

Degree	Type	Year	Semester
4313489 Logistics and Supply Chain Management	OT	2	1

## Contact

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## Use of languages

Principal working language: english (eng)

## Prerequisites

The student has to have successfully passed the following subjects:

- Decision making (42653)
- Systems Thinking (42632)
- Generic Management Skills (42649)

## Objectives and Contextualisation

This module has two course units: **Scenario Management** (Prof. Dr. Thomas Masurat) and **System implementation and ramp-up** (Prof. Dr. Thomas Masurat/Prof. Dr. Gaby Neumann).

### **CU1: Scenario Management (5 ECTS)**

After the course the student will be able to:

- understand chances and opportunities from scenario management
- apply scenario management procedure, methods, tools for planning, managing and controlling implementation and launching of logistics systems
- elaborate solid arguments to convince and motivate decision makers, select the proper partners and then plan and coordinate the project to implement the solution

### **CU2: System implementation and ramp-up (5 ECTS)**

After the course the student will be able to:

- understand challenges in implementing and launching logistics systems
- apply procedure, methods, tools for planning, managing and controlling implementation and launching of logistics systems
- address problems in logistics system implementation and ramp-up in a holistic approach
- elaborate solid arguments to convince and motivate decision makers, select the proper partners and then plan and coordinate the project to implement the solution

## Skills

- Address problems of management and coordination of logistics operations in production, transport and services in a holistic approach, by means of the consistent application of the supply chain management concepts and strategies, taking into account the pertinent aspects of environment, human capital, quality, technology, and economics.
- Apply a rigorous and efficient approach to problem solving.
- Demonstrate abilities to document and reflect the problem-solving process in order to extract the lessons learned.
- Elaborate solid arguments based on quantitative models and analytical methods in order to convince and motivate decision makers, determine the adequate LCSM partners and then plan and coordinate the project to implement the solution.
- Face a new problem under a scientific perspective.
- Identify the main aspects to be planned in the resolution of a logistic project, specifying the project boundaries, and leading with a solution
- Select and apply the most relevant analytical methodologies, strategies and current technologies for designing solutions to the problems of management and coordination of material, information and financial flows.
- Student should possess an ability to learn that enables them to continue studying in a manner which is largely self-supervised or independent
- Students should be able to integrate knowledge and face the complexity of making judgements from information which, being incomplete or limited, include reflections on the social and ethical responsibilities linked to the application of their knowledge and judgements
- Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously
- Work collaboratively in a group.

## Learning outcomes

1. Address the implementation and ramp-up problems in logistic systems from a holistic approach.
2. Apply a rigorous and efficient approach to problem solving.
3. Demonstrate abilities to document and reflect the problem-solving process in order to extract the lessons learned.
4. Elaborate solid arguments to convince/motivate decision makers, select the right partners and afterwards plan and coordinate the project to implement the solution.
5. Face a new problem under a scientific perspective.
6. Identify the main aspects to be planned in the resolution of a logistic project, specifying the project boundaries, and leading with a solution
7. Select and apply the right methodologies to plan the implementation and ramp-up of logistic systems.
8. Student should possess an ability to learn that enables them to continue studying in a manner which is largely self-supervised or independent
9. Students should be able to integrate knowledge and face the complexity of making judgements from information which, being incomplete or limited, include reflections on the social and ethical responsibilities linked to the application of their knowledge and judgements
10. Students should know how to communicate their conclusions, knowledge and final reasoning that they hold in front of specialist and non-specialist audiences clearly and unambiguously
11. Work collaboratively in a group.

## Content

### CU1: Scenario Management (5 ECTS)

#### Introduction

- Do we have to know anything about the future?
- Where specialists were wrong
- Five premises to think about the future

#### Development of future strategies

- Why are we forced to plan the future?
- Analysis of current state in companies
- Predictions

#### Scenario techniques

- Basics
- Preparation
- Scenario field analysis
- Scenario prognostics
- Scenario development
- Information base for scenario development
- Transfer of scenarios

#### Special Approaches of Scenario Management

#### **CU2: System implementation and ramp-up (5 ECTS)**

##### Introduction

- Terminology
- Position of system implementation and ramp-up in the planning/production process
- Challenges in system implementation and ramp-up

##### Basics of ramp-up management

- Product development process
- Project management
- Simultaneous/concurrent engineering

##### Ramp-up strategy and organization

- Maturity models
- Logistics management in ramp-up
- Risk and uncertainty in logistics system implementation and ramp-up

##### Challenges in implementation and launching material handling, transport or logistics management and control systems

- time, budget, resource, staff and environmental constraints
- key players involved
- fast ramp-up

##### Simulation-based planning of system implementation and ramp-up

- specification and set-up of test scenarios
- dealing with uncertainty and risk

##### Management of logistics system implementation project

- team building
- operator training
- communication, budget, time and resource management
- strategies for ad-hoc problem-solving

##### Application/assignment: Simulation-based support of ramp-up

## Methodology

#### **CU1: Scenario Management (5 ECTS)**

The course is organized by means of traditional lectures combined with seminars and practical work. The learning process will combine the following activities:

- Classroom sessions: include theory lectures and guest lectures. Aims to understand method, procedure, effects of scenario management systems; understand subject, steps and constraints of procedure.
- Exercise sessions: classroom discussions. Aims to apply methods and techniques for scenario building and evaluation
- Case study: include group work, student presentations, workshop. Aims to identify challenges, elaborate scenarios, develop future cones, run a scenario management workshop
- Business game: group work, experimentation. Aims to apply scenario management on a complex situation within an experimental setting, test different strategies within a supply chain simulation
- Autonomous work: reading, self-testing, reflecting. Retrieve and analyse information from different sources; reflect learning and problem solving processes in order to derive lessons learned.

