

Annexure # 5

MAIN ACADEMIC COMPONENTS OF GIP IN ENTIRE ELECTRICAL ENGINEERING

SUB FIELD : ELECTRICAL POWER

- Energy Sources / AC Energy Meters.
- Generation Stations.
- 3 Phase Systems / 3 Phase Power Measurement.
- DC Generators.
- AC Synchronous Generators.
- AC Asynchronous Generators.(Induction)
- Power Transformers.
- High Voltage Transmission Line.
- Industrial drives.
- DC motors.
- Induction motors .
- Synchronous motors. (V curves)
- Fractional horse power motors.
- Cooling methods of power transformers and motors.
- Motors used in control systems. (servo motors , stepper motors)
- Introduction.(Description of an electrical installation.)
- Supply Systems.
- Distribution of Supplies in Building.
- Wiring Circuits / Consumers Circuits.
- Wiring systems.
- Special Types of Installations.
- Electric signaling Systems.

- Earthing.
- Installation and Maintenance of Motors and Generators.
- LV switch boards.
- Lightning Protection.
- Inspection and Testing.

Practical – Laboratory

- Motor control circuits. (DOL, Star delta, Forward – reverse)
- Economics of Power Generation.
- Synchronous Generators (continued)
- Transmission Line - Mechanical Considerations.
- Transmission Line - Electrical Characteristics.
- Underground Cables.
- Distribution systems.
- General Discussion On Substations.
- Solar Cells.
- Load & diversity factor.

SUB FIELD : ELECTRICAL ELECTRONICS

- Different Type of Diode Applications. (Varactor /Zener etc.)
- Small Signal Transistor Amplifiers.
- Field Effect Transistors.
- Solid State Devices.
- Power Amplifiers.
- Tuned Amplifiers.
- Feedback.
- Operational Amplifiers.
- Oscillators & Multivibrators.
- Power supplies – Linear & Switched Mode.
- Electronic clocks and timers.
- Digital Electronics.
- Combinational logic systems.
- Sequential logic systems.
- Familiarizing with commercially available digital ICs.

Practical - Laboratory

- UJT
- Combinational logic circuits.
- Sequential logic circuit1.
- Oscilloscope trainer
- Measuring Instruments.

- Measurements of R,L ,C and Q factors.
- Sensors and Transducers.
- Power Supply and Rechargeable Batteries.
- Data Converters.

Practical – Laboratory

1. Instrumentation amplifier & its applications.
2. Transducer fundamentals (I & II)
3. Oscilloscope trainer
4. Low resistance measurements
5. Measurement of L.C. and quality factor.

SUB FIELD : ELECTRICAL TELECOMMUNICATION

- Telephony.
- Television.
- Analog & Digital Transmission.
- Radio Communication.
- Introduction to External Line Plant (OSP).
- Introduction to Optical Systems.
- Modulation Methods. (AM,FM,PCM,FSK etc.)
- Super Heterodyne Receiver (AM & FM)
- Line Communication. (Transmission line & Line Networks)
- Modulation Demodulation & Multiplexing.
- Radio Communication.
- Satellite Systems.
- Antennas & Feeder Systems.
- Lightning Protection for Line Plant, Radio Masts & Towers.
- Filters.