UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Elements of Electronics

2021-3-E3001Q052

Aims

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

Contents

Introduction to analo 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. Simple circuits of analog signal processing (charge preamplifier, shaper, etc.…). Experiments with CAD software.

Prerequisites

Notions of fundamental Physics: Electricity and Magnetism

Teaching form

Preferably lessons

However, in consideration of the present laws in occasions of the Covid-19 emergency, lectures will be held asynchronously remotely with some synchronous remote events

Textbook and teaching resource

Sedra, Smith, “Microelectronics circuits”
Material of the course

Semester

I semester

Assessment method

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

Alternatively, oral exam during the year in which the student is requested to solve few circuits with electronics components and to evaluate the effects of possible changes of the circuits

Office hours

Upon appointment