

# Government Polytechnic Nawada

## Department of Electrical Engineering

### Lesson Plan

Name-Anand Kumar  
 Designation-Lecturer  
 Subject Name-A.C. Machines  
 Subject code-1620502  
 Semester-5th

S.No.	Unit	Lecture No.	Topic
1	Automation	1	Need of automation
		2	Advantages of automation, Requirements of automation
2	Control System	1	Concept of control system, Basic block diagram of control system
		2	Transfer function
		3	Block diagram reduction Techniques
		4	Types of control system, Applications of control system
3	Control System Components & Electrical Actuators	1	I/P devices- switches-push buttons
		2	foot switch, selector switch, pilot switch, proximity Switch
		3	Sensors
		4	Relays [Electro mechanical, reed]
		5	Valves, pilot lamps, contactors
		6	Potential meter- working uses as error detector
		7	Servo motors
		8	AC & DC working Principle
		9	Synchros- Transmitter
		10	control transformer
		11	Tacho generator- working Principle
		12	Stepper motor (Permanent magnet & Variable reluctance)-
		13	working Principle
		14	Power & control circuits
15	Different applications like hoist, gantries, conveyer belt etc.		
4	Controllers & Control Actions	1	Electric & Electronic Controllers
		2	Lead lag networks.
		3	Digital controllers :- Brief overview of microprocessor & microcontroller to be worked as controller
		4	P, I Controller
		5	P+I Controller
		6	P+D Controller
		7	P+I+D actions.
		8	P+I+D action using hydraulic pneumatic
		9	Electronic controller
		10	Tacho - generator

		11	Problem based on controller.
5	Applications of above components	1	Introduction
		2	Advantages
		3	Disadvantages.
		4	PLC
		5	PC
		6	PLC vs PC
		7	Block diagram of PLC
		8	Block diagram of PLC
6	Introduction to	1	Distribution control system (DCS)- brief introduction to hardware &
		2	Software used.

Note- Class duration may be increases.