

RAJASTHAN TECHNICAL UNIVERSITY, KOTA
DEPARTMENT OF ELECTRICAL ENGINEERING

Lecture Plan

Session:	2015-2016
Semester:	1 st SEM
Name of Faculty:	Seema Agrawal
Department:	Electrical Engineering
Course Name and Number:	Advance Power Electronics
Name of Subject (with code):	Advance Power Electronics (1MPS2)
Batch Name/Discipline:	M.Tech Electrical

Lecture Plan Details		
Lecture No.	Topic to be covered	Remark
	UNIT - I	
L-1	Basics of phase controlled rectifiers	
L-2	Single Phase half wave with R-L load	
L-3	Single Phase half wave with R-L load and freewheeling diode	
L-4	Full wave center tap transformers converter with R-L load	
L-5	Full wave bridge converter with R-L-E load	
L-6	Numerical of Full wave converter	
L-7	3-phase semi converter	
L-8	3-phase full converter	
L-9	Source inductance effect on 1-phase converter	
L-10	Source inductance effect on 3- phase converter	
	UNIT-II	
L-11	Review of chopper circuit	
L-12	Classification of chopper circuit	
L-13	Step down chopper and numerical	
L-14	Steady state Analysis of Type A Chopper	

L-15	Commutation in chopper circuits
L-16	Voltage commutated chopper
L-17	Numerical Problems
	UNIT-III
L-18	Principle of Operation of Inverters
L-19	Single-phase bridge inverters
L-20	Three phase bridge Inverters: 180 degree mode of conduction
L-21	Three phase bridge Inverters: 120 degree mode of conduction
L-22	Voltage control of Single Phase Inverters
L-23	Voltage control of Three Phase Inverters
L-24	Numerical Problems
L-25	Current Source Inverters: Single Phase
L-26	Current Source Inverters: Three Phase
L-27	Harmonics and its reduction techniques: by PWM Technique
L-28	Harmonics and its reduction techniques: by Inverter connection and stepped Inverters
	UNIT-IV
L-29	Single Phase Bi-directional Controllers with Resistive Loads
L-30	Single Phase Bi-directional Controllers with Inductive loads
L-31	Three Phase full wave AC controllers
L-32	AC Voltage Controller with PWM Control
	UNIT-V
L-33	Basic principle of operation of Cyclo converters
L-34	single phase to single phase Cyclo converter: Step up
L-35	single phase to single phase Cyclo converter: Step down
L-36	three-phase to three phase Cyclo converter
L-37	three phase to single phase Cyclo converters, output equation of Cyclo converter
L-38	Numerical Problems
L-39	Matrix Converter
L-40	Numerical Problems