


Standard Learning Guide  University of Cebu – Maritime Academy Alumnos, Mambaling, Cebu City (For Maritime Students)	Document Code: SLG-BSMT-01-00		Revision No. 00
	Date Filed: 02/26/2010	Date Reviewed : 4/21/2010	Page No. 01 of 08
	Prepared by : CAPT. ARNEL N. MALAGA OIC EMETERIO ABANGAN JR.		Date Effective: June 2010
	Approved by : YCG		
SECTION: STANDARD LEARNING GUIDE			
SUBJECT: LEARNING GUIDE (For Maritime Students): SEAM 5 (Shiphandling and Maneuvering)			

**LEARNING GUIDE
(For Maritime Students)**

Course Name : SHIP HANDLING AND MANEUVERING

Instructional Hours :

Lecture (L)	:	46.5 hours
Practical (P)	:	17.5 hours
Tutorial (T)	:	-
Total	:	64.0 hours

Entry Requirements :

Cadets must have completed and passed the following subjects: Seam-1, Seam-2, Seam-4, DWK-1, and DWK-2.

Subject Aims :

FOR REFERENCE ONLY

This subject aims to have the cadets identify and relate to the basic knowledge and principles of maneuvering ships of various sizes, drafts and trim considering the effects of wind, current, squat and shallow water. Evaluate the Turning Circles diagram and distinguish the procedures for anchoring and mooring.

Teaching Methods :

Instructions shall take place through a combination of lectures, simulators and computer-based training.

**UNIVERSITY OF CEBU – MARITIME ACADEMY
CONTROLLED DOCUMENT**

Document Code: SLG-BSMT-01-00	Revision No. 00
Subject : LEARNING GUIDE (For Maritime Students): SEAM 5 (Shiphandling and Maneuvering)	Page No. : 02 of 08

Assessment Methods :

Class Standing	:	70 %
		Seatwork - 15%
		Assignment - 10%
		Quizzes - 35%
		Practical Assessment - 40%
End of Course Examination	:	30 %

- Candidates shall have to score a minimum of 75 % in each assessment.
- Those candidates who fail to meet the above criteria shall be allowed one re-sit after which they will have to enroll for the entire course again.

Recommended Text, International Conventions, and Websites:

1. T1 – Kemp & Young, Seamanship Notes, 5th Edition, 1996
2. T2 – Graham Danton, Theory and Practice of Seamanship 10th edition, 1991
3. T3 – Mac Elverey, Ship Handling for Mariner, 2nd Edition, 1988
4. T4 – DJ House, Seamanship Techniques, Part 2 Shiphandling, 1990
5. T5 – Jose Luis Dizon, Shiphandling and Maneuvering (revised Edition) 2009
6. T6 – Nathaniel Bowditch, The American Practical Navigator, 2002 Bicentennial Edition
7. <http://www.ship-squat.com/How do I predict Ship Squat.htm>
8. <http://www.standard-club.com/docs/StandardSafety-Oct08.pdf>
9. <http://www.japanham.co.jp/en/service/pdf/scilling.pdf>

FOR REFERENCE ONLY

Study Guide

*Students are advised to pay particular attention to reference materials listed under "**Recommended Texts, International Conventions, and Websites**" over and above the notes that will be provided during lectures.*

Document Code: SLG-BSMT-01-00	Revision No. 00
Subject : LEARNING GUIDE (For Maritime Students): SEAM 5 (Shiphandling and Maneuvering)	Page No. : 03 of 08

A. Study Guide for Ship Handling

Students are advised to study Chapters discussing relevant topics in above-mentioned books ensuring that they fully understood what were explained.

1. With reference to engines, rudders, and thrusters, the students should be able to identify and compare various types of rudders and explain the use of engine and thrusters. *Ref. T5 – p.20.*
2. Students should fully understand the basic motions of the ship namely; lateral, longitudinal, and rotational and differentiate the controllable and uncontrollable forces that affect ship handling. *Ref.T5 – p.4 and T5 – pp.213 – 214.*
3. With reference to uncontrollable forces, they should be able to deduce how wind and current affects ship handling. *Ref. T1 – p.34, T2 – p.65, and T3 – pp.46 – 47.*
4. From the chapter explaining the cavitation and wake current, be able to narrate and express in your own words what causes cavitation and how it affects the rudder and speed. *Ref. T2 – p.55.*
5. Referring to the formulas given solve problems related to the following:
(*Ref. T4 – pp. 218 – 219, T5 – p.20.*)
 - a. Engine speed;
 - b. % Propeller Slip
6. From the reference *T3 – pp.18 – 20*, study the topics on directional stability and be able to:
 - a. explain what causes the following:
 - i. Positive directional stability;
 - ii. Negative directional stability;
 - iii. Neutral directional stability
 - b. explain how these affect the steering capability of the ship.
 - c. explain how trim and draught could change their effect.
7. Review the various commands used in helmsmanship and engine telegraph commands. Be able to execute them correctly when asked to do the simulator exercises.

