

Packaging Technologies

Course institution: **"Politehnica" University of Bucharest, Center for Technological Electronics and Interconnection Techniques (UPB-CETTI)**

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Objective

The objective of the course is to introduce the learners in microsystems packaging technologies, including design, analysis, fabrication, assembling, characterization and testing. In addition, this course will also introduce the most recent developments of micro-/nano-fabrication technologies.

Abstract

Electronics manufacturing and packaging technologies have become a significant sector in electronics industry. The fast developing microsystems industry creates today a big pressure to the conventional university and vocational education. The adjustment of the curriculum to provide qualified microsystems packaging knowledge for academia and industry is a challenging task of the „Packaging Technologies” course. It will introduce the fundamental issues of microsystems packaging, system-level technologies, IC/single-chip, PCB, multi-chip packaging technologies and materials used in electronics industry. In addition, basics of electronic design, fundamentals of CAE-CAD-CAM and EDA of electronic/microelectronic systems, modelling and simulation of various structures, computational techniques in packaging technologies shall be delivered. In the final part, the course shall introduce learners in assembling technologies, soldering and solderability, ecological materials and technologies based on RoHS & WEEE European Directives, measurement, characterization and testing of microsystems.

Contents

The course covers the research and innovation in the following major topics:

- Fundamentals of microsystems packaging;
- Packaging materials;
- Modelling, simulation and CAD of microelectronic structures and systems;
- Assembling technologies - classical and based on RoHS&WEEE European Directives;
- Introduction in nano-packaging.

Learners

The primary target groups concerned are: professionals from SMEs in electronics and microsystems, students in engineering education and vocational schools, educated but unemployed people (e.g. engineers, physicists) looking for additional training for employment.

Prerequisite and Corequisite Knowledge

- Fundamentals of electronics and electronic packaging;
- Passive and active components in electronics;
- Analog and digital electronic circuits;
- Basics of electronic modules design and EDA;

It is assumed also that learners have a good knowledge of physics and chemistry.

Estimated duration of the course: 30 hours