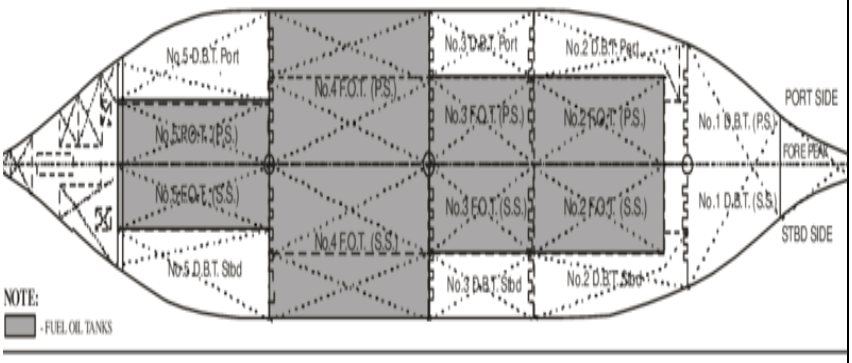
Exercise Plan Template
(Instructor's Copy)

<table>
<tr><td>Course Title</td><td>Management Level Course for Marine Engine Officers (Function 4)</td></tr>
<tr><td>Exercise No.</td><td>A7.1</td></tr>
<tr><td>Exercise Title</td><td>Applying the appropriate measure to maintain the stability and stress conditions within safety limits at all times during operation</td></tr>
<tr><td>Duration</td><td>1.5 hours</td></tr>
<tr><td>Function</td><td>Function 4 - Controlling the Operation of the Ship and Care for Persons on Board at the Management Level</td></tr>
<tr><td>Competence</td><td>Control trim, stability and stress</td></tr>
<tr><td>Knowledge, Understanding and proficiency</td><td>Understanding of fundamental principles of ship construction and the theories and factors affecting trim and stability and measures necessary to preserve trim and stability</td></tr>
<tr><td>Intended Learning Outcome/s</td><td>Upon completion of this topic, the trainees/participants should be able to apply the appropriate measure to maintain the stability and stress conditions within safety limits at all times during operation through a given scenario</td></tr>
<tr><td>Training Equipment</td><td>N/A</td></tr>
<tr><td>Scenario Description</td><td>A bulk carrier ship with no set schedule of loading at port received an instruction to bunker a very low sulfur fuel oil (VLSFO) on its next port of call at Singapore, five days prior to arrival. The instruction is to carry as much as possible VLSFO utilizing two fuel oil tanks, capable of five days continuous operation. The ship's average consumption is 20MT ± 2MT. Engine crew must prepare bunkering plan prior arrival at Singapore.</td></tr>
<tr><td>Initial Condition</td><td>The ship is in ballast condition with the following fuel oil tank capacity and content. All tank has 0.1MT unpumpable content
<table>
<tr><th>Tank</th><th>CAPACITY (M3)</th><th>ROB (MT)</th><th>Content</th></tr>
<tr><td>2P</td><td>500</td><td>0.1</td><td>VLSFO</td></tr>
<tr><td>2S</td><td>500</td><td>0.1</td><td>VLSFO</td></tr>
<tr><td>3P</td><td>500</td><td>400</td><td>MDO</td></tr>
<tr><td>3S</td><td>500</td><td>100</td><td>MDO</td></tr>
<tr><td>4P</td><td>1000</td><td>600</td><td>HFO</td></tr>
<tr><td>4S</td><td>1000</td><td>800</td><td>HFO</td></tr>
<tr><td>5P</td><td>500</td><td>50</td><td>HFO</td></tr>
<tr><td>5S</td><td>500</td><td>50</td><td>HFO</td></tr>
<tr><td>1DBT (PS)</td><td>200</td><td>100</td><td>BALLAST</td></tr>
</table></td></tr>
</table>

1DBT (SS)	200	100	BALLAST
2DBT (PS)	200	100	BALLAST
2DBT (SS)	200	100	BALLAST
3DBT (PS)	200	100	BALLAST
3DBT (SS)	200	100	BALLAST
5DBT (PS)	200	100	BALLAST
5DBT (SS)	200	100	BALLAST



(Attach table for trainee's copy)

Instructor's Action	Instructor should follow the steps for the entire duration of the exercise to ensure the effective and safe conduct of the practical exercise: ● Before the start of the exercise, ensure that the facilities and equipment are ready; ● Divide the class into 4-member groups; ● Conduct briefing; ● Start the practical exercise; ● Monitor the performance of the trainees using the attached checklist; ● Remind the trainee of the time left and actions not related to the exercise; ● Stop the exercise if there is any deviation from the required procedure, then explain the reason and give further instruction; ● Conduct debriefing

Exercise Procedure	
Briefing	Before the start of the exercise, ensure that the following are fully understood by the trainees: • The measures to be observed during the execution of the exercise • The specified intended learning outcomes and execution of the performance criteria of the exercise; • The attitude, as a management level officer to be shown by the trainee during practical exercises • The need to treat the activity as it is a real-life situation; • The best management practices applicable; and • The monitoring and assessment to be conducted during and after the completion of exercise; • Seek clarifications and concerns regarding the instructions given prior commencing the simulation exercise
Trainee's Action	Trainee should follow the instruction of the facilitator and participate to the following: • Conduct Pre-Bunkering Checks • Develop Bunkering Plan • Determine Tank Capacities • Calculate Fuel and Ballast Adjustments • Distribute Fuel Load • Equally distribute the fuel oil load among the tanks. • Identify the distribution of weights in the bunkering plan.
Debriefing	Start the debriefing by stating the purpose of the debriefing and encourage peer review and discussions then: • ask the trainees how they went about the exercise and what challenges they encountered; • state whether the intended learning outcomes were achieved; • provide the result of the exercise using the checklist provided based on the criteria for assessing the competence; and • discuss the positive accomplishment as well as the points for improvements if any. • Always be diplomatic in any objection of the trainee and take note of the comment regarding the exercise

Monitoring Checklist			
Performance Criteria	***Done***	***Not Done***	***Observations / Comments***
1. Preparing for bunkering: Proper planning and critical safety checks.			
1.1 Specific measures are identified prior to bunkering to maintain stability and stress			

1.2 Created a bunkering plan taking into consideration the specific measures identified in maintaining stability and stress conditions of the ship			
1.3 Maximum capacity possible to be loaded is specified and identified for each tank			
1.4 Calculated the equivalent weight and volume of the identified VLSFO			
1.5 Calculated the equivalent amount of water to be reduced in the ballast tank			
1.6 Equally distributed the fuel oil load within the tanks			
1.7 Distribution of weights are clearly identified in the plan.			

Note: This sample practical Exercise Sheet was used during the conduct of pilot testing, MTI may enhance this taking into account the Resources they have.