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Erasmus+ project “Digitally supported and virtual study practices for modern logistic systems “, Subject cards of the study module

1. SUBJECT PROGRAM – SUPPLY CHAIN MANAGEMENT SIMULATION
2. SUBJECT PROGRAM – WAREHOUSE SIMULATION, HANDLING TECHNOLOGIES, EQUIPMENT
3. SUBJECT PROGRAM — GAME BASED MULTI-CRITERIA DECISION MAKING FOR T&L COMPETENCE DEVELOPMENT
4. SUBJECT PROGRAM – PROFESSIONAL COMPETENCE OF TRANSPORT MANAGERS
5. SUBJECT PROGRAM – PASSENGER TRAFFIC RAILWAY MARKETS ARE OPENING TO COMPETITION - CASE FINLAND
6. SUBJECT PROGRAM – TRAIN DRIVING EXERCISE FOR TRAIN DISPATCHERS



SUBJECT PROGRAM – SUPPLY CHAIN MANAGEMENT SIMULATION

The code of the subject:
The name of the subject:	Logistic Simulations
Lecturer	Position, degree
Credit Points:	3 ETCS
Evaluation method:	Graded evaluation

The general purpose of the subject

To develop independent thinking and the ability to see the connections between different parts in supply chain.

Simulation will enable students to solve complex business problems related to the journey of products and services from the manufacturer or provider to the end customer. Students will gain an understanding of the techniques required for managing and improving the integration of resources, processes and customer requirements.

ChainSim simulation helps to understand principles, theories and practices of material requirements planning (MRP) and supply chain management, critically evaluate and link those to various aspects of performance (financial measures as well as physical inventory aspects). Simulation can be paused, whereas real life cannot. Pausing allows more time for students to assess the situation.

ChainSim is an online-based educational simulation in which the student will manage the supply chain of a small manufacturing company. It can be played individually or in teams.

Learning Outcomes:

- 1) Measuring cost and performance in Supply Chain
- 2) Understanding the basic frame and key issues of Supply Chain and Production Planning
- 3) Define the supply chain concepts and key managerial processes
- 4) Develop analytical methodologies for Supply Chain analysis
- 5) Develop systematic thinking and making students understand that every decision affects the whole chain
- 6) Learn how to optimize the basic cost of procurement, inventory management and transport logistics
- 7) Supplier selection, assessment, sourcing strategies, total cost optimization. Bill of materials.
- 8) Analyze the manufacturing operation of a firm
- 9) Learn and test how to apply Lean manufacturing concepts
- 10) Improves decision making in teams
- 11) the student recognises co-responsibility and can contribute to a holistic approach.

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 theoretical aspects of supply chain management simulations and using simulations.

Classes are scheduled for 2 academic hours each week in forms of e-learning classes. The course is structured according to problem-based learning, which involves using the variety of active learning methods.

Storyboard

Learning week (LW)	Activities
LW 1 - 2	The basics of supply chain management. ChainSim Level 1, teamwork, results analyses. Suppliers and procurement. ChainSim Level 2, teamwork, results analyses
LW 3 - 4	Warehouse management and safety stock. ChainSim Level 3, teamwork, results analyses Customers and demand. ChainSim Level 4, teamwork, results analyses
LW 5 - 6	Finance management in supply chain. ChainSim Level 5, teamwork, results analyses Transport methods and INCOTERMS. ChainSim Level 6, teamwork, results analyses
LW 7-8	Production planning. ChainSim Level 7, teamwork, results analyses Whole supply chain management. Teamwork, exam.
LW 9-10	PTV Smart Tour
LW 11-12	PTV Smart Tour
LW 13-14	PTV Smart Tour
LW 15-16	PTV Smart Tour

Evaluation criteria/assessment

Students' success is measured by company profits as well as through a dynamic evaluation process in which students answer probing questions from the teacher and class members.

In ChainSim simulation the minimum requirement for passing a level x: Products fully delivered!

If Comp. of stock is higher or lower than 200 units then -1 point from profit points.

