

Information Technology

Code: 42657
ECTS Credits: 6

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

Prof. Andrejs Romanovs

Prerequisites

None

Objectives and Contextualisation

This course "Information technologies in logistics" is an important component part of logistics specialist theoretical training that enables students to effectively work in the area of business logistics, based on use of modern information technology.

After the course students are expected to be able:

- to consider, interpret and use professional terminology in logistics and related information technologies area
- to discuss about the information technologies in logistics, to analyze problems and trends of the industry
- to solve thematic tasks in the field of logistics IT and to compare results of different solution scenarios and its performance results
- to describe the relevance of the chosen logistics information technology topics, to classify existing solutions, analyze the existing problems and trends

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.
- Analyse, organise and discuss situations in logistics in order to identify and model the dependency relationships, influence and impact that usually occur in the main performance indicators and quality factors as well as evaluating their complexity.
- 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.

- 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

Learning outcomes

1. 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.
2. Demonstrate information management skills: ability to retrieve and analyse information from different sources.
3. Evaluate the role of information technologies in LSCM.
4. Investigate and plan the application of technologies and complex information systems in logistics.
5. Student should possess an ability to learn that enables them to continue studying in a manner which is largely self-supervised or independent
6. 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
7. 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
8. Understand basic information technologies in logistics.
9. Understand general concepts of the information management systems.
10. Understand the principles, concepts and techniques of information technology.

Content

In this course, the basics of logistics information technologies are examined; a special attention is paid to the basic functioning principles of logistics information systems and to the information technologies used in logistics, such as tracking and tracing technologies, object identification technologies, communication technologies. There are also examined examples of IT applications in the purchasing, manufacturing, distribution, transportation, inventory and warehouse logistics.

List of topics:

- The role of information technologies in LSCM.
- Basics of enterprises' information systems: introduction to IT, information systems in the enterprise, electronic business and electronic commerce, IS hardware and software, managing data resources, etc.
- Major subsystems and internal operation of logistic information systems
- Basic information technologies in logistics:
 - tracking & tracing (GPS, Galileo, etc.),
 - identification (barcoding, RFID),
 - communication (wireless, mobile, networking, EDI, etc.).

IT applications to support logistics functions (warehouse, inventory, transportation customer relationship management information systems, enterprise resource and supply chain planning, production planning and control information systems, supply chain event management information systems, etc.).

Methodology

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, discussions and seminars for understanding the main using of information technologies
- Practise sessions: Laboratory works aimed to demonstrate the ability to perform assigned tasks, carrying out different tasks scenarios and comparative analysis of its results.
- Essay elaboration and presentation: In-class presentations on the essay topics related to IT in logistics with further discussions with the audience
- Autonomous work

Practical cases and essay about using information technologies to support logistics functions are used for promoting students hand on skills.

Activities

Title	Hours	ECTS	Learning outcomes
Type: Directed			
Practise sessions	30	1.2	2, 3, 4, 5, 6
Theory lectures	30	1.2	3, 4, 8, 9, 10
Type: Supervised			
Student presentation on the research topic	15	0.6	1, 3, 7, 8, 9, 10
Test on ITL	15	0.6	3, 4, 8, 9, 10
Type: Autonomous			
Individual research essay	30	1.2	1, 2, 3, 4, 5, 6, 7
Mastering in the lectured course material	28	1.12	3, 4, 5, 8, 9, 10

Evaluation

The final grade will be calculated from the assessment of different evaluation activities:

- Individual research essay: Report on the individual research about using information technologies to support logistics functions. Includes oral presentation of the research results on the essay topic
- Laboratory work: Laboratory studies in the field of logistics information technologies and systems
- Written exam. Students have to answer 2 theoretical question on the topics discussed during lectures

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
Exam	40%	2	0.08	1, 3, 4, 8, 9, 10
Individual research essay	35%	0	0	1, 2, 3, 4, 5, 6, 7
Laboratory work	25%	0	0	3, 4, 6, 7

Bibliography

1. Kenneth C. Laudon and Jane P. Laudon. Management Information Systems: Managing the Digital Firm. 10th ed., Pearson Prentice Hall, 2006.
2. Martin Murray. Understanding the SAP Logistics Information System. Galileo Press, 2007.
3. Ronald H. Ballou. Business Logistics/ Supply Chain Management. 5th ed., Pearson Prentice Hall, 2004.
4. Sunil Chopra, Peter Meindl. Supply Chain Management: Strategy, Planning & Operation. 3rd ed., Pearson Prentice Hall, 2007.
5. Tilanus, B. Information Systems in Logistics and Transportation. 2nd ed., Pergamon, 1997.
6. Carol V. Brown, Daniel W. DeHayes, Jeffrey A. Hoffer, Wainright E. Martin, William C. Perkins. Managing Information Technology. 7/E, 2012, Prentice Hall.