

Module Title: INTEGRATED TRANSPORT SYSTEMS

- **Type of Module:**

ΓΕ0012	Compulsory
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- **Level of Module**

Postgraduate

- **Year of Study**

MASTER'S

- **Semester**

Spring Semester 2 nd Semester
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- **Number of credits allocated**

3

- **Name of lecturer / lecturers : Kapros Seraphim**

- **Description:**

The course “Integrated Transport Systems” offers an interdisciplinary approach to the freight transport market analysis and provides principles, theoretical knowledge and applied tools for planning and organizing intermodal transport chains and networks. It deals with infrastructure strategic planning, operations and optimization processes giving emphasis on logistics performance issues.

- **Prerequisites:** N/A

- **Module Contents (Syllabus):**

Introductory unit

- Production systems and Supply Chain Management
- Logistics and distribution

Transport systems

- Infrastructure
- Transport modes and transport means
- Traffic flows and traffic patterns
- Institutional framework and Transport Policy
- Door-to-door intermodal transport chains

Transport market analysis

- Transport market structure and trends
 - Modal split
 - **Demand analysis.**
 - Transport market segmentation
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Distribution channels (1)

- Actors involved
- Logistics operations

Distribution channels (2)

- Users' needs and requirements
- Demand characteristics
- Supply characteristics
- Cost analysis of logistics operations
- Quality criteria
- Optimization processes

Decision-making process-Models

- Strategies
- Modal choice models
- Routing models
- Location models
- Own account and outsourcing strategies
- Partner selection

Intermodal transport (1)

- External costs and the need for the promotion of Intermodality
- Transport units
- **The intermodal transport market segmentation**
- Rail-road door-to-door chains
- Short Sea Shipping
- Quality requirements in intermodal transport

Intermodal transport (2)

- Barriers to the development of intermodal transport
- **Transport Policy and Intermodality**
- Trans-European Transport Networks
- Intermodal transport networks in Europe and Greece
- Decision-making process in Intermodal transportation

Intermodal transport (3) – Intermodal terminals

- **Terminal operations**
 - Terminal typology: Hub and spokes, Gateways etc
 - Freight Villages
 - Rail operational systems: block trains, shuttle services κλπ
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- Terminal and Freight Village planning, traffic forecasting, financial assessment, economic evaluation

Language of instruction:

Greek

Name and contact info of lecturer:

Name: Kapros Seraphim

Position: Associate Professor

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Expected learning outcomes

AIMS OF THE COURSE

The course aims at understanding and providing in-depth knowledge for analysing, planning and evaluating the performance of “door-to-door” transport chains and logistics channels through an integrated approach. The course investigates the driving forces of transport systems’ organisation; it considers all transport modes and adopts an inter-disciplinary approach for the analysis of the transport market structure on the one hand and the decision-making procedures for modal choice and transport flow organisation on the other. The course deals with various components of a transport system, such as infrastructure, transport means, transport and logistics operations. It combines methodological tools related to transport economics, demand modelling, strategic and operational logistics, transport policy, based on both quantitative methods and qualitative approaches.

LEARNING OUTCOMES

At the end of lectures students should be able:

- To proceed to the analysis, planning, development, organization and optimization of integrated transport systems and logistics chains, including all transport modes and market segments
- To deal with strategic issues of transport systems
- To face with complicated operational problems of transport chains
- To develop transport demand models
- To contribute to infrastructure planning
- To assess and evaluate transport projects, with emphasis on terminal facilities, Freight Villages and distribution centers

Mode of delivery and teaching methods / Είδος μαθήματος και διδακτική μέθοδος

Lectures, Seminars, development and presentation of working papers by the students, round tables.

Compulsory & recommended reading

Course bibliography consisting in a big number of scientific articles, policy documents and reports and other supporting documents

Assessment methods & criteria:

- Evaluation of working papers
 - Final exam
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