UNIVERSITY OF ZAGREB
FACULTY OF TRANSPORT AND TRAFFIC SCIENCES

GRADUATE STUDY: ITS AND LOGISTICS

SEMESTER (I)

Syllabus

Academic year 2024/2025

Course:	**Distribution Logistics II**				
Head of course: Prof. **Kristijan Rogić,** Ph.D.					
Co-lecturers: **Margareta Živičnjak**, MSc Traff. Eng.					
Semester: **I**(BSc/**MA**) (Winter/Summer)	Course code: **47845**	Lectures: **30**	Auditory exercises: **30**	Laboratory exercises: **0**	ECTS credits: **7**
Group for lectures: **15 students**			Group for auditory and laboratory exercises: **15 students**		

Objective of the course:

- Course provides knowledge of basic aspects of supply chain management. It consists of following topics: Supply Chain Basics and Definitions, Elements of Supply Chain, Distribution Channels, Essentials of Supply Chain Management, Demand Forecasting Methods in Supply Chain, Risks in Supply Chain, Risk Management in Supply Chain, Information Flows in Supply Chain, Optimization of Distribution Systems, Logistics games-beer game.

Learning outcomes:

After the completion of the course the students will be able to:
1. Describe the basic elements of supply chain.
2. Calculate performance indicators of supply chain.
3. Evaluate performance of activities and services in supply chain.
4. Estimate influence of systems risks on supply chain functionality.
5. Apply appropriate methods of demand forecasting based on available data.
6. Asses the effect of using third party logistics provider on supply chain efficiency.
7. Apply optimization methods in order to improve processes within supply chain
8. Design processes in supply chain

LECTURES and EXERCISES

Week	Syllabus	Form of classes	Performed by	Lessons	Remark
1.	Introduction to the course content, ▪ Keynote lecture, case studies, the basic terminology, literature	L	Kristijan Rogić	2	
	▪ Basic description of main topics and concept of Exercises	AE	Darko Babić	2	
2.	▪ Supply chain basics	L	Kristijan Rogić	2	
	▪ Basic elements of supply chain	AE	Darko Babić	2	
3.	▪ Supply chain basics	L	Kristijan Rogić	2	
	▪ Supply chain in practice-examples and case studies	AE	Darko Babić	2	
4.	▪ Supply chain structure	L	Kristijan Rogić	2	
	▪ Supply chain in practice-examples and case studies	AE	Darko Babić	2	

5.	Supply chain activities ▪ SCOR model of supply chain	L	Kristijan Rogić	2	
	▪ Supply chain in practice-examples and case studies	AE	Darko Babić	2	
6.	▪ Demand forecasting	L	Kristijan Rogić	2	
	▪ Moving average method-examples	AE	Darko Babić	2	
7.	▪ Demand forecasting	L	Kristijan Rogić	2	
	▪ Holt Winters method-examples	AE	Darko Babić	2	
8.	▪ Demand forecasting	L	Kristijan Rogić	2	
	▪ Holt Winters method-examples	AE	Margareta Živičnjak	2	Test 1
9.	▪ Demand forecasting	L	Kristijan Rogić	2	
	▪ Exponential smoothing	AE	Margareta Živičnjak	2	

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10.	▪ Demand forecasting	L	Kristijan Rogić	2	
	▪ Regression analysis	AE	Margareta Živičnjak	2	
11.	▪ Inventory management in supply chain	L	Kristijan Rogić	2	
	▪ Examples of inventory management models in supply chain	AE	Margareta Živičnjak	2	
12.	▪ Risk management in supply chain	L	Kristijan Rogić	2	
	▪ Case study-risk management in supply chain	AE	Margareta Živičnjak	2	
13.	▪ Information flows in supply chain	L	Kristijan Rogić	2	
	▪ Case study-EDIFACT, SAP	AE	Margareta Živičnjak	2	
14.	▪ Supply chain network and infrastructure design; outsourcing the services within supply chain	L	Kristijan Rogić	2	

	▪ Calculation of the main parameters on supply chain	AE	Margareta Živičnjak	2	Test 2
15.	▪ Simulation of processes in Supply Chain	L	Kristijan Rogić	2	
	▪ Beer game	AE	Margareta Živičnjak	2	

L = Lectures; **AE** = Auditory Exercises; **LE** = Laboratory Exercises; S = Seminars

STUDENT OBLIGATIONS AND EXAMS

Conditions for obtaining signatures:

In order to get a signature, student should attend on at least 70% of the lectures and 70% of the exercises.

There are no pre-conditions from other courses. The attendance in the percentage lower than 70% on lectures and exercises may be compensated by making an additional seminar paper, but should be justified by rational cause, see below.

