Module Description, available in: EN

Technology Management

General Information

Number of ECTS Credits

3

Module code

CM_TechMgmt

Valid for academic year

2024-25

Last modification

2022-01-10

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		
Instruction					**X** E 100%		
Documentation					**X** E 100%		
Examination					**X** E 100%		

Module Category

CM Context module

Profile Recommendations

This module is recommended for the following profiles:

	Zurich
Profile	BE, EIE, Pho

Lessons

2 lecture periods and 1 tutorial period per week

Entry level competences

Prerequisites, previous knowledge

The module is particularly recommended to students subscribed to one of the following specialization areas:

- Business Engineering
- Energy & Environment
- Medical Engineering
- Mechanical Engineering
- Mechatronics & Automation
- Electrical Engineering

- Data Science
- Computer Science
- Phtotonics
- Aviation

Brief course description of module objectives and content

The module describes the practical and theoretical framework of Technology Management, and explains the lifecycle and application of technologies and the related tools and activities used in Technology Management applied to practical case studies.

Aims, content, methods

Learning objectives and competencies to be acquired

1. Students understand the elements and the application areas of Technology Management.
2. Students are familiar with the practical and theoretical framework of Technology Management and understand the importance for innovative operating companies.
3. Students learn how companies select and work with technologies.
4. Students know how to manage technology throughout its lifecycle phases and understand the influence of technology on profitability and risk exposure for companies.
5. Students know how to deal with stakeholders relevant for Technology Management
6. Students know how to develop a technology roadmap
7. Students know how to contribute to a virtual cross-disciplinary technology management team

Module content with weighting of different components

Technologies are among the most important strategic and operational assets of product and process driven companies. The module deals with managing technologies to enable companies to achieve competitive advantage and differentiation by sound technological innovation management. The focus of the module is on management of technology throughout its lifecycle, thus complementing topics such as Strategy, Innovation, Solutions, Product and Service Management, covering strategic and operational aspects including technology evaluation, selection, planning, development/provision, implementation, distribution, exploitation. Examples of new technologies will be considered in the context of case studies of product/service innovations and discussed as group work. The module conveys comprehensive knowledge required for TM, e.g. technology trend analysis, technology scouting and recognition, technology roadmapping, lifecycle management, portfolio management, competitive strategies, protection, IPR- and knowledge management, corporate technology management and technology assessment. Each group will work on a case study of a real company and producing a technology roadmap as the main final semester project deliverable.

Teaching and learning methods

The module is taught by theory inputs, illustrative examples, case studies, discussion of controversal questions and exercises.The concept of flipped classroom is applied where possible. Content is applied in the context of a case-study based project assignment to be developed in a crossdiciplinary virtual team setting. Teams will present content using role-based pitching techniques.

Literature

[1] Technology Management; Dilek Cetindamar, Rob Phaal, David Probert; ISBN 9780230233348.

Assessment

Certification requirements

Module uses certification requirements

Certification requirements for final examinations (conditions for attestation)

The module foresees a group-based formative assessment of the semester project deliverables, which is contributing 33% of the final grade. Individual performance (attendance, team-work, active contribution to group-based deliverables such as report and presentations) will be assessed and used to produce the individual attestation for module exam attendance.

Basic principle for exams

As a rule, all standard final exams are conducted in written form. For resit exams, lecturers will communicate the exam format (written/oral) together with the exam schedule.

Standard final exam for a module and written resit exam

Kind of exam

Written exam

Duration of exam

120 minutes

Permissible aids

Aids permitted as specified below:

Permissible electronic aids

Open Book

Other permissible aids

Open Book

Special case: Resit exam as oral exam

Kind of exam

Oral exam

Duration of exam

30 minutes

Permissible aids

No aids permitted