



COURSE DELIVERY PLAN - THEORY

Department of Marine Engineering		LP: MR18703
B.E/B.Tech/M.E/M.Tech : B.E. Marine Engineering	Regulation:2018	Rev. No: 00
PG Specialisation : NA		Date: 24.07.21
Sub. Code / Sub. Name : MR18703 , Ship's Fire Prevention and Control		
Unit : I		

**Unit Syllabus:** Fire protection built in Ships: SOLAS convention, requirements in respect of materials of construction and design of ships, (class A, B, type BHDS), fire detection and extinction systems, fire test, escape means, electrical installations, ventilation system and venting system for tankers. Statutory requirements for firefighting systems and equipments on different vessels, fire doors & fire zones.

**Objective:** To learn about fire detection and extinction systems, ventilation system and related statutory requirements.

Session No *	Topics to be covered	Ref	Teaching Aids
1	SOLAS convention	1- ch:8-	PPT , BB
2	SOLAS requirements in respect of construction and design of ships, Class-A,B type bulkheads	2- ch:4-	PPT , BB
3	Fire Detection and extinction system	5- ch:8-	PPT , BB
4	Fire test and escape means	1- ch:10-	PPT , BB
5	Electrical installations	1- ch:8-	PPT , BB
6	Ventilation system and venting system for tankers	1- ch:10-	PPT , BB
7	Statutory requirements for firefighting systems and equipments on different vessels	3- p53to	PPT , BB
8	Statutory requirements for firefighting systems and equipments on different vessels	2- ch:4-	PPT , BB
9	Fire doors and fire zones	2- ch:4-	PPT , BB
Content beyond syllabus covered (if any):			

\* Session duration: 50 minutes



Sub. Code / Sub. Name: MR18703 , Ship's Fire Prevention and Control

Unit : II

**Unit Syllabus:** Detection and Safety Systems: Fire safety precautions on cargo ships, tankers and passenger ships during working. Types of detectors, Heat detector, Smoke detector and flame detector selection of fire detectors and alarm systems and their operational limits. Commissioning and periodic testing of sensors and detection system. Description of various systems fitted on ships. Their operational limits

**Objective:** To learn about fire safety precautions, fire detector, alarm systems onboard.

Session No *	Topics to be covered	Ref	Teaching Aids
1	Fire safety precautions on cargo ships	1-ch:11-337to348	PPT , BB
2	Fire safety precautions on tankers and passenger ships	1-ch:11-355	PPT , BB
3	Types of Detectors	5-ch:8-303to310	PPT , BB
4	Heat detector and sprinkler	5-ch:8-303	PPT , BB
5	Smoke detector and flame detector	5-ch:8-308	PPT , BB
6	Selection of fire detectors and alarm systems and their operational limits	2-ch:6-179	PPT , BB
7	Commissioning and periodic testing of sensors and detection system	2-ch:6-202	PPT , BB
8	Description of various systems fitted on ships	5-ch:8-318,319	PPT , BB
9	Description of various systems fitted on ships	5-ch:8-318,319	PPT , BB

Content beyond syllabus covered (if any):

\* Session duration: 50 mins





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Unit : III		

**Unit Syllabus:** Fire Fighting Equipment: Fire pumps, hydrants and hoses, couplings, nozzles and international shore connection, construction, operation and merits of different types of portable, non-portable and fixed fire extinguishers installations for ships, properties of chemicals used, water-mist fire suppression system. Advantages of various fire extinguishing agents including vaporizing fluids and their suitability for ship's use. Control of class A, B, C & class D fires, Combustion products & their effects on life safety.

**Objective:** To learn about various fire fighting equipments, the properties of the chemicals used (CO<sub>2</sub>, Inert gas etc.,). To learn about fireman's outfit.

Session No *	Topics to be covered	Ref	Teaching Aids
1	Fire pumps	1-ch-8-161	PPT , BB
2	Hydrants and hoses, couplings, nozzles and International shore connection	1-ch-8-156to160	PPT , BB
3	Construction, operation and merits of different types of portable fire extinguishers	5-ch-8-321to326	PPT , BB
4	Construction, operation and merits of different types of non-portable and fixed fire extinguishers installations for ships	5-ch-8-327to339	PPT , BB
5	Properties of chemicals used, Water mist fire suppression system	1-ch-8-191	PPT , BB
6	Advantages of various fire extinguishing agents including vaporizing fluids and their suitability for ship's use	1-ch-8-179	PPT , BB
7	Control of class A,B,C and Class-D fires	1-ch-8-139to145	PPT , BB
8	Combustion products & their effects on life safety	1-ch-8-183	PPT , BB
9	Combustion products & their effects on life safety	1-ch-8-183	PPT , BB
Content beyond syllabus covered (if any):			