For example, level 4:

Total profit 2650\$ and comp of stock 180. Total points: 8 - 1 = 7 points.

Grades:

Grade A/5/ (Excellent): points 10 - 9

Grade D/2/ (Average): points: 4 - 3

Grade B/4/ (Very Good): points 8 - 7

Grade E/1/ (Accepted): points 2 - 1

Grade C/3/ (Good): points 6 - 5

Grade F/0/ (Failure): Products not fully delivered.

Learning Materials

- 1) Online simulation: www.chainsim.com
- 2) PTV Smart Tour: <https://www.ptvgroup.com/en/solutions/products/ptv-route-optimiser/>

LEVEL 1- 4

Points	Profit (\$):
10	≥ 3200
9	≥ 2900
8	≥ 2600
7	≥ 2300
6	≥ 2000
5	≥ 1700
4	≥ 1400
3	≥ 1300
2	≥ 1000
1	<1000

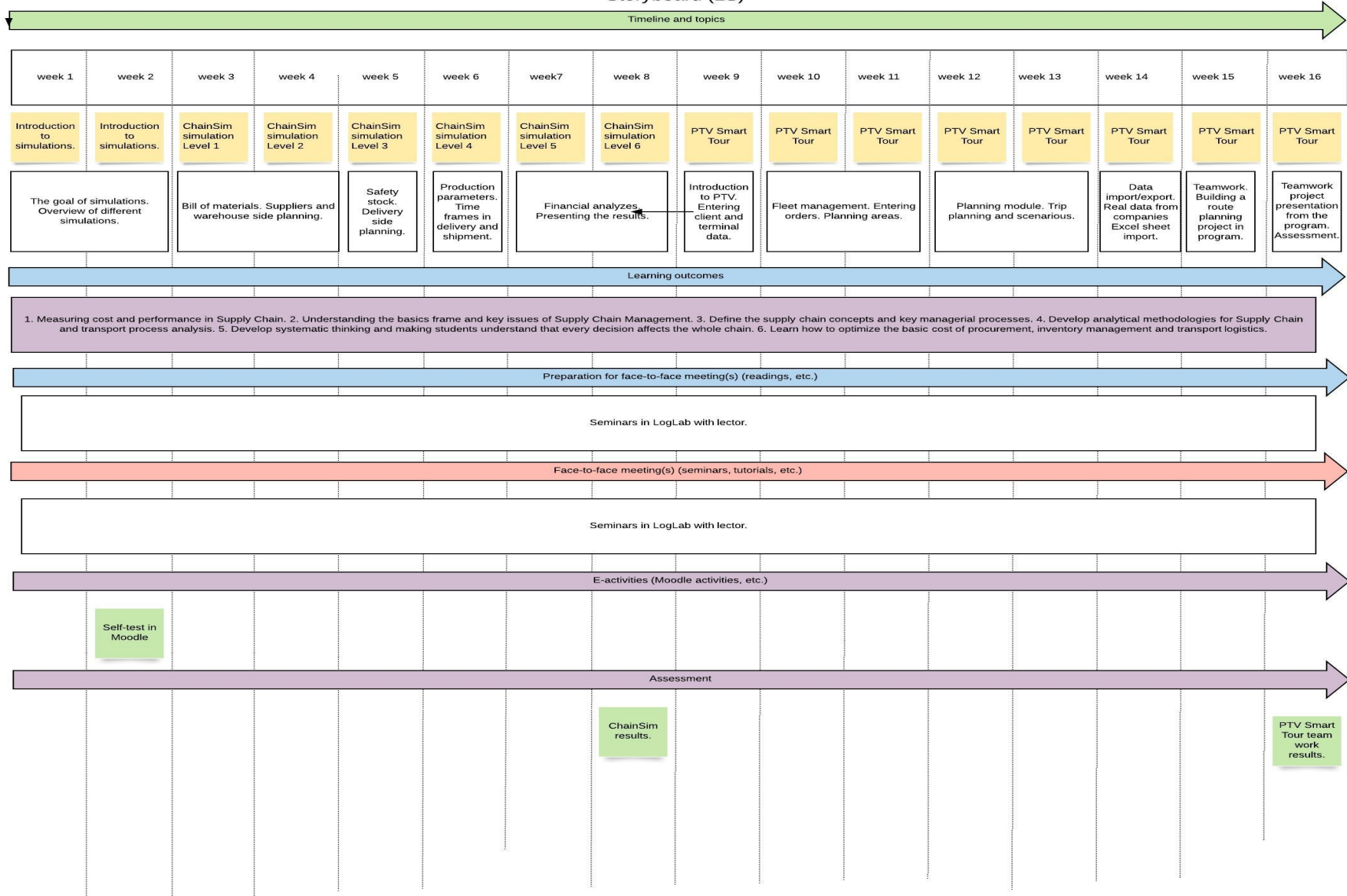
LEVEL 5

Points	Profit (\$):
10	≥ 2500
9	≥ 2300
8	≥ 2100
7	≥ 1900
6	≥ 1700
5	≥ 1500
4	≥ 1300
3	≥ 1100
2	≥ 900
1	<900

LEVEL 6 - 7

Points	Profit (\$):
10	≥ 1600
9	≥ 1400
8	≥ 1200
7	≥ 1000
6	≥ 800
5	≥ 600
4	≥ 400
3	≥ 200
2	≥ 100
1	<100

Storyboard (LS)



SUBJECT PROGRAM – WAREHOUSE SIMULATION, MATERIAL HANDLING TECHNOLOGIES AND HANDLING EQUIPMENT

The code of the subject:
The name of the subject:	Material Handling Technologies and Handling Equipment
Lecturer	Position, degree
Credit Points:	6 ETCS
Evaluation method:	Graded evaluation

The general purpose of the subject

The general purpose of the subject is to provide theoretical knowhow, practical exercises and simulations about warehouse layout, managing warehouses and warehouse equipment. After passing the subject each Students know how to set up different types of warehouses, knows how to run them and how to evaluate the performance and activities.

Warehouse simulation software Class allows users to design, test and redesign complex warehousing solutions in a virtual computer environment by changing many different parameters and measuring their impact. It is a great opportunity for the Students to test their ideas of warehouse layout design and operational management.

