



Maharaja Agrasen Institute of Technology

(Approved by AICTE & Affiliated to GGSIP University, New Delhi)

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Department of Electrical & Electronics Engineering

Power System Operation and Control Theory (ETEE406)

ACADEMIC PLAN FOR SEMESTER-VIII 2022

S.No.	TOPICS TO BE COVERED	Total No. of Lectures (40)	CO
UNIT-I: AUTOMATIC GENERATION CONTROL			
1	Introduction: Load Frequency Control, Single area control.	2	CO1
2	Two Area load frequency control	2	
3	Load Frequency Control with GRC	3	
4	Speed Governor Dead Band	2	
5	Effects of Speed Governor Dead Band	2	
UNIT-II: ECONOMIC LOAD DISPATCH			
6	Introduction to economic load dispatch and its system constraint	2	CO2
7	Economic load dispatch neglecting losses derivation and problem	2	
8	Optimum load dispatch including transmission losses	2	
9	Exact Transmission loss formula	3	
10	Automatic load dispatching	2	
After Mid Term			
UNIT-III: RESTRUCTURING OF POWER SYSTEM			
11	Introduction: Reason for restructuring or deregulation of power industry.	2	CO3
12	Understanding the restructuring process	2	

13	Introduction to issues involved in deregulation.	2	
14	Reasons and Objectives of deregulation of various power systems across the world.	2	
15	Transmission Congestion management	2	
UNIT: IV REACTIVE POWER AND VOLTAGE CONTROL			
16	Basis of reactive power control	2	CO4
17	Excitation system	2	
18	Modelling, Generation and Absorption of Reactive Power	2	
19	Relation between voltage, power and reactive power at node	2	
20	Methods of voltage control	2	

Course Objectives

C.406.1	Understand the speed governor modeling and system Load
C.406.2	Analyze techniques for optimal load dispatch including transmission losses among the generating units.
C.406.3	Analyze techniques for optimal load dispatch including transmission losses among the generating units.
C.406.4	Explain Reactive power and voltage control in power system