B. Study guide for maneuvers for the Rescue of Man Overboard:

Students are advised to study Chapters discussing relevant topics in above-mentioned books ensuring that they fully understood what were explained.

1. Using the following references T1-pp.33,T2-pp.196-198,T3-pp.198-201and T4-pp.153-155, the students should be able to:
 - explain purpose of using Williamson's Turn.
 - summarize the procedures on how Williamson's Turn maneuver shall be carried out.
 - appreciate the effectiveness of this maneuver in the rescue of a Man Overboard.
 - execute "Williamson's Turn" maneuver during Simulator Exercise.

Document Code: SLG-BSMT-01-00	Revision No. 00
Subject : LEARNING GUIDE (For Maritime Students): SEAM 5 (Shiphandling and Maneuvering)	Page No. : 04 of 08

2. After reading and studying the topic on "Single Delayed Turn" using the Following references T2-pp.198 and T4-pp.155-156, the students should be able to:
 - explain purpose of using "Single Delayed Turn"
 - summarize the procedures on how Williamson's Turn maneuver shall be carried out.
 - appreciate the effectiveness of this maneuver in the rescue of a Man Overboard.
 - execute "Single Delayed turn" maneuver during Bridge Simulator Exercise.

3. Read and study the topic about the "Scharnow Turn maneuver" on pp. 33 reference T1, and be able to:
 - explain purpose of using "Single Delayed Turn"
 - summarize the procedures on how Williamson's Turn maneuver shall be carried out.
 - appreciate the effectiveness of this maneuver in the rescue of a Man Overboard.
 - execute "Single Delayed turn" maneuver during Bridge Simulator Exercise.

C. Study guide for "Turning Circles and Stopping Distances":

Students are advised to study Chapters discussing relevant topics in above-mentioned books ensuring that they fully understood what were explained.

1. On pp. 59 of the Reference T2, read and study the topics about the effects of loading, trim, list and carrying-away after which, the students should be able to:
 - comprehend and explain the effects of the ship's Deadweight and Displacement on the maneuvering characteristics of the ship.

2. Read and study the topic about "The Factors affecting Turn" on pp.221 of reference T4, in order for the students to be able to:
 - state and explain the following effects of draught on the "turning circles" ?
 - state the significant effects of draught on the "turning circles".

3. Read and study the topic about "The Effects of Trim" after which, the students should be able to:
 - state and explain how the ship's Trim affects the "Turning circle" and the "Stopping distance" of a vessel during such maneuvers.

4. On pp. 7 -14 of the Reference T3, read and study the topic about "Arrival" after which, the students should be able to:
 - enumerate and describe the different effects of various ships' speed, on the maneuvering characteristics of the vessel with regards to its "Turning Circle" and "Stopping Distance"
 - point out and identify how your ships' speed affects the vessel during simulator exercises.

Document Code: SLG-BSMT-01-00	Revision No. 00
Subject : LEARNING GUIDE (For Maritime Students): SEAM 5 (Shiphandling and Maneuvering)	Page No. : 05 of 08

5. Read and study the topic about "The Factors affecting Turn" under sub-topic (Available Depth of Water) on pp.221 of reference T4, after which the students should be able to:
 - understand and explain how the under keel clearance in relation to the vessels' draft affects the size and the diameter of the ships' Turning Circle.
6. On pp. 11 of the Reference T5 read and study the topic "How the Pivot Affects the Movement of the Ship" after which, the students should be able to:
 - state what is a "Pivot Point of a Ship"
 - determine the location of the "Pivot Point of a Ship"
 - explain the relationship between the location of the pivot point and the turning circle diameter.

D. Study guide for "Squat, Shallow waters, Blockage factors and Similar Effects":

Students are advised to study Chapters discussing relevant topics in the above-mentioned books ensuring that they fully understood what were explained.

