

Design of Electrical Power Stations COURSE SYLLABUS

Course Code	Course Name	Credits	Contact Hours
0401579	Design of Electrical Power Stations	3	3 T

INSTRUCTOR/COORDINATOR

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TEXTBOOK

Title	Elements of Electrical Power Station Design
Author/Year	M. V. Deshpande , 2009
Other Supplemental Materials	
Title	Advanced Power Plant Materials, Design and Technology
Author/Year	Dermot Roddy, 2010
Electronic Materials	

SPECIFIC COURSE INFORMATION

A. Brief Description of the Content of the Course (Catalog Description)

Designs and economic loading of diesel-electric stations, steam stations, nuclear power stations and hydro-electric stations, load forecasting, economic load dispatch, unit commitment problem, methods of scheduling stations, allocation control, system reliability and system security, trends in power plant instrumentation and control, problems of pollution control and performance standards of thermal power stations, application of computers in power systems.

B. Pre-requisites (P) or Co-requisites (C)

Power Systems 2 (0401482) (P)

C. Course Type (Required or Elective)

Elective

SPECIFIC GOALS

A. Specific Outcomes of Instruction

By the end of this course, the student should be able to:

- CLO1- be familiar with different power stations types [1].
- CLO2- be able to design and evaluate economic loading of different power stations [7].
- CLO3- be aware of methods of scheduling stations, allocation control, system reliability and system security [7].
- CLO4- be aware of trends in power plant instrumentations and control pollution techniques [7].

B. Student Outcomes Addressed by the Course

1	2	3	4	5	6	7				
✓						✓				

BRIEF LIST OF TOPICS TO BE COVERED

List of Topics	No. of Weeks	Contact Hours
Designs and economic loading of diesel-electric stations, steam stations, nuclear power stations and hydro-electric stations,	1	3
Load forecasting, economic load dispatch, unit commitment problem	2	6
Methods of scheduling stations, allocation control	2	6
System reliability and system security	2	6
Trends in power plant instrumentation and control	2	6
Problems of pollution control and performance standards of thermal power stations,	2	6
Trends in power plant instrumentation and control	2	6
Application of computers in power systems	1	3
Total	12	42

		Relationship to program outcome
ABET 1-7		... Engineering Student Outcomes
1.	✓	an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2.		an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3.		an ability to communicate effectively with a range of audiences.
4.		an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5.		an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6.		an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7.	✓	an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.