Course guides
280713 - 280713 - Logistics and Management of Maritime and Intermodal Transport

Last modified: 22/07/2020

Unit in charge: Barcelona School of Nautical Studies
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering.

Degree: MASTER'S DEGREE IN NAUTICAL SCIENCE AND MARITIME TRANSPORT MANAGEMENT (Syllabus 2016). (Compulsory subject).

Academic year: 2020 **ECTS Credits:** 5.0 **Languages:** Catalan, English, Spanish

LECTURER

Coordinating lecturer: MANEL GRIFOLL COLLS

Others:

DEGREE COMPETENCES TO WHICH THE SUBJECT CONTRIBUTES

Specific:
CE17-MNGTM. Gestión de actividades portuarias.

Generical:
CG7-MNGTM. Capacitat per gestionar, dirigir i coordinar la protecció del medi ambient marí i aplicar criteris de sostenibilitat mediambiental al transport marítim
CG15-MNGTM. (ENG) Capacidad para resolver problemas complejos y tomar decisiones con responsabilidad sobre bases científicas y tecnológicas en el ámbito de su especialidad
CG17-MNGTM. (ENG) Capacidad para dirigir y gestionar puertos deportivos
CG21-MNGTM. (ENG) Capacidad para realizar tareas de investigación, desarrollo e innovación en el ámbito de su especialidad

Transversal:
CT2. SUSTAINABILITY AND SOCIAL COMMITMENT: Being aware of and understanding the complexity of the economic and social phenomena typical of a welfare society, and being able to relate social welfare to globalisation and sustainability and to use technique, technology, economics and sustainability in a balanced and compatible manner.

CT4. EFFECTIVE USE OF INFORMATION RESOURCES: Managing the acquisition, structuring, analysis and display of data and information in the chosen area of specialisation and critically assessing the results obtained.

CT5. FOREIGN LANGUAGE: Achieving a level of spoken and written proficiency in a foreign language, preferably English, that meets the needs of the profession and the labour market.

Basic:
CB6. Possess knowledge and understanding that provide a basis or opportunity be original in the development and / or application of ideas, often in a research context.
CB7. That the students can apply their knowledge and ability to solve problems in new or unfamiliar environments within broader (or multidisciplinary) contexts related to their study area.
CB10. Students must possess the learning skills that enable them continue studying in a way that will be largely self-directed or autonomous.

TEACHING METHODOLOGY

The subject is semi-face-to-face in which it will provide to Atenea (academic platform) all the material to follow the course. At the beginning of the course the task will be provided, as well as the exercises to be delivered. It will be evaluated by an exam, the presentation of exercises and a practice in the computer room with the ARENA software.

LEARNING OBJECTIVES OF THE SUBJECT

The course focuses on the acquisition of knowledge on intermodal transport and activities and requirements necessary to develop this type of transport. The student will acquire the knowledge on the operation of maritime terminals, the different administrations and companies involved in the maritime sector. The student will be able to carry out logistics tasks as well as route management at both sea and land level.

STUDY LOAD

Type	Hours	Percentage
Hours large group	45,0	100.00

Total learning time: 45 h

CONTENTS

Introduction to intermodal freight transport.

Description:
Introduction to intermodal and multimodal transport of goods. The units of load in the intermodal transport. Cargo handling and mobility equipment in intermodal transport. Vehicles and systems for intermodal freight transport. Infrastructure and terminals for intermodal freight transport. Green quote and efficiency. Procedures. Fleet management.

Related activities:
Reading of a scientific or disseminate paper about these topic for further discussion.

Full-or-part-time: 29h
Theory classes: 1h
Self study : 28h

Stathistics and queueing theorhy applied to port managment and transportation.

Description:
Statistics applied to port management of transport. Statistics applied to port management of transport. Poisson function (discrete): type of process that describes, density and cumulative functions. Exponential (continuous) function: The type of process it describes, density and cumulative functions. Erlang function (continuous) - The type of process it describes, density and cumulative functions. Stochastic or probabilistic tail. Examples in the port areas. Tail Discipline. Arrivals-departures diagram. Diagram of Elements in the System. Little's formula. Kendall notation. Solution for the system M / M / 1. Relationships in terms of Wq between systems M / M / 1 and M / D / 1.

Related activities:
Exercises Block 1: POISSON AND EXPONENTIAL STATISTICAL DISTRIBUTION
Exercises Block 2: QUEUEING TEORHY APPLIED TO PORT MANAGEMENT AND TRANSPORT.

Full-or-part-time: 30h
Theory classes: 2h
Self study : 28h

Port management and governance

Description:
Models of port management and governance. Agents, private agents and admistration involved in port management (e.g. consignatarias, freight forwarders, dockers, mooring services, tugs, among others). Port routes, transhipment, interland / foreland. Demand studies (quantitative vs. qualitative models).

Related activities:
Reading of a scientific or disseminate paper about these topic for further discussion.

Full-or-part-time: 29h
Theory classes: 1h
Self study : 28h

Queue theory applied to the port structure

Description:
Description of the parameters "Dock occupation" and "Service level or Relative waiting time". Tables for obtaining the Service Level from the number of docks and the occupation of docks. Exercises Block 3: Queuing THEORY APPLIED TO PORT CAPACITY

Related activities:
Reading of a scientific or disseminate paper about these topic for further discussion. Exercises Block 3: QUEUING THEORY APPLIED TO PORT CAPACITY

Full-or-part-time: 29h
Theory classes: 1h
Self study : 28h

Study case: Port terminal simulation

Description:
Introduction to discrete event simulation applied to port terminals. Implementation of a simulation model about a port terminal. Modelling with the softwware ARENA.

Related activities:
Modelling with the softwware ARENA.

Full-or-part-time: 6h
Theory classes: 2h
Self study : 4h

GRADING SYSTEM

The final grade of the subject will be the average exam (60%) and the exercises (40%).

BIBLIOGRAPHY

Basic:
- Shortle, John F.; Thompson, James M.; Gross, Donald; Harris, Carl M. Fundamentals of queueing theory [on line]. 5th ed. Hoboken: John Wiley & Sons, 2018 [Consultation: 04/11/2019]. Available on: https://onlinelibrary.wiley.com/doi/book/10.1002/9781119453765. ISBN 9781119453765.
- Altiok, Tayfur ; Melamed, Benjamin. Simulation modeling and analysis with Arena [on line]. Amsterdam: Academic Press, 2007 [Consultation: 07/05/2020]. Available on: https://www.sciencedirect.com/science/book/9780123705235. ISBN B13227452.
- Notteboom, Theo. Current issues in port logistics and intermodality. Belgium: Garant Uitgevers, 2002. ISBN 9789044112900.

RESOURCES

Other resources:
Material didáctic de classe orientat a l'aprenentatge no-presencial.