

EC 605 EC: INDUSTRIAL ELECTRONICS**B.TECH. III (EC), 6TH SEMESTER**

Sr. No.	Name Of Topic	Hours to Teach
1	Scope Of Power Electronics, Power Converter Specification.	2
2	Thyristor Families, V-I Characteristics Of SCR, Triac, GTO, Diac, Sources Of Thyristor Triggering, Turn On /Turn Off Characteristic And Gate Triggering Requirements, Series/Parallel Operation, Device Ratings. Protective Measure, Types Of Snubber Circuits And Their Functions, Snubbers Circuits For Thyristors, Thermal Protection, And Design Of Heat Sinks. Basic Structure And V-I Characteristics Of Power MOSFET, IGBT Switching Characteristic.	9
3	Single Phase Central Taped Transformer Connection, Half Controlled And Fully Controlled Bridge Configuration, Three Phase Half Controlled And Fully Controlled Bridge Converters, Use Of Flywheeling Diode Operation With Resistive, Inductive And Back EMF Load, Effect Of Source Inductance On Converter, Firing Scheme, Linear Alpha And Cosine Angle Control.	7
4	Natural Commutation, Force Commutation, And Voltage/Current Commutation Techniques.	3
5	Principle Of Chopper Operation, Control Strategies, Step-Up Chopper Analysis, Types Of Chopper Circuits, Voltage Commutated Chopper, And Regenerative Chopper Circuit.	6
6	Classification Of CSI And VSI Inverters, Single Phase And Three Phase Inverter Circuit, Methods Of Voltage Controlled Inverter Circuits, PWM Inverters, Comparison Of Thyristor And Transistor Based Inverters, Force Commutated Thyristor Inverters, Single Phase Series And Parallel Inverters.	7
7	Static Switches, Solid-State Relays, Light Dimmer, Battery Charger, Emergency Lightning System, Temperature And Liquid Level Control, UPS, Microprocessor Based Firing Circuit, Microprocessor Based Motor Drives, Micro Processor Based Process Control Systems.	5
	<i>Total Lectures</i>	39