1. On pp.61 of the Reference T2 and pp. 243 of the Reference T4 read and study the topics "The Effects of Shallows" and "Shallow Water and the Effects of Squat". After which, the students should be able to:
 - define what shallow water is.
 - assess how the effect of shallow water can be detected and experienced on board.
 - determine the effects of shallow water in relation to the ships' maneuverability.
2. Read and study the topics about "Squat" on pp. 64 of Reference T3 and "Shallow Water and the Effects of Squat" on pp.243 of Reference T4. Log on to <http://www.ship-squat.com/How do i predict Ship squat.htm> for further information about the topic. After which the students should be able to:
 - define what is Squat.
 - explain the effects of Squat in relation to the ships' maneuverability.
 - analyze how the effects of Squat can be minimized.
 - determine the necessary precautionary measures to consider in order preventing grounding.
 - define what Sinkage is.
 - solve various problems on sinkage and squat calculations.
 - construct "ships' squat curves" based on various speed factors.

Document Code: SLG-BSMT-01-00	Revision No. 00
Subject : LEARNING GUIDE (For Maritime Students): SEAM 5 (Shiphandling and Maneuvering)	Page No. : 06 of 08

3. On pp.70 - 72 of the Reference T5, read and study the topic "The Blockage Factor". After which, the students should be able to:
 - state the meaning of a "Blockage factor".
 - determine the effects of the "Blockage factor".
 - explain why the increase of the blockage factor may change the water around the ships' hull.
 - identify the following ships' information data involved in the Blockage factor Formula. (bxT) / (BxH)
 - use the "Blockage factor formula" in solving problems involving calculation of Blockage Factor.

E. Study guide for "Squat, Shallow waters, Blockage factors and Similar Effects":

Students are advised to study Chapters discussing relevant topics in the above-mentioned books ensuring that they fully understood what were explained.

1. Read and study the topics in Reference-T1 p. 53, T2- pp.16-17, and t4- pp.275-276 and summarize the following:
 - Procedure in dropping anchor (including anchoring in deep water)
 - Safety precautions that should be observed.
2. Read reference T1- pp.50-53, T2- p.3 and be able to present drawings of different types of anchors and windlass:
 - Identify and label the various parts:
 - Discuss the functions of each part of the windlass
3. In reference to Ref. T1-p.54, T2- p.19 and T5 pp.98-99 be able to:
 - Calculate the scope of cable to be used
 - Explain the factors to be considered when deciding the length of cable to be used for anchoring.
4. On pp. 55-56 of the Reference T1 and p.22 of the Reference T2, read and study the topics "Dropping and Weighing Anchor". After which, the students should be able to:
 - Enumerate the procedures to be followed in "Dropping and Weighing of Anchor" in a checklist format.
 - Summarize the safety procedures to be followed in "Dropping and Weighing of Anchor"
 - Outline the procedures in anchoring on deep waters.

Document Code: SLG-BSMT-01-00	Revision No. 00
Subject : LEARNING GUIDE (For Maritime Students): SEAM 5 (Shiphandling and Maneuvering)	Page No. : 08 of 08

- Interact during discussions, about the adverse effects subjected to a vessel navigating or maneuvering on :
 - a. Narrow Canals
 - b. Rivers
 - c. Restricted Channels
- Explain the necessary precautionary measures to be carried out in order to maintain ships' maneuverability in Narrow Canals, Rivers and Restricted Channels.

11. On pp. 121-122 of the Reference T6 read and study the topic "Bunk cushion and Suction Effects". After which, the students should be able to:

- Interact during discussions, about the different responses of a vessel experiencing the Bunk cushion and Suction effects.

12. Read and study the topic on "Contingency Plans for Heavy Weather" found on pp.72-77 on the Reference T4, prior to discussion. After which, the students should be able to:

- Interact and relate during discussions, with regards to the vessel's contingency action plans to be carried out when expecting heavy weather.
- Enumerate the standard procedures in checklist form, the various shipboard preparations that should be done during heavy weather situation.
- Describe the effects of Heavy Weather on a vessel at sea.
- Enumerate the options available to a vessel running into heavy weather at sea.
- Carry-out maneuvering techniques of a ship model in heavy weather scenario during simulator exercises.

Checked and Verified by:

Date:

UC-DNV-SEASKILL ACADEMIC COORDINATOR

Noted by:

DEAN/ACADEMIC HEAD

Legend:

CMO NO. 13, S.2005
SCS
SLP
SEA
SLG

(CHED MEMORANDUM ORDER NO. 13, SERIES 2005)
(STANDARD COURSE SYLLABUS)
(STANDARD LESSON PLAN)
(STANDARD EXAMINATION AND ASSESSMENT)
(STANDARD LEARNING GUIDE)

UC/SLG-BSMT-01-00/SEAM 5/

**UNIVERSITY OF CEBU – MARITIME ACADEMY
CONTROLLED DOCUMENT**