Learning Outcomes:

- 1) Student knows different racking and shelving systems.
- 2) Student knows the usage of different racking types, their advantages and disadvantages.
- 3) Student knows the working principals of automated warehouse systems.
- 4) Student knows different material handling equipment types, their usage, advantages and disadvantages
- 5) Student knows how to set up warehouse procedures and operations.
- 6) Student is capable to evaluate warehouse performance and to create KPI-s
- 7) Student is capable to design warehouse layout
- 8) Student knows how to plan warehouse resources (staff, equipment, materials)
- 9) Student can explain warehouse IT infrastructure principles
- 10) Student can formulate warehouse management principles.

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 theoretical aspects of material handling technologies and handling equipment, plus practical case-studies at simulation software Class.

Classes are scheduled for 4 academic hours each week. The course is structured according to problem-based learning, which involves using the variety of active learning methods.

Storyboard

Learning week (LW)	Activities
LW 1-2	The warehouse racking and shelving systems.
LW 3-4	Automated warehouse systems.
LW 5-6	Material handling equipment types.
LW 7-8	Automated material handling equipment.
LW 9-10	Case-study at Class
LW 11-12	Warehouse management and IT
LW 13-14	Case-study at Class
LW 15-16	Teamwork presentations, exam.

Evaluation criteria/assessment

In the end of the semester Students have to make and present teamwork. Teamwork's purpose is to see how well can they implement the theoretical knowledge into practice. Teamwork gives 50% of the total evaluation. Second part of the evaluation is an exam, which will be in test form.

