Management of Complex Processes

General Information

Number of ECTS Credits

3

Abbreviation

CM_ComplPro / CM_ComplPro_DE / CM_ComplPro_EN

Version

18.11.2016

Responsible of module

Prof. Dr. Harold Tiemessen, FHO

Language

	Lausanne	Bern	Zurich DE	Zurich EN
Instruction	☐ E ☑ F	☐ E ☐ F	☑ D ☐ E	☐ D ☑ E
Documentation	☑ E ☑ F	☐ E ☐ F	☑ D ☑ E	☑ D ☑ E
Examination	☐ E ☑ F	☐ E ☐ F	☑ D ☐ E	☐ D ☑ E

Module category

☑ Context module

Lessons

☑ 2 lecture periods and 1 tutorial period per week

Brief course description of module objectives and content

One of the biggest challenges encountered in management is recognizing opportunities and making use of them while giving consideration to the associated risks. The constantly increasing dynamism and complexity of the environment in which companies and organizations operate is, however, making it difficult to take successful decisions. Multifactorial correlations, non-linearities, feedback effects and time lags make it difficult to correctly predict the impacts of a decision.

Students gain insight into the methods and tools employed for decision-making when faced with complex questions. They learn about cause-and-effect diagrams and quantitative simulation models and apply these in case studies.

Aims, content, methods

Learning objectives and acquired competencies

Students

- are familiar with the systemic approach, can correctly identify the limits of a system and are aware that models only depict reality imperfectly
- are able to analyze complex processes applying the correct methodology and communicate about them
- know how to manage conflicts of objectives with the correct methodology (e.g. costs versus quality)
- can depict complex processes as a cause-and-effect network
- can depict technical and operational processes in the form of an event-orientated simulation model
- are familiar with the most important steps of a simulation study
- understand the problem-solving cycle as a creative process
- have learned to implement systemic problem-solving methods in operational practice

Teaching and learning methods

Lecture with examples to be solved in a group. Exercises and case studies.

Prerequisites, previous knowledge, entrance competencies

Basic knowledge of Java, Matlab, Octave, Python or a comparable programming language

Literature

Sterman J: Business Dynamics. McGraw-Hill (2010). ISBN 978-0071068123

Senge P.: Die fünfte Disziplin. Klett-Cotta (2008). ISBN 978-3608913798

Warren K.: Competitive Strategy Dynamics. Wiley (2002) ISBN 978-0471899495

Sherwood D.: Den Wald vor lauter Bäumen sehen. Wiley (2003). ISBN 978-3527500574

Gandolfi, A: Von Menschen und Ameisen. Orell Füssli (2001). ISBN 978-3280026694

Law, A.M.: Simulation modeling and analysis. McGraw Hill Boston (2006). ISBN 978-0071255196

Assessment

Certification requirements for final examinations (conditions for attestation)

None

Written module examination

Duration of exam:	120 minutes
Permissible aids:	Books, own documents, computer