Students are required to attend lectures and exercises. Those students who at the end of semester have minimum of 70% of attendance get 20 points (10 points for lectures and 10 points for exercises attendance). Students that do not achieve those points have to take course once again. In the case of justified absences (for more than 3 times during lectures and more than 3 times for exercises), students have to submit medical records or other official records (which are subject of verification). After successful verification process students get 20 points.

Written exam: written evaluation of adopted skills and theoretical knowledge.

There are two ways of passing the exam:
   a) **Written partial tests–** consist of two written tests during the semester. The first test can be attended by all students enrolled in the course in the current academic year. The second test at the end of the semester can be attended by the students who have scored a positive grade from the 1st test.

   b) **Written test –** consists of a written exam in regular examination periods. Written exam can be attended by students who took the signature after ending the course.

Oral exam: verbal evaluation of adopted skills, theoretical knowledge, and methods, with the aim of achieving learning outcomes.

Seminar works (mandatory): The students independently prepare a seminar work, independently studying the recent professional and scientific literature, and finally present the seminar work in lecturer's consultations in order to achieve specific learning outcomes.

During the semester students could write two partial tests. Each test consists of numerical and theoretical questions (or their combination) in which it is possible to achieve a maximum of 80 points. Those students who achieve more than 50% of possible points or can take the second test. Students that achieve more than 50% of possible points on the second test are exempted from a written exam.

The written and oral exam is provided for all students. To pass the written exam it is necessary to answer 51% of questions correctly, and the grading system is shown in paragraph 5.

LITERATURE

a) Obligatory literature:

1. Waters,D.: Logistics-an Introduction to Supply Chain Management, Palgrave Mac Millan, New York, 2003

b) Recommended literature:

1. Stadtler,H.,Kilger, Ch. (Eds.): Supply Chain Management and Advanced Planning, Springer, Berlin, 2005.
2. Langevin, A., Riopel, D. (Eds): Logistics Systems: Design and Optimisation, GERAD, Montreal, 2005.

METHODOLOGY OF THE IMPLEMENTATION OF THE COURSE PLAN

1. LECTURES

Lectures follow specific topics from compulsory literature and are performed using Power Point presentation (in English). The use of a textbook and recommended literature allows students to prepare the lecture topics in advance. Lectures are published on student's portal on the Faculty internet site (e-student). The students are encouraged to read the topic of the forthcoming lecture in advance and to take part in the pro-active discussion.

2. AUDITORIAL EXERCISES

Students are solving specific problems using applied methods. During exercises students will learn to conduct research, solve tasks regarding supply chain management topics. Students will learn how to apply demand forecasting methods, element of risk management and inventory management in supply chain. Also. student will learn how to calculate performance indicators within supply chain.

3. DOCUMENTATION

The student's attendance record is kept during the semester. Achievements of goals are recorded by continues monitoring on information system ISVU. All tests are kept in lecturer's file for one year.

4. SCORING SYSTEM

a) Lectures attendance (≥ 80%) 10 point
b) Exercise attendance (≥ 80%) 10 point
A total of 20 points is required for the course completion signature and attendance to written exam.

Written exam grading:
- 0 – 50%   (1)
- 51 – 69%   (2)
- 70 – 86%   (3)
- 87 – 92%   (4)
- 93 – 100%   (5)

a) Lectures attendance (≥ 80%) 10 point
b) Exercise attendance (≥ 80%) 10point
A total of 20 points is required for the course completion signature and attendance to written exam.
c) Tests:
      c1) Test 1 minimum 20 points and maximum 40 points
      c2) Test 2 minimum 20 points and maximum 40 points
d) Exemption from a written exam: a minimum of 40 points collected through tests 1 and 2.
e) Conversion of earned point to preliminary grades (grades before oral exam)

With minimum of 60 points student can take an oral exam.
Written exam can have a maximum of 80 points.

Points earned for course completion signature and attendance to written exam are added to the total amount of points (to points from test 1 and 2 or to points from written exam).

Preliminary grades for oral exam:
- 20 – 59   (1)
- 60 – 70   (2)
- 71 – 80   (3)
- 81 – 90   (4)
- 91 – 100   (5)

INFORMATION FOR STUDENTS

(scoring system, implementation plan, learning outcomes, syllabus, literature, consulting teachers, announcement of results of examinations or colloquium, and all other information):

- **https://moodle.srce.hr/2024-2025/**
- **http://www.fpz.unizg.hr**

Student assistants:

Additional individual work with the students through individual consultations for assignments from auditory exercises, for optional homework, and for insight into the negatively written part of the exam as well.