Grades:

Grade A/5/ (Excellent): points 90-100

Grade D/2/ (Average): points: 60-69

Grade B/4/ (Very Good): points 80-89

Grade E/1/ (Accepted): points 50-59

Grade C/3/ (Good): points 70-79

Grade F/0/ (Failure): less than 50 points

Learning Materials

- 1) Class Training: Hints & Tips
- 2) <https://cirruslogistics.com/products/class/>
- 3) Practical Handbook of Warehousing, Ackerman
- 4) <https://www.mecalux.com/>
- 5) The handbook of Logistics and Distribution Management, Barker/Rushton/Croucher

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.

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SUBJECT PROGRAM – Professional Competence of Transport Managers

The code of the subject:
The name of the subject: Professional Competence of Transport Managers
Lecturer: Position, degree
Credit Points: 3 ETCS
Evaluation method: Tests, game-based case studies

The general purpose of the subject

This qualification has been designed to meet the requirements of the 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. Achievement of the Certificate of Professional Competence in either Road Haulage or Passenger Transport demonstrates that the holder of the qualification is qualified to perform the effective and continuous management of undertakings engaging solely in transport operations within any EU member state.

This qualification specifically aims to:

- assess the professional competence of applicants for Goods Vehicle Operator Licence and their nominated Transport Managers (road haulage)
- assess the levels of knowledge and practical aptitude necessary for the management of a transport undertaking as set out in Annex 1 of Regulation (EC) No 1071/2009
- assess skills and knowledge at a level which is harmonised at a minimum level with the skills and knowledge assessed in all Member States

Learning Outcomes:

- read and analyse information on real transport case studies
- answer direct questions on various aspects of relevant transport operations and associated laws
- answer questions related to a case study, applying the principles of transport operations and associated laws
- solve problems, applying various principles, rules and legislation.

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. 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	Business and financial management of the undertaking
LW 3-4	Commercial, Social, Fiscal law
LW 5-6	Business and financial management of the undertaking
LW 7-8	Access to the market

LW 9-10	Technical standards and technical aspects of operation
LW 11-12	Road safety
LW 13-14	Decision making in transport operations
LW 15-16	Analytic Hierarchy Process

4. The description of the individual work and the form of controlling

Study for professional competence will cover a wide range of topics applicable to all businesses that need to comply with road transport law. Students should base their study around the total concept of road 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 paper-based test, on-screen and on demand, 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.

SUBJECT PROGRAM - Traffic and Transport Management

The code of the subject:
The name of the subject:	Passenger traffic railway markets are opening to competition: case Finland
Lecturer	Position, degree
Credit Points:	3 ETCS
Evaluation method:	Graded evaluation

The general purpose of the subject

The HAMK's part of the module - Passenger traffic railway markets are opening to competition: case Finland – is part of a new international module.

Opening the national railway market that has until now been based on a national monopoly to competition is a challenging task for each EU country which calls for demands a long period for preparations. In the HAMK's part of the module we examine this preparation for competition through elements involved in the opening up of the Finnish railways to competition. We also look at the experiences of other EU-countries in the introduction of competition to railways. In Finland the process of opening the railways for competition has advanced well and true competition in the market can begin by 2020. In the Module HAMK the focus is in the passenger traffic. The module also looks at the experience of other EU-countries in the field of competitive tendering.

In the HAMK's part of the module the knowledge objectives are: the opening up of the Finnish rail transport market to competition, the background of tendering and its context in the implementation of EU legislation into Finnish legislation - the Finnish path from monopoly to open railway market, competitive theory, the role of authorities and looking in the future how the rail market will be renewed in the 2020's. During the module, students do assignments in international groups. The topics of the module will be introduced both true lectures/virtual lectures and progressive exercises.

The passenger traffic market is changing through a tendering process in the big Helsinki area year 2021. The long distance train market will be open for the competition in year 2024. What kind of changes can we expect? What is the situation today?

During the last ten years the authorities have made the necessary changes to the railway infrastructure before opening the market for tendering in the big Helsinki area and before competition in the long distance train market can start.

The module provides capacity and develops independent thinking and the ability to see the connections between different parts when passenger traffic railway market are opening to competition in EU-countries – case Finland.

