



COURSE DELIVERY PLAN - THEORY

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Department of Marine Engineering		LP: MR18022
B.E/B.Tech/M.E/M.Tech : MARINE	Regulation: 2018	Rev. No: 01
PG Specialisation : N/A		Date: 21.02.2022
Sub. Code / Sub. Name : MR18022 Special Duty Vessels and Types of Operations		
Unit: I	TYPES OF SPECIAL DUTY VESSELS	

Unit Syllabus: Need for special duty vessels with reference to development of trade and necessities of the trade. Operation of Bulk carriers — Bulk Grain and ore carrier — Coal Carriers — Product carriers — Gas carriers — Container vessels.

Objective: The students will acquire knowledge on types of special duty vessels

Session No *	Topics to be covered	Ref	Teaching Aids
1.	Need for special duty vessels - Reference to development & necessities of trade	T 4 Chapter 1	PPT / BB
2.	Need for special duty vessels - Reference to development & necessities of trade	T 4 Chapter 1	PPT / BB
3.	Introduction to Bulk Grain carrier	T 4 Chapter 1	PPT / BB
4.	Introduction to Ore carrier	T 4 Chapter 5	PPT / BB
5.	Introduction to Coal Carriers	T 4 Chapter 5	PPT / BB
6.	Introduction to Oil tankers	T 4 Chapter 5	PPT / BB
7.	Introduction to Product tankers	T 4 Chapter 5	PPT / BB
8.	Introduction to Gas carriers	T 4 Chapter 5	PPT / BB
9.	Introduction to Container vessels	T 4 Chapter 5	PPT / BB
Content beyond syllabus covered (if any):			

* Session duration: 50 minutes



Sub. Code / Sub. Name: **MR18022 Special Duty Vessels and Types of Operations**

Unit: II **CARGO OPERATIONS IN OIL TANKER**

Unit Syllabus: Pipeline systems — Ring main — Direct Line — Combined — Free flow system — Stripping lines. Lining up pipe lines and cargo operations — loading more than one grade — discharging — ballasting — precautions — ship / shore check list safety goods — sources of ignition on — static electricity — precautions to prevent ignition due to static electricity cargo operations when not secured alongside — procedure if oil spill occurs — oil record book

Objective: The students will acquire knowledge on cargo operations in oil tanker

Session No *	Topics to be covered	Ref	Teaching Aids
10	Pipeline systems -Ring main ,Direct Line	T 1 Chapter 5	PPT / BB
11	Free flow system	T 1 Chapter 5	PPT / BB
12	Loading more than one grade of cargo oil	T 1 Chapter 5	PPT / BB
13	Discharging and ballasting – precautions	T 1 Chapter 5	PPT / BB
14	Ship / shore check list prior cargo operation	T 1 Chapter 5	PPT / BB
15	Sources of ignition -Static electricity	T 1 Chapter 5	PPT / BB
16	Cargo operations when not secured alongside	T 1 Chapter 5	PPT / BB
17	Procedure to be followed, if oil spill occurs.	T 1 Chapter 5	PPT / BB
18	Oil record book	T 1 Chapter 5	PPT / BB

Content beyond syllabus covered (if any):

* Session duration: 50 minutes



Sub. Code / Sub. Name: **MR18022 Special Duty Vessels and Types of Operations**

Unit: III **OIL TANKERS ROUTINE OPERATIONS**

Unit Syllabus: Inert Gas system — principle — components of system, plant and distribution system — uses of inert gas during tanker operating cycle. Tank washing: Procedure — portable and fixed machines — tank washing with water — washing atmospheres — crude oil washing (COW) — advantages and disadvantages of COW — operating and safety procedures — gas freeing — pressure vacuum values — "Load on Top" system (LOT) regulations and operation — Segregated Ballast Tanks (SBT).

