TITLE: E-Training Microsystems Technologies

OPEN DEMONSTRATION WORKSHOP

INSTRUCTORS:

- Professors and scientists from the "E-Training Microsystems Technologies" (MSYSTECH) project consortium (project manager: Assoc. Prof. Norocel Codreanu, Ph.D., "Politehnica" University of Bucharest, Romania, Center for Technological Electronics and Interconnection Techniques)

OBJECTIVES: The workshop wants to demonstrate the importance of microsystems and microsystems e-training in the frame of electronics industry. The innovative performance-centred training approach and practice-oriented Internet courses, developed based on a Leonardo da Vinci European project, are destined to vocational education, training of SMEs specialists, students from universities and other potential users, as educated but unemployed people (engineers, physicists, etc.) looking for additional training for employment. The focus is on the transfer of innovation in the multi-disciplinary area of microsystems. The objectives are: identifying and analyzing the user requirements of managers, engineers, students and technical staff in the field of microsystems technologies, presenting the e-learning environment with various multi-media training materials oriented to improve professional skills, and training the core user groups and future trainers (train-the-trainers action). The Internet courses within the MSYSTECH project (www.msystech.eu) provide new opportunities for co-operation between vocational training institutions, universities and SMEs in the sharing of knowledge and educational resources.

WHAT YOU WILL LEARN:

- Basics of microsystems and microsystems technologies;
- Fundamentals of thermal management at microsystems level;
- Introduction in packaging technologies;
- Engineering aspects of photomasks data preparation.

WORKSHOP OUTLINE:

1. Introduction in the "E-Training Microsystems Technologies" (MSYSTECH) project;
2. Microsystems Design and Technology - the objective of the course is to show the physical background and the approaches that are used in the design of MEMS-based sensors and actuators. The course will give an overview of microsystem technology and its applications. The course suits especially well for students who aim for R&D tasks;
3. Packaging Technologies - 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- and nano-fabrication technologies.
4. Thermal Management of Microsystems - the learners will be able to define the most appropriate method of design and packaging of different microsystems for effective heat evacuation and minimization of the hot spot effect; to evaluate the reliability and to identify the possible defaults dues to overheating in order to insure the reliable functioning of the microsystem;

5. Photomasks Data Preparation – the main goal of this course is to present the techniques used in micro- and nano-components photomask data preparation. This course will allow to fully understanding all the issues related to this critical step of chip development as well as the methods used to reduce both costs and delays;
6. Development of electronic modules in the frame of the project and trends toward future miniaturization to the microsystems level.

WHO SHOULD ATTEND:

- Scientists and specialists from SMEs involved in electronics industry;
- Professors and students from vocational schools;
- Professors and students from universities;
- Decision makers from various institutions;
- Other potential users (educated but unemployed people looking for additional training for employment).