The aim of the competition authorities is to create a multinational market for Finnish railways through international tendering.

In the last part of the module we look at how the Finnish rail market will be reformed in the 2020's.

Learning Outcomes:

During the module the students perceive the needs of the infrastructure in an operational environment where the market is open up to competition. The students also get new general working life needs such as the tendering process and economic thinking, perceive what the change in the market is, learn about teamwork and communication skills. During the module, students do assignments in international groups. The topics of the module will be introduced both true lectures/virtual lectures, independent working and progressive exercises.

Student:

- 1) knows the principles of the changes in the railway market;
- 2) understands the Theory of Competition (tendering, concession and open access)
- 3) knows the experiences of other EU-countries in the introduction of competition to railways
- 4) understanding, how the competition change the market
- 5) understand the progress and the timelines how the passenger rail transport opens to competition in Finland
- 6) knowing the Finnish path from monopoly to open railway market: From 1995 to 2026
- 7) understand where to compete in the railway market
- 8) understanding the role of authorities
- 9) understanding, how the rail market will be renewed in the 2020's
- 10) understanding the role of the new companies
- 11) understand future review
- 12) understand how political the competition process is
- 13) give new experiences and improves decision making in international teams

The study format and the content

HAMK's share of the new international module is best suited for periodic education. Duration of one and a half months or two months in the autumn or spring semester.

Studying consists on partly true live/video/virtual lectures as well as independent working and progressive exercises.

Weekly lectures 2 x 4 academic hours 1 x 4 academic hours teamwork guidance plus 3 x 4 hours independent thinking, teamwork and exercises which involves using the variety of active learning methods.

Storyboard

3. The study format and the content

The HAMK's part of the module - Passenger traffic railway market are opening to competition in Finland – is part of a new international module. In the HAMK's part of the module the opening up of the Finnish rail transport market to competition, the background of tendering and its context in the

implementation of EU legislation into Finnish legislation - the Finnish path from monopoly to open railway market, competitive theory, the role of authorities and looking in the future how the rail market will be renewed in the 2020's. During the module, students do assignments in international groups. The topics of the module will be introduced both true lectures/virtual lectures and progressive exercises.

HAMK's share of the new international module is best suited for periodic education. Duration of one and a half months or two months in the autumn or spring semester.

Learning week (LW)	The content
LW 1	The General Framework and On Competition and Tendering Teamwork (LW1, LW2 and LW 3)
LW 2	European Commission, Schedule of rail market opening Market Entry in the Field of Rail Transport Timeline for Tendering HRT's train service
LW 3	Experiences of other Countries in the Introduction <ul style="list-style-type: none"> a. Introduction b. European Commission, Mobility and transport, seminar on tendering of public service contract for rail passenger transport 2018 Mid-term exam 1, evaluation, Teamwork (LW1, LW2 and LW 3) presentation, self and peer review
LW4	Case Finland: Some conditions for the introduction of competition Conclusions and recommendations <ul style="list-style-type: none"> a. Finland, MTC's recommendations b. Honkatukia's recommendations Teamwork (LW5, LW6 and LW 7)
LW 5	Case Finland, part 1 (The Government of Sipilä, 29.5.2015-6.6.2019) <ul style="list-style-type: none"> a. Helsinki Region Transport's (HRT) tendering project b. Minister of Transport and Communications Anne Berner, Press release 9.8.2017: "Passenger rail transport opens to competition" c. Proposal for a tendering model for Southern Finland regional rail services d. Passenger rail transport services will be opened to competition in stages. e. Transport services will be tendered out based on a

