

*Training centre for Micro- and
Nanotechnology*

Your experts for vocational training and
further education



KIMANIL IN COOPERATION WITH MST ACADEMY

Welcome to MST Academy

The MST Academy is an innovative training centre for Micro- and Nanotechnology.

MST Academy stands for over 8 years of experience in training and further education.

The target of this key-technology is to produce miniaturized structures. You can find these structures in PCs, mobile phones, etc. The fact that even the smallest dust particles would harm and destroy these structures makes it necessary to produce them in "clean rooms". Here the workers have to wear protective clothing to keep this production-area clean. Microtechnologists fill the gap between technicians and the unskilled workers in industrial practice. They also work in Research and Development. These areas require high qualifications and engagement.

"Lifelong learning" is used in many areas but it has a special meaning in relation to the so-called new technologies. **Moreover, it keeps mentally fit and even makes fun!**

The professions in Micro- and Nanotechnology are brandnew and offer excellent chances in the future.

Our clients are:

-  workers, technicians, engineers
-  students
-  unemployed persons
-  teachers and pupils of public and vocational schools

Our concept is mainly based on

-  the requirements of our customer
-  a dynamic and practically organized learning process
-  the use of web-based-studies for self-determined learning

MST Academy International Programmes

1. Offers for companies and their workers

Module 001 Microtechnology – Basics

This module gives an overview of Microsystem technology and the basic theoretical as well as practical knowledge.

Duration: 260 hrs.

Contents:

-  Electronics Basics, Measurement and Controlling Basics, Material Science,
-  Chemistry and Physics Basics, Semiconductor Technology, Microscopy and optics,
-  Basics of Microsystem Technology,
-  Cleanroom Technology, Safety measures, Quality control, technical documents.

Practical and theoretical parts are in balance. The course ends with a written examination and a practical project. The attendants receive a certificate.

Module 002 Microtechnology – Advanced

This module gives deeper insights to the production processes of micro devices and their applications. This is the additional course to module 001.

Duration: 260 hrs.

Contents:

-  Semiconductor Technology
 -  Sensors of all kinds
 -  Integrated circuits
-  Microsystem Technology
 -  Micro pumps, Micro plates, Analytics applications, micro fluidics, micro optics, micro mechanics
 -  Assembly and Packaging including Biocompatibility
 -  optional: Solar cell technology

Practical and theoretical parts are in balance. The course ends with a written examination and a practical project. The attendants receive a certificate.

Module 003 Microtechnology Practice

This module offers practice in microtechnology with experiments. In addition the attendants learn about the setting of machines and the design and production of specific devices.

Duration: 160 hrs.

The attendants receive a certificate.

Module 004 Microtechnology Professional

This module offers an overview of Microsystem Technology for Engineers and Academics of other faculties. It consists of Module 001 and Module 002 on a higher level.

Duration: 520 hrs.

Practical and theoretical parts are in balance. The course ends with a written examination and a practical project. The attendants receive a certificate.

2. Train the Trainer

Module 001 Microtechnology – Basics and Advanced

See Modules 001 and Module 002 above

Module 002 How to teach Microtechnology

This module gives an insight to the possibilities of teaching microtechnology. Its focus lies on the general and the specific didactic knowledge.

There are two kinds of courses:

■ A: Vocational school teacher

In this course the main view points at the production and application of micro devices and the work-skills of operators and how to teach them. The general didactics deal with models of teaching worked-base skills while the specific didactics offer opportunities of teaching practical knowledge of micro devices production.

■ B: Public school teacher

This course takes a more scientific point of view. It gives ways to implement Microtechnology into Chemistry, Physics and other scientific or technical subjects.

Duration: 260 hrs.

Special offer in addition to this course: Course-material to be used in lessons

3. Vocational Training

- 🌐 Vocational training
- 🌐 Exchange of young workers
- 🌐 Support of the build-up of a system of vocational training according to EU standards

4. Special seminars

Basics:

- ▶ Chemistry, Physics, Vacuum Technology, Controlling, Quality management, Computer Basics

Special Basics:

- ▶ Organic, Inorganic and Physical Chemistry, Analytic Chemistry, Materials in Semiconductor Technology, Electrical Chemistry, Optics, Fluidics, Safety Issues

Basics:

- ▶ Electrical Engineering and Electronics
- ▶ Semiconductor, Micro electronics, Micro optics, Micro fluidics, Micro mechanics, Characterization, Nano electronics, Nanomaterials (Nanopowder, Nanocomposites, risks)
- ▶ Processes: Lithography, Additive Techniques, Doping Techniques, Assembly and Packaging, Polymer, Nanotechnology, Oxidation and Diffusion, Plasma Processes, Wet-Chemical Etch, Dry Etch, Rapid Prototyping, Pattern Transfer with Additive Techniques

We can arrange your own package of courses, especially for workers in your company. For example our special offer: 5 courses in combination: Duration 10 days

5. Further Services

- ✚ We offer specific textbooks in different topics of Microtechnology.
- ✚ We can develop your own textbook, especially tailor-made to the requirements of your company
- ✚ We develop special modules for the needs of your personnel

In order to secure high standard training and education we cooperate with different partners. Each of them is a master in their areas. Thus we reach highly qualified workers by our courses.

Appropriate courses and seminars can be offered for Nanotechnology and Optical Technology (Photonics). Feel free to ask for further services in other so-called New Technologies, such as Biotechnology and Regenerative Energy Forms.

[Payment and Location of Training and Education](#)

The fees per trainee are not fixed as we have to take into account how the courses are run. Each course, except for the practice, can be booked as an online course on our e-learning-platform. However, there should always be on-site sections, especially in How to teach Microtechnology. The fees depend on how many trainees will book the course and if the courses are run in Germany or Egypt. Both ways are possible.

We prefer Blended Learning, means for example 80 hrs (= 2 x 1 week) of on-site-training plus 180 hrs E-learning in a course with 260 hrs.

Flight to and Accommodation in Germany for the trainees is not included.

Flight to and Accommodation in Egypt for the trainer is to be paid by the booking institution or in equal parts by the attendants.