- **Objective:** The students will be able to acquire knowledge on Oil tankers routine operations

Session No *	Topics to be covered	Ref	Teaching Aids
19	Inert Gas system - Principle and components	T 1 Chapter 6	PPT / BB
20	Inert gas application during tanker operating cycle.	T 1 Chapter 6	PPT / BB
21	Tank washing: Procedure	T 1 Chapter 6	PPT / BB
22	crude oil washing (COW)	T 1 Chapter 6	PPT / BB
23	advantages and disadvantages of COW	T 1 Chapter 6	PPT / BB
24	Gas freeing operation	T 1 Chapter 6	PPT / BB
25	"Load on Top" system (LOT)	T 1 Chapter 6	PPT / BB
26	pressure vacuum valves	T 1 Chapter 6	PPT / BB
27	Segregated Ballast Tanks (SBT)	T 1 Chapter 6	PPT / BB

Content beyond syllabus covered (if any):

* Session duration: 50 minutes



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Unit: IV **INTRINSICALLY DANGEROUS CARGOES**

Unit Syllabus: Dangerous goods — loaded in bulk — packaging — IMDG code — emergency procedures - 'MS & M' notices — general fire precautions, during loading / discharging, - fire fighting and detection system. Liquefied gas cargoes — regulations types of cargo and carriers — LPG and LNG — cargo handling equipments tank monitors and controls — operational procedures loading and discharging of LPG/LNG cargoes — chemical cargoes regulations, operations — bulk chemical carriers — tank material and coatings — tank washing — cargo record book — equipment items precautions to be observed during cargo operations in port — fire protection — personnel protection.

Objective: The students will be able to acquire knowledge about handling dangerous cargoes like LNG/LPG

Session No *	Topics to be covered	Ref	Teaching Aids
28	IMDG code-Dangerous goods loaded in bulk and packaging	T 1 Chapter 7	PPT / BB
29	Emergency procedures -Dangerous cargo operation	T 3 Chapter 9	PPT / BB
30	MS & M notices -General fire precautions, during loading / discharging of dangerous cargoes	T 1 Chapter 2	PPT / BB
31	Loading and discharging of LPG/LNG	T 3 Chapter 10	PPT / BB
32	LPG and LNG – cargo handling equipments	T 3 Chapter 7	PPT / BB
33	Chemical Cargo tank material, coating and washing	T 2 Chapter 6	PPT / BB
34	Cargo record book	T 1 Chapter 7	PPT / BB
35	Precautions to be observed during chemical cargo	T 1 Chapter 7	PPT / BB
36	Personal protection while handling chemical cargo	T 1 Chapter 7	PPT / BB

Content beyond syllabus covered (if any):

* Session duration: 50 minutes



Sub. Code / Sub. Name: **MR18022 Special Duty Vessels and Types of Operations**

Unit: V **RULES AND REGULATIONS**

Unit Syllabus: Classification society Rules & regulations for cargo ships and Oil tankers- requirements of various types of surveys and certification of merchant ships.

Objective: The students will be able to acquire knowledge about Classification society regulations

Session No *	Topics to be covered	Ref	Teaching Aids
37	Classification society Rules & regulations for hull-cargo ship	R1 Part-3	PPT / BB
38	Classification society Rules & regulations for cargo ship Equipments	R1 Part-3	PPT / BB
39	Classification society Rules & regulations for cargo ship Machineries	R1 Part-3	PPT / BB
40	Classification society Rules & regulations for hull-Oil Tanker ships	R1 Part-5	PPT / BB
41	Classification society Rules & regulations for Oil Tanker Equipments	R1 Part-5	PPT / BB
42	Classification society Rules & regulations for Oil Tanker Machineries	R1 Part-5	PPT / BB
43	Types of surveys	R1 Part-1	PPT / BB
44	Requirements for various types of survey	R1 Part-1	PPT / BB
45	Certification of Merchant Ships	R2 Annex	PPT / BB
Content beyond syllabus covered (if any):			

* Session duration: 50 minutes



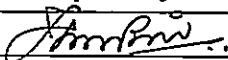
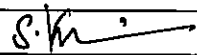
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TEXT BOOKS:

1. "Ship Board operation", by Lavery 2nd Edition, Butterworth-Heinemann, London.
2. "Marine Auxiliary machinery" by H.D. Mc George Butterworth Publications 9th Edition.
3. "Gas Carrier for Joiners" by Ganapathy Suresh, Vi Ve Publications, Chennai
4. "Ship construction for marine Engineers", Paul A Rusell, Thomas Reeds 6th Edition 2016

REFERENCES:

1. Indian register of shipping Part 1 to part 5, "Rules and regulations & classification of steel ships" 1st Edition Mumbai.
2. SOLAS Consolidated Edition 2016 – Bandarakar Publication, Mumbai
3. MS & M NOTICES to Mariners, 1st Edition, Bhandarkar Publications Mumbai 1998

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Remarks *:		
Remarks *:		

* If the same lesson plan is followed in the subsequent semester/year it should be mentioned and signed by the Faculty and the HOD