

**Supply Chain Network & Flow Management****2015/2016**

Code: 42644

ECTS Credits: 9

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

**Contact**

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**Use of languages**

Principal working language: english (eng)

**External teachers**

Assistant professor Julija Petuhova

Assistant professor Pavels Patlins

**Prerequisites**

The student should have successfully completed the following courses:

- 42653 Decision Making
- 42640 Basics of Logistics and Supply Chain Management

**Objectives and Contextualisation**

This module has two course units. Supply Chain Network Management Technologies (Ass.Prof. Julija Petuhova) and Global Markets and Supply Chain (Doc. Pavels Patlins).

**CU1: Supply Chain Network Management Technologies (6 ECTS)**

The course *Supply Chain Network Management Technologies* focuses on essential technologies for effective supply chain networks management. Students are introduced to the supply chain reference model and show how to customize the supply chain reference model for the particular needs of a company based on its supply chain strategy.

After the course students are expected to be able:

- to select and apply the appropriate technology for obtaining solutions for a variety of supply chain network management and design problems;
- to distinguish supply chain modelling approaches and apply them to particular task solving in operational, tactical and strategic levels;
- to understanding key drivers of supply chain performance and their inter-relationships with strategy and other functions.

**CU2: Global Markets and Supply Chain (3 ECTS)**

The course *Global Markets and Supply Chain* includes problems connected with supply chain management of global market.

After the course students are expected to be able:

- to define and use professional terminology of supply chain management.
- to choose the optimal solution for supply chain processes planning, using special methods.
- to define company's role into supply chain; characterize differences between supply chain and logistic channel.
- to create model of informational, financial and cargo flow for global market; assume supply chain flows; work out optimization project, systematize modelling results and theoretical information, working in groups and presenting results of works in groups.
- to evaluate customer orders as well as to model order fulfilment process.

## **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.
- Demonstrate abilities in oral and written communication both in the student's native language and in English. Demonstrate synthesis skills and ability in presentation techniques.
- Demonstrate information management skills: ability to retrieve and analyse information from different sources.
- 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.
- Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context
- 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

## **Learning outcomes**

1. Define the design elements in supply chains.
2. Demonstrate abilities in oral and written communication both in the student's native language and in English. Demonstrate synthesis skills and ability in presentation techniques.
3. Demonstrate information management skills: ability to retrieve and analyse information from different sources.
4. Face a new problem under a scientific perspective.
5. Identify strategies and concepts in supply chains.
6. Know the specific LSCM terminology.
7. Possess and understand knowledge that provides a basis or opportunity for originality in the development and/or application of ideas, often in a research context
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. Understand the modelling notation of the supply chains.
10. Understand the supply chain performance metrics.
11. Work out arguments based on models and quantitative techniques

## **Content**

### **CU1: Supply Chain Network Management Technologies (6 ECTS)**

The main topics of the course are:

- Supply Chain Modelling and Performance Measurement: Methods and tools Supply Chain Modelling and Performance Measurement: Reference models (incl. SCOR)
- Supply Chain Modelling and Performance Measurement: Measurement and metrics
- Supply Chain Modelling and Performance Measurement: Dynamic effects (Bullwhip)
- Supply Chain Modelling and Performance Measurement: Supply chain benchmarking
- Concepts and best practices: Lean vs Agile Supply Chains
- Concepts and best practices: Mass Customization
- Concepts and best practices: Replenishment Concepts (JIT/ECR/CPFR)
- Concepts and best practices: Make-or-Buy Decisions / Outsourcing
- Practical assignments and case studies

**CU2: Global Markets and Supply Chain (3 ECTS)**

The main topics of the course are:

- Global market and supply chains. Customers' requirements.
- Supply chains' types; supply chains participants' investigation.
- Product life-cycle management into supply chain.
- Safety and security factors into supply chains.
- Supply chain planning and configuration. Flows modelling into global markets. Types of flows.
- Strategic/tactical and operational perspective of supply chain management.
- Customer orders modelling for supply chains.
- Supply chain management strategies.