Case studies and business games are used for promoting students hand on skills.

#### **CU2: System implementation and ramp-up (5 ECTS)**

The course is organized by means of traditional lectures combined with seminars and practical work. The learning process will combine the following activities:

- Classroom sessions: include theory lectures and guest lectures. Aims to understand challenges in implementing and launching logistics systems; name and explain procedure, methods, tools for planning, managing and controlling implementation and ramp-up of logisticssystems.
- Exercise sessions: classroom discussions. Aims to select and apply suitable methodologies and strategies to plan logistics system implementation and ramp-up of logistics systems.
- Case study: include group work, project reporting, student presentation. Aims to apply simulation methodology to plan and test ramp-up strategies; run and manage logistics system implementation and ramp-up projects in a market setting.
- Business game: group work, experimentation. Aims to apply scenario management on a complex situation within an experimental setting, test different strategies within a supply chain simulation
- Autonomous work: reading, self-testing, reflecting. Retrieve and analyse information from different sources; reflect learning and problem solving processes in order to derive lessons learned.

Simulation based case studies are used for promoting students hand on skills.

## **Activities**

Title	Hours	ECTS	Learning outcomes
<b>Type: Directed</b>			
CU1. Exercises	25	1	2, 3, 4, 5, 7, 8, 9
CU1.Theory lectures	27	1.08	4, 7
CU2. Exercises	25	1	1, 2, 3, 4, 5, 7, 8, 9
CU2. Theory lectures	25	1	1, 4, 7
<b>Type: Supervised</b>			
CU1. Business Games	25	1	3, 4, 6, 9, 11
CU1. Case Study	25	1	2, 3, 5, 6, 9, 10, 11
CU2. Case Study	50	2	2, 3, 5, 6, 9, 10, 11

<b>Type: Autonomous</b>			
CU1. self-learning	23	0.92	4, 7, 8
CU2. Self-learning	23	0.92	1, 4, 7, 8

## **Evaluation**

### **CU1: Scenario Management (5 ECTS)**

The final mark of this course will be calculated from the assessment of following evaluation activities:

- Final exam. Questions on scenario management method and its application

### **CU2: System implementation and ramp-up (5 ECTS)**

The final mark of this course will be calculated from the assessment of following evaluation activities:

- Final exam. Theoretical questions and small cases on topics addressed throughout the semester in order to present generic understanding on system implementation and ramp-up in correspondence to learning objectives.
- Case study: For a given scenario students have to develop ramp-up strategy taking requirements for fast, safe and cost-effective ramp-up logistics systems and processes into consideration. Strategies are to be tested by use of simulation, i.e. students need to build and implement respective simulation models, plan and run experiments, and analyse simulation outcome. Procedure and outcomes of the case study are described and discussed in a project report and presented to decision makers in an attractive way.

### **CU1 and CU2**

There is one final exam per module covering both courses. It is comprised of theoretical questions and small cases on topics addressed throughout the semester in order to present generic understanding on both scenario management and system implementation and ramp-up in correspondence to learning objectives. The final exam is run electronically; cases might require additional performance on paper evaluated as part of the exam.

The student passes the module if the case study and the final exam are evaluated "sufficient" (grade 4.0 corresponding to a minimum of 50% of the maximum performance per evaluation activity) at least. The student fails if performance in at least one of the evaluation activities does not reach the 50% threshold or if the case study report is not submitted within the due date specified by the professor.

In case of fail the student needs to retake just that part of module exam s/he failed. The decision about this is in hands of the examiner. If the case study is failed, the student will either be provided with a new case study or asked to re-submit its report according to the corrections/indications provided by the professor.

Students who fail an exam may be permitted the opportunity to retake this examination twice at a maximum. After that his/her right for examination terminates. Retaking an exam is allowed only in case the student previously failed, but not to improve grades achieved so far.

Examination dates are announced in due time, but at least two weeks prior to the respective exam. Submission deadlines for case studies and any presentation activities related to them are announced when giving case studies to students. The final exam and a first opportunity for eventually retaking it are scheduled within specified examination periods. Specific examination dates are published on the university's website.

The weights of each evaluation activity are given in the table below.

## **Evaluation activities**

<b>Title</b>	<b>Weighting</b>	<b>Hours</b>	<b>ECTS</b>	<b>Learning outcomes</b>
CU2. Case Study	25%	0	0	3, 5, 6, 8, 9, 10, 11
Final exam (CU1 & CU2)	75%	2	0.08	1, 2, 4, 5, 7, 9

## **Bibliography**

To be provided during the lecturing period.