

Microsystems training roadmap

EuroTraining has elaborated a roadmap presenting which kind of training in MST is needed by European Industry. The roadmap is based on questionnaires and discussions with industry, market studies and the study of European FP7 projects in the field of micro and nanotec. A summary of the roadmap can be found here:

1. Definitions

Microsystems are mechanical and electronic mixed systems generally defined at micron scale. They are generally used as sensors and actuators and include processing micro components
Smart Systems are defined by EpOSS as more complex Microsystems. They are considered as key technologies for future European industry.

2. Evolution of the MEMS Markets

MEMS have been first used for professional and military applications (pressure sensors, accelerometers and gyrometers...). Now they are widely used in consumer markets (inkjet heads, games, cell phone, medical implants...). New technologies are required: micro fluidics, energy scavenging and storage, biotechnologies...

3. Training needs deduced from discussions with the industry and result from the questionnaires

The identified training needs are classified in two categories: traditional and new training needs:

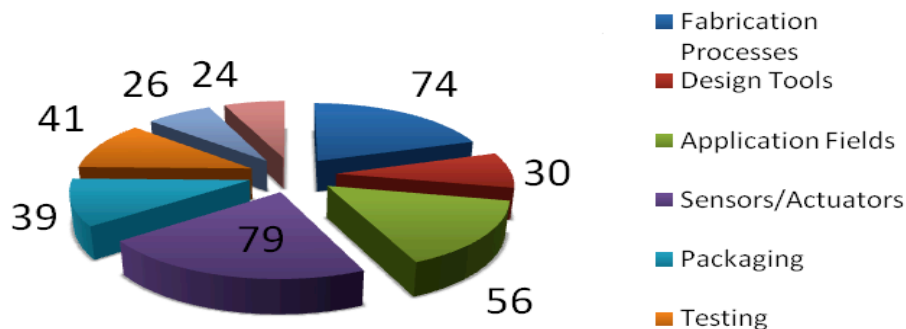
Traditional training needs

- MEMS market and cost analysis
- High level MEMS design methodology
- Specific MEMS technologies: deep etching, wafer level packaging, bulk micromachining...
- High volume production techniques (wafer level packaging, "6 inches" processes...)

New training needs

- Microfluidics and labs-on-chip.
- Energy scavenging and storage micro and nanotechnologies
- Bio interface micro and nanotechnologies

The different fields of training needs are indicated below:



4. Conclusions : recommendations for training courses for industry

General requirements

Short time duration (2 days)

Training should include hands-on (especially for universities)

Proposed course topics

Existing and new MEMS markets
High volume MEMS technologies
Microsystems for biomedical applications
Labs on chip microtechnologies
Microsystems for energy scavenging and storage
Use of polymer technologies in MEMS