

## SUBJECT TEACHING GUIDE

G1071 - Ship Handling and Manoeuvring

Degree in Nautical Engineering and Maritime Transport

Academic year 2019-2020

1. IDENTIFYING DATA					
Degree	Degree in Nautical Engineering and Maritime Transport			Type and Year	Compulsory. Year 3
Faculty	School of Maritime Engineering				
Discipline	Subject Area: Manoeuvres				
Course unit title and code	G1071 - Ship Handling and Manoeuvring				
Number of ECTS credits allocated	6	Term	Semester based (2)		
Web					
Language of instruction	Spanish	English Friendly	No	Mode of delivery	Face-to-face

Department	DPTO. CIENCIAS Y TECNICAS DE LA NAVEGACION Y DE LA CONSTRUCCION NAVAL				
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### 3.1 LEARNING OUTCOMES

- Ship handling and manoeuvring. Manoeuvre and handle a ship in all conditions. Manoeuvring characteristics and interaction. Anchor operations. Operations with tugs.

#### 4. OBJECTIVES

Ship manoeuvring and handling Knowledge of:

- .1 the effects of deadweight, draught, trim, speed and under-keel clearance on turning circles and stopping distances
- .2 the effects of wind and current on ship handling
- .3 manoeuvres and procedures for the rescue of person overboard
- .4 squat, shallow-water and similar effects
- .5 proper procedures for anchoring and mooring
- .6 manoeuvres when approaching pilot stations and embarking or disembarking pilots, with due regard to weather, tide, headreach and stopping distances
- .7 handling ship in rivers, estuaries and restricted waters, having regard to the effects of current, wind and restricted water on helm response
- .8 application of constant-rate-of-turn techniques
- .9 manoeuvring in shallow water, including the reduction in under-keel clearance caused by squat, rolling and pitching
- .10 interaction between passing ships and between own ship and nearby banks (canal effect)
- .11 berthing and unberthing under various conditions of wind, tide and current with and without tugs
- .12 ship and tug interaction
- .13 use of propulsion and manoeuvring systems
- .14 choice of anchorage; anchoring with one or two anchors in limited anchorages and factors involved in determining the length of anchor cable to be used
- .15 dragging anchor; clearing fouled anchors
- .16 dry-docking, both with and without damage
- .17 management and handling of ships in heavy weather, including assisting a ship or aircraft in distress; towing operations; means of keeping an unmanageable ship out of trough of the sea, lessening drift and use of oil
- .18 precautions in manoeuvring to launch rescue boats or survival craft in bad weather
- .19 methods of taking on board survivors from rescue boats and survival craft
- .20 ability to determine the manoeuvring and propulsion characteristics of common types of ships, with special reference to stopping distances and turning circles at various draughts and speeds
- .21 importance of navigating at reduced speed to avoid damage caused by own ship's bow wave and stern wave
- .22 practical measures to be taken when navigating in or near ice or in conditions of ice accumulation on board
- .23 use of, and manoeuvring in and near, traffic separation schemes and in vessel traffic service (VTS) areas

#### 6. COURSE ORGANIZATION

##### CONTENTS

1	<ul style="list-style-type: none"> <li>.1 Propellers Forces due to the propellers.</li> <li>.2 Rudders.</li> <li>.3 Combined effect of the rudder and propeller</li> <li>.4 Ship handling: manoeuvring and stopping.</li> <li>.5 Mooring elements.</li> <li>.6 Anchoring elements.</li> <li>.7 Anchoring machines.</li> <li>.8 Approaching</li> <li>.9 Rivers and narrow channels navigation</li> <li>.10 Anchoring</li> <li>.11 Tugs</li> <li>.12 Manoeuvring at port</li> </ul>
2	<ul style="list-style-type: none"> <li>.13 Buoying</li> <li>.14 Colregs</li> <li>.15 SIC</li> </ul>

### 7. ASSESSMENT METHODS AND CRITERIA

Description	Type	Final Eval.	Reassessn	%
Pratice cases and exercises.	Others	No	Yes	80,00
Practice cases and exercises.	Work	No	No	20,00
<b>TOTAL</b>				<b>100,00</b>
<b>Observations</b>				
<p>Criteria for evaluating competence:            Safe operating limits of ship propulsion, steering and power systems are not exceeded in normal manoeuvres.            Adjustments made to the ship's course and speed to maintain safety of navigation            All decisions concerning berthing and anchoring are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while berthed alongside or lying at anchor            While under way, a full assessment is made of possible effects of shallow and restricted waters, ice, banks, tidal conditions, passing ships and own ship's bow and stern wave so that the ship can be safely manoeuvred under various conditions of loading and weather</p>				
<b>Observations for part-time students</b>				
Final exam on ship handling simulator plus write exam.				

### 8. BIBLIOGRAPHY AND TEACHING MATERIALS

#### BASIC

OMI (2003) COLREG. IMO, Londres 2004.  
 OMI (1987). Código Internacional de Señales. IMO, Londres, 1988.  
 Ship Handling. Theory and practice. (2007) DJ House. Elsevier. 1ª Ed.