## Methodology

**CU1: Supply Chain Network Management Technologies (6 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 by Industry logistics management professionals and experts.
- Practise sessions: Laboratory works based on simulation tools and business game.
- Practical assignment: development of a Supply chain reference model application for the particular needs of a company based on its supply chain strategy. Includes logistics companies visits. Logistics companies visits.
- Autonomous work

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

**CU2: Global Markets and Supply Chain (3 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 by Industry professionals.
- Case studies, individual assignments: Work in teams, individual quizzes, discussion of cases related to LSCM Global Markets and Supply Chain.
- Essay report: Individual research about the specific topics in the field of LSCM Global Markets and Supply Chain.
- Autonomous work

## Activities

Title	Hours	ECTS	Learning outcomes
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**Type: Directed**

CU1. Laboratory work	40	1.6	1, 3, 4, 5, 9, 11
CU1. Theory lectures	50	2	1, 5, 9, 11
CU2. Case studies, individual assignments.	30	1.2	2, 3, 4, 5, 7, 8, 9, 10, 11
CU2. Theory lectures	22	0.88	5, 6, 9, 10

**Type: Supervised**

CU1. Practical assignment	30	1.2	2, 3, 4, 7, 8
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**Type: Autonomous**

CU1. Mastering in the lectured course material	28	1.12	1, 3, 5, 8, 9, 11
CU2. Essay preparation	10	0.4	2, 3, 4, 7, 8
CU2. Mastering in the lectured course material	10	0.4	5, 6, 8, 9, 10

**Evaluation****CU1: Supply Chain Network Management Technologies (6 ECTS)**

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

- Written exam. Students have to answer 2 theoretical question on the topics discussed during lectures
- Laboratory work: Written reports. Students have to solve quantitative/qualitative tasks, analyse results and make a conclusions.
- Practical Assignment: Project and written report. Students have to perform modelling based project by creating reference model of particular organisation's processes.

**CU2: Global Markets and Supply Chain (3 ECTS)**

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

- Final test. Written multiply-choice test (50 questions)
- Individual assignments, case studies' results: Report of 2 individual assignments and up to 6 case studies'
- Essay presentation: Written report and presentation about the LSCM related problem learned out-of-class.

**CU1 and CU2**

The module final mark will be averaged from both course unit qualifications according to the credit number of each course unit. In order to average all the evaluation activities, the mark of each of them must be above 4 points (out of 10). All the report-based activities must be submitted within the due dates specified by the professor. If a report-based activity is failed, the student will be asked to re-submit its report according to the corrections/indications provided by the professor. If the exam is failed, the student will have the opportunity to retake it. The dates for retaking an exam will be communicated to the student well in advance.

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

**Evaluation activities**

Title	Weighting	Hours	ECTS	Learning outcomes
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CU1. Final exam	40%	2	0.08	1, 2, 5, 9, 11
CU1. Laboratory work	40%	0	0	1, 2, 3, 4, 5, 9, 11
CU1. Practical Assignment	20%	0	0	2, 3, 4, 7
CU2. Essay presentation	25%	1	0.04	2, 3, 4, 7
CU2. Final test	25%	2	0.08	5, 6, 9, 10
CU2. Individual assignments	50%	0	0	2, 3, 4, 5, 6, 9, 10

## Bibliography

### CU1:

1. M. Christopher, Logistics and Supply Chain Management. 3rd Edition, Prentice Hall, 2005
2. S. Robinson, Simulation: The Practice of Model Development and Use. England, John Wiley&Sons Ltd, 2007
3. D. J. Bowersox, D.J. Closs, M. B. Cooper, Supply Chain Logistics Management, 3rd Revised Edition, McGraw Hill Higher Education, 2009
4. D. Simchi-Levi, P.Kaminsky, Ed.Simchi-Levi, Designing and Managing the Supply Chain, 3rd Edition, McGraw Hill, 2008
5. M. Laguna, J. Marklund. Business Process Modeling, Simulation, and Design. Pearson Prentice Hall, New Jersey, 2004, 415. p.

### CU2:

1. Pooler, V.H. and D. Pooler, Purchasing and Supply Management: Creating the Vision, Chapman & Hall, 2003.
2. Laporte G., Semet F. Logistics and Supply chain managements, Montreal, Canada. 2008.
3. Cohen.S Strategic Supply Chain Management. McGraw-Hill; 2 edition 2008.
4. Bowersox D, Closs D,Cooper M. Supply chain and logistics Management, 3rd edition, McGraw Hill Higher Education, 2009.
5. Michael H. Hugos. Essentials of Supply Chain Management, 2nd EditionWiley; 2 edition, 2006.