

**INDUSTRIAL ELECTRONICS**

**Unit I: OPTO-ELECTRONIC AND OTHER ELECTRONIC DEVICES**

Opto –electronics -Photo electric theory-Energy of photo electrons-Photo devices –photo emissive cells-Photo conductive cells-photo voltaic cells-photo multipliers-photo activated SCR-photo FETs-photo resistive devices – LEDS-Liquid crystal displays-optically coupled resonators.

Other Devices : static circuit breakers- Over voltage protection-Automatic battery charges-AC and DC switches, flashers.

**Unit II: REGULATED POWER SUPPLIES**

DC voltage regulators-Different types of series Voltage regulators-polyphase rectifiers-Voltage and current regulation-Transformer utility factors-Rectifier performance.

**UNIT III: CONTROL OF MOTORS AND GENERATORS**

DC motor characteristics-Automatic regulation of speed and overload - Control by SCR and Miscellaneous methods - Electronic control for reversing motors - Instability of AC motors - Variable speed induction motors-Torque-Speed characteristics - Inverters for driving the motor - Speed control of AC motors-Synchronous motor control.

**Unit IV: RESISTAN WELDING AND INDUCTION HEATING:**

Resistan welding process- Circuit for AC welding –Types of resistance welding – Control processes Linear contractor-Thyratron –Heat control-Sequence timer-Synchronous weld control-Energy storage welding – polyphase welding.

Induction Heating: Principle and theory of induction heating-merits and applications-High frequency power source for induction heating.

**Unit V: MEASUREMENT OF NON-ELECTRICA QUANTITIES**

Pressure measurements - Mechanical pressure transducer- Measurements of displacement – level, flow, vacuum, pH and thermal conductivity-Chromatography-Leak detection-Measurement of thickness and humidity.

**BOOKS FOR STUDY AND REFERENCE:**

1. Industrial and Power Electronics, Haigh .C Rai, Umesh Publications, New Delhi-IV Edition. 1992.
2. Industrial Electronics, G.K. Mithal, Khanna Publishers, New Delhi 14<sup>th</sup> Edition 1992.
3. Industrial Electronics, Noel Morris, TMH-Second Edition 1991.
4. Modern Industrial electro, Schuler & MC Name Macmillan / McGraw Hill, International Edition 1993.