



Department of Electrical and Control Eng.

# Lab 150-B

## Power Electronics



Capacity: 20 Students

The laboratory offers various equipment and tools for investigating power electronics related experiments. In addition the laboratory provides voltage and current measurement probes, Digital storage oscilloscope and a three-phase harmonic analyzer.

### LABORATORY EQUIPMENTS

- 2 Battery Stack.
- 4 Silicon Diode.
- 2 Group of Diodes.
- 1 Group of SCR.
- 2 Triac.
- 2 MOSFET.
- 2 Group of igbt.
- 4 Bridge Three-Phase Rectifier.
- 2 DC Power Supply.
- 2 Scr with turn Off Circuit.
- 2 Voltage Reference Generator.
- 2 Trigger Point Limiter.
- 2 Two Pulse Control Unit.
- 2 Matching Amplifier.
- 1 Six Pulse Control Unit.
- 1 Pwm/pfm/tpc Control Unit.
- 4 Mains Transformer.
- 4 LCR Load.
- 2 Emi Filter.
- 2 Function Generator.
- 2 Current Transformer.
- 2 Capacitors Unit.
- 4 Super- Fast Fuses Unit.
- 4 Digital Oscilloscope.
- 4 Digital Multimeter.
- Support with 3 Shunt 1 ohm.
- Adapter with 3 Shunt 0.1 ohm.
- 2 UPS Units.



### MAJOR EXPERIMENTS

- ✓ Single-Phase Uncontrolled rectifiers supplying variable loads.
- ✓ Single-Phase Controlled rectifiers supplying variable loads.
- ✓ Three-Phase Uncontrolled rectifier.
- ✓ Three-Phase half controlled/fully controlled rectifier.
- ✓ DC/DC Converters (Buck, Boost and Buck Boost).
- ✓ Single-Phase (PWM) Inverter.
- ✓ Single-phase AC Voltage controlled converter with R and RL Loads.
- ✓ Three-Phase AC Voltage controller with related applications.
- ✓ Commutated (SCR) circuits (UPS) Uninterruptable Power Supply.

### The Laboratory Serves the Following Courses

Course No.	Course Title	Semester
EE323	Power Electronics 1	6
EE423	Power Electronics 2	7
EE424	Electrical Drives 1	8