

**Module Description, available in: EN**

# Manufacturing Technologies

**General Information****Number of ECTS Credits**

3

**Module code**

TSM\_ManTech

**Valid for academic year**

2025-26

**Last modification**

2024-10-07

**Coordinator of the module**

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**Explanations regarding the language definitions for each location:**

- Instruction is given in the language defined below for each location/each time the module is held.
- Documentation is available in the languages defined below. Where documents are in several languages, the percentage distribution is shown (100% = all the documentation).
- The examination is available 100% in the languages shown for each location/each time it is held.

|                      | Lausanne |  |  | Lugano | Zurich   |  |  |
|----------------------|----------|--|--|--------|----------|--|--|
| <b>Instruction</b>   |          |  |  |        | X E 100% |  |  |
| <b>Documentation</b> |          |  |  |        | X E 100% |  |  |
| <b>Examination</b>   |          |  |  |        | X E 100% |  |  |

**Module Category**

TSM Technical scientific module

**Lessons**

2 lecture periods and 1 tutorial period per week

**Entry level competences****Prerequisites, previous knowledge**

- Knowledge of the product development process (conception phase, realization phase).
- Knowledge of manufacturing processes and material properties.

**Brief course description of module objectives and content**

Selected future-oriented manufacturing technologies and procedures with economic aspects of these technologies. Including the improvement of productivity and quality.

## Aims, content, methods

### Learning objectives and acquired competencies

To learn about and to understand modern manufacturing methods and systems used to improve productivity and quality.

### Contents of module with emphasis on teaching content

|  |                    |
|--|--------------------|
| <b>Polymer processing</b>  |                    |
| • Special technologies for injection moulding                        | 4 lecture periods  |
| • Trends in Composite processing                                     | 6 lecture periods  |
| <b>Reverse Engineering, Additive Manufacturing</b>                   | 2 lecture periods  |
| <b>Lightweight Design</b> (Sandwich Structures, Hybrid Technologies) | 2 lecture periods  |
| <b>Cutting process</b>   |                    |
| • Abrasive tools   | 3 lecture periods  |
| • Tools and coating: Trends  | 1 lecture periods  |
| • Multiaxis machining: Trends  | 1 lecture periods  |
| <b>Sheet metal forming</b>   | 5 lecture periods  |
| (Design for) <b>Automated Assembly</b>                               | 4 lecture periods  |
|  |                    |
| TOTAL:   | 28 lecture periods |
|  |                    |

### Teaching and learning methods

Contact hours during the lectures (2 lesson periods per week)

### Literature

Lecturers' scripts, which will contain references to current literature.

## Assessment

### Additional performance assessment during the semester

The module does not contain an additional performance assessment during the semester

### Basic principle for exams

**As a rule, all the standard final exams for modules and also all resit exams are to be in written form**

### Standard final exam for a module and written resit exam

#### Kind of exam

written

#### Duration of exam

120 minutes

#### Permissible aids

No aids permitted

**Exception: In case of an electronic Moodle exam, adjustments to the permissible aids may occur. Lecturers will announce the final permissible aids prior to the exam session.**

**Special case: Resit exam as oral exam**

**Kind of exam**

oral

**Duration of exam**

30 minutes

**Permissible aids**

No aids permitted