	<p>concession contract model.</p> <p>f. Regional Analysis of Rail Passenger Traffic (Ramboll Finland Oy, Strafica Oy 5.7.2019)</p> <p>g. Shedule for the Reform Agenda</p>
LW 6	<p>Case Finland, part 2 (The Government of Rinne, 6.6.2019-10.12.2019 and The Government of Marin, 10.12.2019 -)</p> <p>a. Minister of Transport and Communications Sanna Marin, Press release 27.6.2019: "Preparation of competitive tendering of Southern Finland's regional rail services to be suspended"</p> <p>i. As is stated in the Government Programme, in opening up the passenger rail services to competition, the Open Access model will be observed in future competitive tendering.</p> <p>ii. The overall development of rail transport services will be discussed as part of the plan for the national transport system, launched recently.</p> <p>b. Minister of Transport and Communications Sanna Marin, Press 2.7.2019 "Marin shelves rail competition plans" The Times 2.7.2019</p>
LW 7	<p>Case Finland, part 3 (The experiences of The first train tendering in Finland)</p> <p>a. Competitive tendering of HSL's commuter train transport under way</p> <p>i. 5 February 2020, Closing date for submission of bids</p> <p>ii. 5 May 2020, Contract Award by HSL Executive Board</p> <p>iii. 27 June 2021, the winning operators takes over the running of HSL commuter trains</p> <p>b. The experiences of The first train tendering in Finland</p> <p>Mid-term exam 2, evaluation</p>
LW 8	<p>Authorities around train tendering project in Finland</p> <p>a. Helsinki Region Transport's (HRT)</p>

	<ul style="list-style-type: none"> b. Ministry of Transport and Communications (MTC) c. Rail Regulatory Body d. Finnish Transport and Communications Agency Traficom e. Finnish Transport Infrastructure Agency Vayla f. Traffic Management Finland, Railway Traffic (Finrail Oy) <p>The Tendering of Rail Transport is a National and Always a Political Process</p> <p>Evaluation, Teamwork (LW5, LW6 and LW 7) presentation, self and peer review</p>
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Evaluation criteria/assessment

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

No	Component	The share
1	Teamwork (LW1, LW2 and LW 3)	25 %
2	Mid-term exam 1	25 %
3	Teamwork (LW5, LW6 and LW 7)	25 %
4	Mid-term exam 2	25 %

No	Component	Grade
1	Teamwork (LW1, LW2 and LW 3)	1 – 5, self and peer review
2	Mid-term exam 1	1 – 5, exam result
3	Teamwork (LW5, LW6 and LW 7)	1 – 5, self and peer review
4	Mid-term exam 2	1 – 5, exam result
5	Total	1 – 5, weighted average of parts

Grades:

Grade 5/ (Excellent): > 4,5 Grade 2/ (Average): > 1,5
Grade 4/ (Very Good): > 3,5 Grade 1/ (Accepted): > 0,9
Grade 3/ (Good): > 2,5 Grade F/0/ (Failure): < 0,9

All partial assignments, approved exam's and group assignments must be completed before you can obtain the execution mark from the module HAMK, 3 ETCS.

Learning Materials

Materials for students at moodle.

The classroom should have good virtual learning opportunities that are synchronized with the partner classroom virtual classroom learning opportunities.

In general important are and also in the HAMK's part of the module important are:

E-Learning Methodology: Pedagogy, Tools and Environments

- project & assignments in multicultural groups;
- mutual interaction, communal working, learning from others and sharing experiences;
- real-time webinars and meetings (e.g. Skype, Zoom, WebEx);
- learning platforms (e.g. Moodle);
- open access materials using a CC-license;
- distance learning and classroom learning at the same time with suitable communication tools in the classrooms

