

## DRONACHARYA COLLEGE OF ENGINEERING

KHENTAWAS, FARRUKHNAGAR, GURGAON, HR

Department: EEE

Academic Session: 2020-2021(MAY- AUG, 2021)

Lecture Plan with Assignment questions

Subject with code: Power System II (PCC-EE-302-G)

Name of Faculty with designation : Ms. Pooja Sharma , Assistant Professor

S.No.	Month	Date & Day	Sem-Class	Unit	Topic/Chapter covered	Reference Books	Write Lecture Wise Questions
1			VI-EEE	A	Review of the structure of a power system and its components	<b>Power System Engg: I.J.Nagrath and D.P.Kothari (TMH)</b>	Q.1.Write short note on representation of load in power system. Q.2.Write short note on reliability consideration in power system.
2			VI-EEE	A	Analysis of power flows		Q.1.Write short note on load flow power analysis. Q.2.Why load flow analysis is important in power system?
3			VI-EEE	A	Formation of bus admittance matrix		Q.1.Explain the advantages of using the bus admittance matrix in load flow studies. Q.2.Discuss advantage of using Ybus model of power system network for load flow analysis.
4			VI-EEE	A	Real and reactive power balance equations		Q.1.Derive the power balance equation in a power system. Q.2.Show that the polar coordinate representation is advantageous over the rectangular coordintaes.
5			VI-EEE	A	Application of numerical methods		Q.1.Write short note on comparison of load flow methods. Q.2.Explain the significance of power flow studies.
6			VI-EEE	A	Gauss Siedel methods		Q.1.Derive load flow equation. Q.2.Explain Gauss siedel method of load flow analysis with flow chart.
7			VI-EEE	A	Newton Raphson methods		Q.1.Explain Newton Raphson method of load flow analysis with flow chart. Q.2.Expain its algorithm.
8			VI-EEE	B	Economics operation of power systems	<b>Electrical Power Systems: C. L. Wadhwa (New Age International Pvt Ltd )</b>	Q.1.What is unit commitment? Q.2.Compare economic load dispatch with it?
9			VI-EEE	B	Distribution of loads between units within a plant		Q.1.Explain needs for unit commitment. Q.2.Explain dynamic programming method of UC by considering an example.
10			VI-EEE	B	Distribution of loads between plant		Q.1.The incremental fuel cost of the two plants is:- Q.2.What are the advantages of pool operation?
11			VI-EEE	B	Transmission loss equation		Q.1.What is penalty factor? Q.2.Write equation of transmission loss.
12			VI-EEE	B	Classical economic dispatch with losses		Q.1.Explain optimal generation scheduling. Q.2.Draw the curve between fuel cost and power output.
13			VI-EEE	B	Optimal unit commitment problems		Q.1.What is optimal unit commitment? Q.2.Explain relevancy of economic dispatch control.
14			VI-EEE	B	Solutions for unit commitment problems		Q.1.Write short note reliability. Q.2.What is the physical significance of $\lambda$ in lossless case

15			VI-EEE	C	Introduction to control of active and reactive power flow	<b>Electrical Power Systems: C. L. Wadhwa (New Age International Pvt Ltd )</b>	Q.1.With circuit diagram explain alternator voltage regulator scheme. Q.2.How reactive power can be controlled?
16			VI-EEE	C	Control of voltage		Q.1.Explain automatic voltage control. Q.2.Discuss control of voltage profile.
17			VI-EEE	C	Excitation systems		Q.1.Discuss excitation systems. Q.2.What are the different types of excitation system?
18			VI-EEE	C	Introduction to load frequency control		Q.1.Write short note on control area in LFC. Q.2.State the two area load frequency control method.
19			VI-EEE	C	Automatic generation control		Q.1.Draw block diagram of automatic voltage regulator. Q.2.Describe function of each block.
20			VI-EEE	C	Single area and modelling of AGC		Q.1.Explain model of speed governing system in single area case. Q.2.Explain ACE in brief.
21			VI-EEE	C	Concept of multi area AGC		Q.1.Explain state space model of two area power system. Q.2.Write short note on area control error.
22			VI-EEE	D	Power system stability concepts	<b>Power System Engg: I.J.Nagrath and D.P.Kothari (TMH)</b>	Q.1.Define steady state stability. Q.2.Define dynamic stability.
23			VI-EEE	D	Steady state and transient stability		Q.1.What are the methods to improve transient stability? Q.2.Define transient stability.
24			VI-EEE	D	Swing equations, equal area criterion		Q.1.Equal area criterion gives the information regarding which stability? Q.2.If the inertia constant $H = 8 \text{ MJ/MVA}$ for a 50 MVA generator, the stored energy is
25			VI-EEE	D	Solution of swing equation		Q.1.Which stability is related to the critical clearing time of a fault in a power system? Q.2.What is the condition of steady state stability?
26			VI-EEE	D	Transient stability algorithm using modified Euler's method		Q.1.Write equation of modified euler's method. Q.2.Write its algorithm.
27			VI-EEE	D	Transient stability algorithm using fourth order Runge Kutta method,-multi machine stability analysis		Q.1.How Runge Kutta method will solve transient stability problem. Q.2.Write its algorithm.
28			VI-EEE		Revision		
29			VI-EEE		Revision		
30			VI-EEE		Last year question paper discussion		