

## SUBJECT PROGRAM – Game based multi-criteria decision making for T&L competence development

The code of the subject: .....

The name of the subject: Game based multi-criteria decision making for T&L competence development

Lecturer: Position, degree

Credit Points: 3 ETCS

Evaluation method: Game-based case studies

### The general purpose of the subject

This subject uses simulation tool based on games strategy for training and e-learning of T&L professionals, new graduates and trainees to increase their readiness to work in integrated and multinational environment of transport.

One of the main problems in academic and special vocational training for presents employees and for new specialists is not enough skills and experience to operate and act in modern T&L systems. Higher education programmes graduates have no opportunity to get enough practical experience within the study process and T&L practitioners are not able to react adequately to fast changes in their sphere of specialization.

The general purpose of the subject is creation of common training environment, which is able to give its contribution both to educational and training process in the T&L field, as well as to provide access to the training facility on regional and international level using e-learning methods and game-based tools developed on the base of information and communications technologies.

### Learning Outcomes:

- Identification of cargo transportation alternatives in the large and regional scale transportation transit system
- The choice of a multimodal transport route and optimal routing
- Understanding of interoperability of transport modes
- Filling transport documentation
- Simulation of typical deviations from the standard conditions of transportation
- Experts decisions on the base of AHP (Analytic Hierarchy Process) method

### 3. The study format and the content

The study is scheduled for one semester from September-December or from February - May, which covers the study of different aspects of practical transport operation.

Classes are scheduled for 4 academic hours each week in forms of e-learning classes and webinars. The course is structured according to problem-based learning for Certificate of Professional Competence to meet the requirements of the Regulation (EC) No 1071/2009 of the European Parliament, which involves using the variety of active learning methods including game-based approach.

Learning week (LW)	The content
LW 1-2	Decision-making process of selection the best routs for different complex T&L situations, taking into account real conditions
LW 3-4	Analytic hierarchy process for multi-criteria decision making.
LW 5-6	Study of TRELOGIC Manual and Game Usage Methodology

LW 7-8	Getting tasks on case studies. Preparation of initial data for solving the tasks.
LW 9-10	Individual solution of case studies. Part 1. Results analyses.
LW 11-12	Individual solution of case studies. Part 2. Results analyses.
LW 13-14	Teamwork. Use game-based multi-criteria decision making for solution of case studies. Part 1. Results analyses.
LW 15-16	Teamwork. Use game-based multi-criteria decision making for solution of case studies. Part 2. Exam.

#### 4. The description of the individual and team works and the form of controlling

Study for professional competence will cover a wide range of topics applicable to all businesses that need to carry out functions of transport and logistics managers. Students should base their study around the total concept of multimodal transport operations and not limit their learning to the areas they already know, or plan to work in immediately. They will be tested in all areas of required knowledge, full details of which are given in this guide.

The examination will include assessments where students may be required to understand and analyse information, write a series of procedures or instructions, make comments on systems and policy, and/or perform a range of mathematical calculations, applying suitable formulae and functions. They should be able to present their answers in a variety of formats including explanations, reports, instructions, tables and charts.

The multiple-choice assessment is available as on-line test, allowing candidates to sit or re-sit an assessment at a convenient time, enabling them to receive their results quickly.

The case study focuses on the application of knowledge, making candidates more adept at the skills required in relevant transport careers. This benefits the transport industry in general by encouraging more relevantly qualified transport managers. The focus on having to explain things enables candidates to demonstrate that they can apply their knowledge and use relevant sources of information. This ensures that students are well prepared for the real world of transport management.

#### 5. Evaluation criteria

The final grade for the course consists of the following components:

No	Component	The share
1	Multiple Choice assessment	
2	Case study assessment	
3	Game based assessment	

#### 6. Learning Materials

- 1) Regulation (EC) No 1071/2009 of the European Parliament and of the Council of 21 October 2009 establishing common rules concerning the conditions to be complied with to pursue the occupation of road transport operator and repealing Council Directive 96/26/EC
- 2) Wang, Xin. Operational Transportation Planning of Modern Freight Forwarding Companies. Springer, 2018, 386 p.
- 3) David Lowe, Clive Pidgeon. Lowe's Transport Manager's and Operator's Handbook 2020. Kogan Page, 2020, 760 p.
- 4) Rolf Neise. Container Logistics. The Role of the Container in the Supply Chain. Booktopia, 2018, 448 p.

- 5) Alan Rushton, Phil Croucher, Peter Baker. The Handbook of Logistics and Distribution Management. Kogan Page, 2017, 912 p.
- 6) Thomas L. Saaty, Luis G. Vargas. Decision Making with the Analytic Network Process: Economic, Political, Social and Technological Applications with Benefits, Opportunities, Costs and Risks. Springer, 2013, 363 p.
- 7) Thomas L. Saaty. Mathematical Principles of Decision Making. RWS Publications, 2019. 531 p.