RAJASTHAN TECHNICAL UNIVERSITY, KOTA

Lecture Plan

Session:	2015-2016
Semester:	V Sem
Name of Faculty:	A.K. Sharma
Department:	Electrical Engineering
Course Name and Number:	B.Tech. (Electrical)
Name of Subject (with code):	5EE1A: POWER ELECTRONICS
Batch Name/Discipline:	Electrical Engineering

Lecture Plan Details		
Lecture No.	**Topic to be covered**	**Remark**
L-1	Introduction to Power Semiconductor Devices	
L-2	Construction, Principle of operation	
L-3	Characteristics and applications of Power Transistor& Thyristor	
L-4	Characteristics of GTO, DIAC, MCT	
L-5	TRIAC, Power MOSFET and IGBT	
L-6	Two-Transistor Model of Thyristor	
L-7	Thyristor Commutation methods	
L-8	Introduction to SCR	
L-9	**SCR:** Construction and characteristics, specification and ratings	
L-10	Pulse transformer, optical isolators, methods of turn on	
L-11	Triggering circuits for SCR: R, RC	
L-12	UJT relaxation oscillator.	
L-13	Rating extension by series and parallel connections, string efficiency	
L-14	Protection of SCR-Protection against over voltage, over current	
L-15	Protection of SCR- dv/dt, di/dt, Gate protection.	
L-16	Introduction to Converter- I	
L-17	Single Phase half wave converters with RL load	
L-18	Single Phase half wave converters with RLE load	
L-19	Single Phase full wave converters with RL load	
L-20	Single Phase full wave converters with RLE load	
L-21	Single phase dual converters	
L-22	Three phase half wave converters	
L-23	Three phase full converters with RL load	
L-24	Three phase dual converters	
L-25	Introduction to Converters-II	
L-26	Single-phase semi converters with RL load	
L-27	Single-phase semi converters with RLE load	
L-28	Three-phase semi converters with RL load	
L-29	Three-phase semi converters with RLE load	
L-30	Power factor improvement-Extinction angle control, symmetrical angle control	

L-31	Power factor improvement- symmetrical angle control	
L-32	Pulse width modulation control	
L-33	Sinusoidal pulse width modulation control	
L-34	Inversion operation. Effect of load and source impedances	
L-35	Introduction to DC-DC Converters	
L-36	Step Up Copper, Control strategies, Chopper Configurations	
L-37	Step Down Copper, Control strategies, Chopper Configurations	
L-38	Analysis of type A Chopper	
L-39	Voltage, current and load commutated chopper	
L-40	Multiphase Chopper	