280713 - Logistics and Management of Maritime and Intermodal Transport

Coordinating unit: 280 - FNB - Barcelona School of Nautical Studies
Teaching unit: 751 - DECA - Department of Civil and Environmental Engineering
Academic year: 2020
Degree: MASTER'S DEGREE IN NAUTICAL SCIENCE AND MARITIME TRANSPORT MANAGEMENT (Syllabus 2016). (Teaching unit Compulsory)
MASTER'S DEGREE IN NAVAL AND OCEAN ENGINEERING (Syllabus 2017). (Teaching unit Optional)
ECTS credits: 5
Teaching languages: Catalan, Spanish, English

Opening hours
Timetable: Meetings established through e-mail.

Degree competences to which the subject contributes

Basic:
CB6. Possess knowledge and understanding that provide a basis or opportunity to 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 to continue studying in a way that will be largely self-directed or autonomous.

Specific:
CE17-MNGTM. Gestión de actividades portuarias.

General:
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.
The course focuses on the acquisition of knowledge on intermodal transport and activities and requirements necessary to develop this type of transport.

**Teaching methodology**

The subject will be evaluated by an exam and the presentation of exercises.

**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.

**Study load**

| Total learning time: 45h | Hours large group: | 45h | 100.00% |
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<th>Introduction to intermodal freight transport.</th>
<th>Learning time: 29h</th>
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<td><strong>Description:</strong></td>
<td>Theory classes: 1h</td>
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**Related activities:**
- Reading of a scientific or disseminate paper about these topic for further discussion.

### Statistics and queueing theory applied to port management and transportation.

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<th><strong>Learning time:</strong> 30h</th>
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<td>Practical classes: 0h</td>
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**Description:**
- 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 THEORY APPLIED TO PORT MANAGEMENT AND TRANSPORT.
### Port management and governance

**Description:** Models of port management and governance. Agents, private agents and administration 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.

#### Learning time:
- 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

#### Learning time:
- 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 software ARENA.

**Related activities:**
Modelling with the software ARENA.

#### Learning time:
- Theory classes: 2h
- Self study: 4h

### Qualification system

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

Basic:


Others resources:

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