

Pathway Courses – TRANSPORT AND LOGISTICS MANAGEMENT

Course title	Transport Systems Analysis				
Course code	CMBAT-511				
Course type	Compulsory				
Level	7 / 2 nd Cycle				
Year / Semester	2 nd Semester				
Teacher's name					
ECTS	6	Lectures / week	3	Laboratories / week	N/A
Course purpose and objectives	The purpose of this course is to equip students with the strategic, analytical, and operational skills necessary to understand and manage complex transportation systems within the context of modern business and urban planning. This course aims to provide a comprehensive understanding of the principles, challenges, and opportunities inherent in transport systems, enabling students to make informed decisions that enhance efficiency, sustainability, and profitability. The main objectives of the course are: • To provide deep knowledge of the various modes of transportation and their respective infrastructures, operations, and strategic significance in the global economy. • To develop students' proficiency in using quantitative and qualitative analytical tools to assess transportation data, model transportation scenarios, and make evidence-based decisions that optimize system performance and resource allocation. • To familiarize students with the influence of transportation policies, regulations, and international frameworks on business operations and strategic planning, and learn to effectively navigate and influence these environments. • To explore the role of cutting-edge technologies and innovative solutions, such as automation, digital logistics, and smart transportation systems, in enhancing the efficiency, safety, and sustainability of transport networks. • To enable students design and implement transportation strategies that promote environmental sustainability, social equity, and economic resilience, ensuring long-term viability and adaptability of transport systems in the face of changing global dynamics.				

Learning outcomes	By the end of this course, students will be able to: 1. Assess the efficiency, effectiveness, and sustainability of different transportation modes and infrastructure projects, identifying strengths, weaknesses, and areas for improvement. 2. Utilize statistical, mathematical, and computational tools to analyze transportation data, forecast demand, and optimize logistics and route planning for enhanced operational efficiency. 3. Understand and engage with local, national, and international transportation policies and regulations, leveraging this knowledge to influence decision-making and strategic planning in transport-related businesses. 4. Implement and manage technological solutions, such as autonomous vehicles, smart logistics systems, and digital platforms, to drive innovation and improve transportation system performance. 5. Develop and advocate for transportation strategies that prioritize environmental sustainability, social equity, and economic resilience, ensuring the long-term adaptability and success of transportation networks in a dynamic global context.		
Prerequisites	None	Required	N/A
Course content	1. Overview of global transportation networks, historical development, and current trends 2. Transportation Modes and Infrastructure 3. Transportation Economics - Principles of transportation economics, cost structures, pricing strategies, and economic impact analysis 4. Quantitative Methods in Transport Analysis 5. The role of transportation in supply chain management, logistics strategies, and integrated transport solutions 6. Urban Transportation Planning 7. Transportation policies, regulatory frameworks, and their implications for business and society 8. Technological Innovations in Transportation 9. Environmental impacts of transportation, strategies for reducing carbon footprint, and sustainable transport practices 10. Risk Management and Resilience in Transport Systems 11. The role of transportation in international trade, global supply chains, and cross-border logistics 12. Transport Project Management - Planning, execution, and management of transportation projects (project life cycles and stakeholder engagement)		

	13. Applications of ITS - Traffic management, real-time information systems, and smart infrastructure. 14. Public-Private Partnerships in Transportation
Teaching methodology	The course is designed to provide a comprehensive learning experience, incorporating a range of teaching methods to enhance students' understanding and engagement. Students will benefit from interactive presentations and discussions, along with guided study of relevant textbooks and lecture notes. In addition, educational videos will help visualize complex concepts and case study analyses will enable students to apply the knowledge to real-world scenarios.
Bibliography	Required textbook: Janic, M. (2021). <i>Transport Systems Modelling, Planning, and Evaluation</i> (1st ed.). CRC Press. Rodrigue, J.-P. (2024). <i>The Geography of Transport Systems</i> (6th ed.). Routledge. Recommended textbook: Pagano, P. (2021). <i>Intelligent Transportation Systems From Good Practices to Standards</i> (1st ed.). CRC Press.
Assessment	This course has 2 summative assessments. The passing grade of this course is 60%. Students must receive 60% or above in both types of assessments, in order to complete this course successfully. 50% Coursework 50% Final Examination
Language	English / Greek