

# AMEE19 POWER ELECTRONICS & DEVICES

## UNIT-1 POWER SEMICONDUCTOR DEVICE

- 1.1 Introduction, Thyristorised Power Controllers, Classification Of Power Controllers,
- 1.2 Characteristics And Specification Of Power Devices, Comparison Of Power Devices

## UNIT-2 THYRISTOR

- 1.1 Modes Of Operation, Dynamic Characteristics,
- 1.2 Thyristors Gate Characteristics,
- 1.3 Rating And Protection, Firing Circuits,
- 1.4 Other Thyristors

## UNIT-3 TURN-OFF METHOD

- 3.1 Natural Commutation (Class F : Line Commutation),
- 3.2 Forced Commutation, Self-Commutation By Resonating Load (Class A),
- 3.3 Impulse Commutation (Class D)
- 3.4 Auxiliary Voltage Commutation), Complementary Commutation (Class C),
- 3.5 External Pulse Commutation (Class E)

## UNIT-4 CONTROLLED RECTIFIERS

- 4.1 Principle Of Phase Controlled Converter Operation,
- 4.2 Single Phase Semi Converters (Half Bridge Converter), Single Phase Full Convertors,
- 4.3 Three Phase Half Wave Converters,
- 4.4 Three Phase Semi converters, Three Phase Full Converters

## UNIT-5 INVERTERS

- 5.1 Principle, Performance Parameters, Single Phase Bridge Inverter,
- 5.2 Voltage Control Of Single Phase Inverters, Harmonic Reduction, Current Source Inverters

## UNIT-6 CHOPPERS

- 6.1 Principle Of Step Down Operation, Step Down Chopper With RL Load,
- 6.2 Principle Of Step Up Operation, Performance Parameters, Chopper Classification, Effects Of Source And Load Inductance, Applications Of Choppers

## UNIT-7 AC VOLTAGE CONTROLLER

- 7.1 Principle Of On-Off Control, Principle Of Phase Control, Single Phase Controller With Resistive Loads (Bidirectional Controllers),
- 7.2 Single Phase Controllers With Inductive Loads, Merits, Demerits And Applications Of Ac Voltage Controllers

### Reference Books:

1. Electronics and communication Engineering, Publisher Katsons, Writer B R Gupta
2. Electronics and communication Engineering, Publisher Katsons, Writer J B Gupta