**Program: B.Sc Electronics and Communication System** Course title: **Core - 3: Electrical Machines and Instruments**  Subject Code: 3CT03

Year: II Semester: III Credits: 4 Hrs/Week: 4

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**Unit-I DC Machines**

DC generators: Principles-Single loop-Practical generator - Types of generator – EMF equation. DC motors: Principle-Comparison of generator and motor-Torque equation-Back EMF-Types of motor-Speed control of DC motor.

**Unit-II AC Machines**

AC Generator **-** Induction motor: Principle-Construction-Working. Special machines: Stepper motor-Step angle-Permanent Magnet Stepper motor. Synchronous motor: Types-Applications of synchronous motor. Servo motor: AC and DC servo motor.

**Unit-III Transformers**

Transformers: Working principle-Construction-Core and Shell type-EMF equation-Transformation ratio-Parts of transformer-Losses and testing- Three phase and Auto transformer.

**Unit-IV Instruments**

Types of Instruments: D’Arsonal galvanometer-PMMC-Moving Iron-Thermocouple and Rectifier type Instruments. Extension of Instruments: Ammeter shunt and Voltmeter multiplier-Multimeter.

**Unit-V Meters**

Energy meter: Single phase induction type meter-Poly-phase energy meter. Wattmeter: Power in AC and DC circuit-types of meter-Induction type watt meter-Power measurements in poly phase circuits.

**Books for study**

1. D.S.Dhogal, “Basic Electrical Engineering with numerical problem” Vol – I & II

**(Unit I to III)**

2. A.K.Shawney “A course in Electrical and Electronic Measurement and Instrumentation”

**(Unit IV &V)**