book:
Power System Analysis and Design by Glover & Sarma

Notes and Handouts by instructor

Tentative Materials to Be Covered:
Fundamental Concepts of Transmission Line Parameters, constants, steady state operation and models
Practical Limits of Line Voltages, Regulation
Dependence of conductor cost and type of transmission line
Economical Size of Line Conductor (Kelvin's Law)
Electrical Design of 0. H. T. L
Performance of 0. H. T. L
Ferranti Effect
Mechanical design of 0. H. T. L
The Stringing Chart
Poles and Towers, Insulators for 0. H. T. L
Voltage Distribution over A String Of Suspension Type Insulators
Method of Equalizing the potential across the insulator units
Corona
Protection of 0. H. T. L
Under ground Cables, Low, High voltage, Grading of a Cable
Distribution in Power Systems
Reactive Compensation in Power Systems
**Grading:** Homework class performance, course folder, and attendance: 15%

Exam: 20 %
Term Project: 35%
Final Exam: 30%

**Tentative Exam Dates:**

Exam # March 28, 2006, Or as will be Announce by Instructor

**The instructor will not tighten these requirements; however, he reserves the right to relax them.**

**Personal Information: Given Verbally, Guidelines:**

Makeup exams and late homework will only be permitted for officially excused absence
- Students are expected to attend, participate in all course activities, and to give oral presentation of their project and submit a full project term paper on due date.
- Students are required to attend all BI-weekly briefing meetings for term project progress - It is expected from each student to be able to learn independent studying habits, self-reliance, and to be creative, analytical, able to develop and comprehends course materials with little help and assistant.

**Term Projects:**

Each student may work in each of the attached subjects list, each student should have a brief proposal within 2-weeks and must be approved by instructor, final project report, and each student should be able to present his work at the final presentation. Details of the project will be submitted in the first BI-Weekly meeting with course instructor, meetings should be arranged with instructor by the student.

Another alternative of Term project: any student have his own idea on a related topic can submit a term project preliminary proposal in the Third week, proposals should give a brief description of the project. Instructor will give suggestion, changing, refusals, of the topic, or go ahead within fourth week, proposals should contain statement of objectives, and methodology, and references, etc ... Should be briefly mentioned NOT MORE THAN (5) five PAGES (typed) PLEASE.

**Each term project report consist of**

- Abstract
- Introduction
- Literature review or theory
- Statement of the problem or objectives
- Data Schematics, and diagrams
- Program, method of analysis
- Calculations and results
- Conclusions
- References used

**Tentative Exam Dates:**

Exam March 28, 2006, Or as will be Announce by Instructoers

**Term project typed report will be due in:** May 28, 2006
NOTE: Syllabus material may also be presented out of the text. The instructor reserves the right to relax or cut some of the topics.

A folder with notes, graded homework, exams, lab reports, and extra work, neatly organized must be submitted to the instructor on due date of the term. Suggested term paper projects list

Topics for EE 465 Term Projects, Term 052
By: Dr. M. H. Shwehdi,

1- USE of EDSA in calculation of Line Constant of Transmission and Under Ground Cables of some Transmission or distribution system.

2- Optimizing the design and selection of 0. H. T L Towers and Poles using CAD and/or software package

3- Modern Aspects of Power Transmission and its Technology

4- Development of Programs for Electrical and Mechanical Design of a 380KV T. L of 350 Km Length

5- Development of Program on How to calculate Transient over voltages on T. L

6- Development of programs on how to calculate Underground cables Ampacity, and temperature at each cable insulation layer of Medium and Low voltage underground cables.

7- Development of program on how to predict and calculate thermal stress of cables and joints of industrial plants due to continuous variations of load.

8- Mat-lab Programs for Calculation and Analysis of Voltage Drop and losses in Distribution Systems

9- Environmental Effects on T. L. and underground cables (temp., Humidity, interference, soil resistivities, etc.)

10- Development of Matlab program to calculate thermal capabilities of underground cables for High Voltage system.

11- Mat-Lab program to calculate Electromagnetic Fields effects and Measurements around transmission and distribution Lines.

14- Development of program to conduct Insulation Coordination in Power Systems using calculation and charts.

15- Partial Discharges monitoring devices, and applications in the H. V. Underground Cables.

16- Latest Advances Associated With the checking and inspecting insulation Systems of High Voltage T. L and underground cables.