Storybord (HAMK)							
Passanger traffic railway markets are opening to competition: case Finland							
			Timeline and topics				
week 1	week 2	week 3	week 4	week 5	week 6	week 7	week 8
Introduction to Tendering	Introduction to Tendering	Experiences	Case Finland				Authorities
The General Framework, On Competition, Tendering	European Comission , Schedule of rail market opening	Experiences of other Countries in the Introduction of Competition to Railways	Case Finland: Some conditions for the introduction of competition	Case Finland, part 1 (The Government of Sipilä, 29.5.2015-6.6.2019)	Case Finland, part 2 (The Government of Rinne,6.6.-10.12.2019 and The Government of Marin, 10.12.2019-)	Case Finland, part 3 (The experiences of The first train tendering in Finland)	Authorities around train tendering project in Finland
	Market Entry in the Field of Rail Transport	What are the key issues for successful tendering of rail PSC?	MTC's recommendations, Honkatukia's recommendations	Helsinki Region Transport's (HRT) tendering project	Minister of Transport and Communications Sanna Marin, Press release 27.6.2019: "Preparation of competitive tendering of Southern Finland's regional rail services to be suspended"	The experiences of The first train tendering in Finland	There are six key authoroties around the competition
Learning outcomes							
Student: 1. knows the principles of the changes in the railway market; 2. understands the Theory of Competition (tendering, concession and open access); 3. knows the experiences of other EU-countries in the introduction of competition to railways; 4. understanding, how the competition change the market; 5. understand the progress and the timelines how the passenger rail transport opens to competition in Finland; 6. knowing the Finnish path from monopoly to open railway market: From 1995 to 2026; 7. understand where to compete in the railway market; 8. understanding the role of authorities; 9. understanding, how the rail market will be renewed in the 2020's; 10. understanding the role of the new companies; 11. understand future review; 12. understand how political the competition process is; 13. give new experiences and improves decision making in international teams							
E-activities							
Teamwork LW 1-3			Teamwork LW 4-7				
Assessment							
			Mid-term exam 1, evaluation, Teamwork presentation, self and peer review			Mid-term exam 2, evaluation	Evaluation, Teamwork presentation, self and peer review

Train driving exercise for train dispatchers

Purpose

This exercise aims to give train dispatchers (signalman – UK) an insight into, and increased understanding of, the train driver's reality based on some different scenarios. These exercises cover 3 eap.

Content

For this exercise, a total of 8 videos were recorded in a simulator environment with a train driver who “think out loud” to facilitate the understanding of his actions.

The films were recorded in a train simulator developed by VTI (the Swedish Road and Transport Research Institute) and used by several actors who conduct rail related education or rail traffic.

The simulator emulates, in some cases, the Regina train, which is one of Sweden's most predominant passenger trains launched in the late 1990s, and in others, trains with TRAXX locomotives which is a popular locomotive found at several large freight operators.

In the simulator, it is possible to identify the trains with TRAXX locomotives by the airbrake manometer visible at the bottom of the driver's view. In these cases, the brakes application and release times are considerably longer than for the Regina train.

Discussion questions related to the videos

Below are the discussion questions linked to each video. The videos can give better results if watched in groups of two or three people, as it enables the discussion.

Participants should read the film questions before the start and discuss the issues together after the video.

1. Form 21 "Control the turnouts positions"

- Is there any risk if the train dispatcher tries to "help" in the control of turnouts positions?
- Form 21 does not contain trailing turnouts or track obstacles, what risks are there? And in bad weather?

2. Form 21 "The turnouts are correct"

- What is the risk of passing block signals with line placement function?
- Is there something that the train dispatcher can do to minimize the risk?

3. Moving the locomotive to the other end of the train.

- Is there anything you should think about when talking to the driver before moving the locomotive to the other end of the train set?
- What are the risks of stressing a supervisor when shunting?

4. Shunting locally

- What risks exist when shunting is not what the driver is used to do?



- Is there anything you should think about in your conversation with the train driver?

5. Driving on adjacent tracks

- What can you, as a train dispatcher, do to minimize the risk that a message to one train driver is misinterpreted by the train driver on an adjacent track?

6. Blocking mode with auxiliary vehicles

- Is there anything special you should think about in connection with your conversations with the train driver / supervisor?

- Is there anything you should think of regarding signalling for the blocking mode?

7. Person near the track

- Is there anything you should consider when talking to the train driver?

- What do you do after the call?

8. Signal turns unexpectedly to stop

- Whose responsibility is that the regulations are followed, after an unauthorized stop signal passage?

- Is there something you should think about in the conversation with the driver after an unauthorized stop signal passage?