UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Elements of Electronics

2425-3-E3001Q052

Aims

The course target is providing the basic principles of analog electronics, concerning electronics device operations, bias condition, and signal processing.

Contents

Introduction to analog electronics, with the study of simple circuits with diodes, MOS transistors and operational amplifiers.

Detailed program

Electrical network theory.
Semiconductor diode, Bias. Use of the diode for large signals. Small signal equivalent circuit.
MOS Transistor. Operations, bias point, small signal equivalent circuit, gain stage with a transistor.
Operational amplifier: circuit with an operational amplifier.
Notes on noise in electronic devices

Prerequisites

Notions of fundamental Physics: Electricity and Magnetism

Teaching form

The lessons will be held in frontal mode in delivery form

Textbook and teaching resource

Notes and exercise of the course
Sedra, Smith, “Microelectronics circuits”

Semester

I semester

Assessment method

Written text only at the end of the course with usually 3 exercises similar to those discussed at the lectures of analysis and synthesis of simple networks with electornics components.

Alternatively, during the year oral exam, that is a colloquium in which the student is requested to know the topics discussed at the lessons and present in the course notes. In particular, the student is required to know the main circuit topologies discussed at lessons, to solve few circuits with electronics components, and to evaluate the effects of possible changes of the circuits.
Oral exams are scheduled on appointment.

Office hours

Upon appointment (via mail andrea.baschirotto@unimib.it)

Sustainable Development Goals

QUALITY EDUCATION