\* Session duration: 50 minutes





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Unit : IV		

**Unit Syllabus:** Fire Control: Action required and practical techniques adopted for extinguishing fires in accommodation, machinery spaces, boiler rooms, cargo holds, galley, etc. Fire fighting in port and dry dock. Procedure for re-entry after putting off fire, Rescue operations from affected compartments. First aid, fire organization on ships, shipboard organization for fire and emergencies. Combustion products and their effects on life safety, fire signal and muster. Fire drill. Leadership and duties, Fire control plan, human behavior.

**Objective:** To learn about techniques for fighting fires in various parts of ships, ports and dry docks. To understand reentry procedures, rescue operation, first aid and fire organization on board ships

Session No *	Topics to be covered	Ref	Teaching Aids
1	Action required for extinguishing fire in accommodation, machinery spaces	1-ch:12-410,413	PPT , BB
2	Action required to extinguish fire in Boiler rooms, cargo holds,galley..etc.	1-ch:12-405,412	PPT , BB
3	Fire fighting in port and dry dock	2-ch:12-409to418	PPT , BB
4	Procedure for re-entry after putting off fire	1-ch:12-255,256	PPT , BB
5	Rescue operations from affected compartments, First aid, Fire organization on ships	1-ch:12-421,422	PPT , BB
6	Shipboard organization for fire and emergencies	1-ch:12-395to,398	PPT , BB
7	Combustion products and their effects on life safety, fire signal and muster	1-ch:12-393,394	PPT , BB
8	Fire drill leader ship and duties, fire control plan, human behavior	1-ch:12-391to402	PPT , BB
9	Fire drill leader ship and duties, fire control plan, human behavior	1-ch:12-391to402	PPT , BB

Content beyond syllabus covered (if any):

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Unit : V		

**Unit Syllabus:** Safety Measures - Special safety measures for preventing, fighting fire in tankers, chemical carriers, oil rigs, supply vessels, and fire fighting ships - Safe working practice with respect to fire on board ships and first aid for hazards arising from fire in ships.

**Objective:** To learn basics of ship board fires, various fire extinguishers, agents and their utility with respect to shipping

Session No *	Topics to be covered	Ref	Teaching Aids
1	Special safety measures for preventing, fighting fire in tankers	1-ch:11-355to370	PPT , BB
2	Special safety measures for preventing ,fighting fire in chemical carriers	1-ch:11-349to352	PPT , BB
3	Special safety measures for preventing fighting fire in oil rigs	1-ch:15-433	PPT , BB
4	Special safety measures for preventing, fighting fire in supply vessels	2-ch:7-230	PPT , BB
5	Special safety measures for preventing, fighting fire in fire fighting ships	2-ch:7-223	PPT , BB
6	Safe working practice with respect to fire onboard ships	3-p19	PPT , BB
7	First aid for hazards arising from fire in ships	2-ch:4-72to84	PPT , BB
8	Revision		PPT , BB
9	Review and CAT-III		PPT , BB

Content beyond syllabus covered (if any):

\* Session duration: 50 minutes





REFERENCES:

1. Frank Rush Brook, "Fire Aboard", 3rd Edition, Brown, son & Ferguson Ltd., Glasgow 1922.
2. M.G. Stavitsky, V.I. Vostryakov, M.F. Kortunov, V.I. Martynenko & V.M. Sidorych., "Fire Fighting Aboard ships", Vol. I & Vol. II, Structural Design and Fire Extinguishing System, 1st edition, published by Gulf publishing company, Houston, London, 1983.
3. D.G. Shipping, Fire Fighting Appliances Rules (1969/1990), 3rd edition published by Bhandarkar Publications, Mumbai, 1996
4. IMO, SOLAS (Safety of Life At Sea) 3rd Edition, International Maritime Organization, London, UK, 2001.
5. Leslie Jackson, Reed's General Engineering Knowledge for Marine Engineers Vol.2, 4th Edition, Thomas Reed publication, Great Britain, 1986.

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Remarks\*: The Same lesson plan is followed in the Subsequent Semester  
*S. Kalidoss* 26.7.22  
*S.K.* 12/8/22  
 HOD - MAR

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