Lucerne University of
Applied Sciences and Arts

HOCHSCHULE
LUZERN

Business
FH Zentralschweiz

MSCIFM_SDM_System Dynamics and Corporate Modelling

06.09.2017

General Information

Module Code	W.MSCIFM_SDM
Programme	Master of Science in International Financial Management
Type of Module	Core module in foundation
Level of Module	Intermediate
ECTS Credits / Workload	3 ECTS Credits (90 hours)

Module Dependencies

Pre-requisites

Follow-up modules

Module Aims

Management decisions are often to be taken in a highly dynamic and complex context. Therefore, to understand and to anticipate the effect of strategic decisions in this environment is a key competence in business. System dynamics and systems modeling in general contribute to adopting a systems perspective in management and provide instruments to represent and to analyse dynamic complex problems.

Learning Outcome 1

Students are able to structure complex, ill-defined problems. They are able to develop qualitative causal models, to apply a systems perspective on a given problem as well as to analyse and interpret a dynamic simulation model as an instrument to understand complex dynamic processes.

	Importance	Relevant NQF-Descriptors
Subject knowledge and skills: Students know the constituents of a qualitative and a quantitative system dynamics model as well as fundamental dynamic patterns of a quantitative system dynamics model.	medium	knowledge; judgement
Problem-solving: Students are able to develop qualitative system dynamics models to represent and analyse a complex problem (“systems thinking skills”).	high	knowledge; judgement
Methodology: Students know the potentials and limitations of a system dynamics modelling approach.	medium	knowledge; judgement
Social skills: Students are able to develop and use qualitative system dynamics models in interdisciplinary teams.	medium	judgement; communication
Self-related skills: Students understand that different people have different “mental models” of a given problem. Students are able to adopt different (systems) perspectives on a given problem.	medium	communication; learning autonomy

Content Outline

Part 1: Introduction to qualitative and quantitative system dynamics modeling

- Qualitative systems modelling: notion of “mental models”, formal requirements for developing and analysing qualitative systems models
- Quantitative system dynamics modelling: components of system dynamics models, fundamental patterns in dynamic models, analysis of small system dynamics models

- “Soft” and “hard” systems modelling approaches: overview, potentials and limitations
- Introduction to Vensim (software for system dynamics modelling and developing causal models)

Part 2: Application of system dynamics modelling to management
- Fundamentals of a model architecture to describe the performance of organisations
- Fundamental patterns in dynamic models (selected examples)
- Model validation and sensitivity analysis

Teaching and Learning Methods

Contact Hours	seminar; exercises; lecture; presentations; case studies; simulation
Directed Study	individual work; group work; partner work; compulsory reading

Workload

Contact Hours	36 lessons / 27 hours (30%)
Directed Study	12 lessons / 9 hours (10%)
Private Study	54 hours (60%)

Assignments and Assessments

Assessment Type	Quantity	Weight	Form	Evaluation Type	Time
Individual written assignment	60 minutes	67%	closed book	grades	during exam weeks
Written group assignment	5 pages	33%	specified resources	grades	during semester