

Item No.: SO4204-5A

Course - Electronics 1: Semiconductor components

Includes:

- 1 Experiment card with diode circuits (Si, Ge and Zener diodes)
- 1 Experiment card with photocell light barrier and stabilising circuit using Zener diode
- 1 Experiment card with transistor circuitry for building various circuits (emitter and collector followers, with/without feedback)
- CD-ROM with Labsoft browser and course software

Course contents:

- Become familiar with how semiconductors work
- Name semiconductor materials and their properties
- Be able to elaborate on the term "doping"
- Be able to explain the term "P-N junction"
- Know standard designs and designation codes of semiconductor components
- Identifying the main properties and key applications of diodes
- Investigating valve and rectifier effects of the diode
- Recording static and dynamic characteristics of various diodes
- Experimental determination of various parameters for Ge, Si and Zener diodes
- Investigating limiter circuits with Zener diodes (with and without load)
- Investigating stabilising circuits using Zener diodes in response to input voltage and load
- Become familiar with the properties of special diodes: Schottky, PIN, Tunnel capacitance and backward diodes
- Determining characteristics and characteristic curve of a light emitting diode
- Investigating switching characteristics and characteristic curve of a phototransistor
- Investigating a fork-type light barrier
- Introduction to basic transistor circuits
- Transistor operation as switch and amplifier
- Experiment on adjusting operating of a transistor circuit
- Measurement of gain and input/output resistance of common emitter circuit, without feedback
- Investigating the effect of resistive and capacitive feedback in a common emitter circuit
- Measurement of gain and input/output resistance of common collector circuit
- Fault simulation (Faults activated via relay)
- Course duration 8 h approx.

