PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY
Department of Electronics & Communication Engineering

LESSON PLAN

Subject Name: - Power Electronics **Subject Code: - ECE-405N**
Year: - 4th **Semester: - 7th**

Lecture No	Unit No	Topic	References
L1	1	**Unit-1:** Introduction to the subject Power Electronics	P S Bimbhra: Power Electronics
L2	1	Concept and Application of Power Electronics	P S Bimbhra: Power Electronics
L3	1	Power Electronics System, Types of PE Converters	P S Bimbhra: Power Electronics
L4	1	Basic of Semiconductor Material, P Type and N Type Material	P S Bimbhra: Power Electronics
L5	1	Basic Working Principle of PN Junction Diode	P S Bimbhra: Power Electronics
L6	1	Basic Overview of Transistor	P S Bimbhra: Power Electronics
L7	1	Basic Overview of MOSFET	P S Bimbhra: Power Electronics
L8	1	Basic Overview of MOSFET	P S Bimbhra: Power Electronics
L9	1	Semiconductor Devices: Power Diode, Basic Structure of Power Diode	P S Bimbhra: Power Electronics
L10	1	Diode Characteristics, Reverse Recovery Characteristics.	P S Bimbhra: Power Electronics

L11	1	Power Transistor, Basic Construction, Static Characteristics.	P S Bimbhra: Power Electronics
L12	1	Dynamic Characteristics of Power Transistor.	P S Bimbhra: Power Electronics
L13	1	Basic Structure of MOSFET, its Static Char.	P S Bimbhra: Power Electronics
L14	1	Dynamic Characteristics of MOSFET	P S Bimbhra: Power Electronics
L15	1	Insulated Gate Bipolar Transistor, working	M. H. Rashid. : Power Electronics – circuits
L16	1	IGBT Characteristics.	M. H. Rashid. : Power Electronics – circuits
L17	1	Static Induction Transistor.	M. H. Rashid. : Power Electronics – circuits
L18	2	Unit 2: Thyristor: Introduction, Basic Construction.	P S Bimbhra: Power Electronics
L19	2	Class Test	
L20	2	Terminal Characteristics of Thyristor.	P S Bimbhra: Power Electronics
L21	2	Turn ON Method of Thyristor.	P S Bimbhra: Power Electronics
L22	2	Switching Characteristics of Thyristor	P S Bimbhra: Power Electronics
L23	2	Thyristor Gate Characteristics	P S Bimbhra: Power Electronics
L24	2	Two Transistor Model, Thyristor Rating,	P S Bimbhra: Power Electronics
L25	2	Thyristor Protection Method	P S Bimbhra: Power Electronics
L26	2	Firing Circuit of Thyristor	P S Bimbhra: Power

			Electronics
L27	2	Class D : Impulse Commutation	P S Bimbhra: Power Electronics
L28	2	Class F : Commutation	P S Bimbhra: Power Electronics
L29	3	Single Phase Full wave Converters	P S Bimbhra: Power Electronics
L30	3	Single Phase Symmetrical and Asymmetrical Converters.	P S Bimbhra: Power Electronics
L31	3	Three Phase Rectifier and Thyristor Converters	P S Bimbhra: Power Electronics
L32	3	Effect of Source Impedance on the performance of Converters	P S Bimbhra: Power Electronics
L33	3	Principle of Chopper Operation.	P S Bimbhra: Power Electronics
L34	3	Control Strategies: Step Up Choppers	P S Bimbhra: Power Electronics
L35	3	Types of Chopper Circuit.	P S Bimbhra: Power Electronics
L36	3	Forced Commutated Thyristor Inverters	P S Bimbhra: Power Electronics
L37	3	Voltage Control in Single Phase Inverters.	P S Bimbhra: Power Electronics
L38	4	Unit 4 : Principle of Phase Control	P S Bimbhra: Power Electronics
L39	4	Principle of Integral Cycle Control.	P S Bimbhra: Power Electronics
L40	4	Working Characteristics of Integral Cyclic Control	P S Bimbhra: Power Electronics
L41	4	Single Phase AC Voltage Controller with R load	P S Bimbhra: Power

			Electronics
L42	4	Single Phase AC Voltage Controller with RL load	P S Bimbhra: Power Electronics
L43	4	Principle of Cycloconverter Operation	P S Bimbhra: Power Electronics
L44	4	Load Commutated Cycloconverters.	M. H. Rashid. : Power Electronics – circuits
L45	4	Load Commutated Cycloconverters.	M. H. Rashid. : Power Electronics – circuits
L46	4	Three Phase half wave converter	M. H. Rashid. : Power Electronics – circuits
L47	4	Important Numerical Related of Unit 1	M. H. Rashid. : Power Electronics – circuits
L48	4	Output voltage equation for Cycloconverter	M. H. Rashid. : Power Electronics – circuits

Text Books:

1 P S Bimbhra: Power Electronics, Khanna Publishers.

Reference Books:

1. M. H. Rashid. : Power Electronics – circuits, devices & applications, Pearson Education.