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MASSACHUSETTS MARITIME ACADEMY
DEPARTMENT OF MARINE TRANSPORTATION
DANGEROUS LIQUID CARGO
Course MT-3151

Fall 2011
Classroom: Harrington H104
Lab Bresnahan 132
Instructor: Capt.Brady
Lab Instructor: Capt. Brady

SCOPE

The Dangerous Liquid Cargo Course is designed to meet the the STCW code regulations V/1 and V/2 as well as 46 CFR 10.910 and 46 Part 13 of the U.S. Code appropriate to the duties of Tankerman PIC. This course utilizes formal instruction, hands-on demonstrations and state of the art simulator training to provide students with experiences in liquid cargo handling that would otherwise demand years of seagoing experience.

WEEKLY LEARNING OUTCOMES

The expected learning outcome is that the trainee...

1. Explains tanker construction purpose and trade
2. Describes the exploration, refining and distribution of oil
3. Identifies tank layout and piping Systems
4. Demonstrates loading and discharging operations
5. Explains planning a load
6. Identifies safe ballast operations
7. Demonstrates tank cleaning operations
8. Describes Inert Gas and Crude Oil Wash Systems
9. Relates marine vapor control systems to vessel operations
- 10 Identifies the concepts behind tanker fire safety
11. Relates issues of oil in the environment to tanker safety
12. Describes the duties of the 3rd and Chief Mates aboard a tank vessel

SPECIFIC COURSE OBJECTIVE

This course satisfies the training course requirements necessary for an endorsement as :
Tankerman-PIC
Tankerman PIC(Barge)
Tankerman -Assistant
Tankerman-Engineer

A grade of less than C- will not fulfill the USCG mandated STCW requirements for issuance of either a Third Mate Unlimited license or an STCW OICNW certificate.

Demonstration of competencies relating to dangerous liquid cargo handling are also required for successful course completion.

PROCEDURE AND POLICY

Attendance at all classes and labs is mandatory. Disciplinary action and grade point reduction will be administered to policy offenders. UNEXCUSED ABSENCES RESULT IN A 5 POINT FINAL GRADE REDUCTION PER ABSENCE. Notice of absence must be given to the instructor prior to the respective class. Examinations missed as a result of unauthorized absence incur a grade of zero. Cadets are responsible for all reading assignments, classroom lectures, and assigned projects. You may be quizzed at any time without notice. The grading policy is a 12 point system.

The grading matrix will be factored as follows

Regular Exams:	60%
Lab Projects:	10%
Participation/Attendance/Homework	10%
Final Exam	20%

Course materials will be handed out and should be kept neatly in a three ring binder for present and future reference.

At all times every cadet will observe Academy standards of personal appearance and conduct as specified by Academy regulations. This may include waiting for an instructor at least twenty minutes after the scheduled class start. Changes of Laboratory venue sometimes cause confusion. If so find your lab instructor!

It is the students' responsibility to seek extra help whenever needed. I am available during office hours (see schedule provided) and any mutually convenient time. Please do not hesitate to seek help. If you need help I will find the time to help you!

USCG/ STCW approved DLC Syllabus

Textbook: TANKER OPERATIONS, Huber, 4th Edition, CMP

Week	Topic	Reading assignment
1.	Tanker construction, Purpose and Trade	Ch. 1
2.	Exploration, refining and distribution of oil	Ch. 2 and 3
3.	Tank Layout and Piping Systems	Ch. 4 and 7
4.	Loading and Discharging Operations	Ch. 8
5.	Planning a Load	Ch. 6
6.	Ballast Operations	Ch.11
7.	Tank cleaning operations	Ch. 12 and 13
8.	Inert Gas and Crude Oil Wash Systems	Ch. 15 and 12
9.	Marine Vapor Control Systems	Ch. 5
Continued....		
10.	Tanker Fire Safety	Ch. 16
11.	Oil in the Environment	Ch. 14

12. Duties of the 3rd and Chief Mates

lecture

All lecture, reading and oral report material is fair game for tests. All reading assignments are expected to be completed before the week listed in the syllabus. Tanker Lab Projects will be assigned during weeks two and three of the semester. Attendance at all classes/ labs is mandatory. No eating, drinking or use of tobacco products is allowed. Any disclosure of learning disability (should you choose to disclose) should be made directly from the student to the instructor within the first two weeks of class. The Instructor will attempt to make any reasonable allowances.

DLC LAB LEARNING OUTCOMES

LAB Number 1 Simulator Orientation

The expected Learning Outcome is that the trainee:

- .1 Complete student Orientation for the Liquid Cargo Handling Simulator
- .2 Identifies tank layout and piping systems of the Suezmax product carrier model: Tank numbering, system layout and the various cargo and support piping.

LAB Number 2 Tank Measurements and Gauging

The expected Learning Outcome is that the trainee:

- .1 Demonstrate taking cargo measurements including ullages, thieving, water cuts and temperature

LAB Number 3 Tank Vessel Cargo Systems

The expected Learning Outcome is that the trainee:

- .1 (examines) Pumps, Valves and Piping specifications. Tracing the piping systems aboard the LCHS.
- .2 understands 46 CFR 32.50 Pumps, piping and hoses for cargo handling
- .3 understands 46 CFR 32.55 ventilation and venting

LAB Number 4 Cargo Oil Loading Exercise

The expected Learning Outcome is that the trainee:

- .1 Using the LCHS simulator, line-up empty tanker for cargo. All valves closed, tanks inerted. No VEC or IGS. Ballast full. Maintain status board, sign D.O. I., when ready, commence to load one grades via three hoses. Load to safely maximize rate of loading.

LAB Number 5 Cargo Oil Discharge Exercise

The expected Learning Outcome is that the trainee:

- .1 Using the LCHS simulator, discharge specific tanks. All valves closed, tanks inerted. Minimal Ballast. Maintain status board. When ready commence to discharge all cargo via cargo pumps.

LAB Number 6 Ballast/ De-Ballast Exercise

The expected Learning Outcome is that the trainee:

- .1 Use the LCHS simulator to load cargo while simultaneously discharging segregated ballast

LAB Number 7 IGS/ COW Exercise

The expected Learning Outcome is that the trainee:

- .1 Use the LCHS simulator to monitor tank washing using the COW system. At the commencement of the exercise, the tanks are inerted and the IGS system is operating. Cargo discharge is already in progress. Crude oil wash heavy weather ballast tanks.

LAB Number 8 Inert Gas / Crude Oil Washing Exercise

The expected Learning Outcome is that the trainee:

- .1 Using the LCHS simulator, line-up the inert gas system and put gas to deck. Conduct atmosphere testing of tanks to be crude oil washed. Line up the crude oil wash system and commence washing operations of identified tanks after removing one meter of liquid from tanks used to supply the COW system.

LAB Number 9 Vapor Emission Recovery Exercise

The expected Learning Outcome is that the trainee:

- .1 Using the LCHS simulator, line-up and operate VEC system, then commence loading the tanker.

LAB Number 10 Execution of a Loading Plan

The expected Learning Outcome is that the trainee:

- .1 LCHS simulator exercise starts with discharge in progress. Student uses CARGOMAX to monitor hull stress, drafts and trim. Student develops skills in establishing rate for determining finish of cargo. Ballasting started and rates taken of cargo discharge and ballasting.

LAB Number 11 Execution of a Loading Plan

The expected Learning Outcome is that the trainee:

- .1 Use the LCHS simulator, exercise involving partial discharge and stripping of cargo tanks. Student uses CARGOMAX to monitor hull stress, drafts and trim. Student to ballast accordingly to relieve excess stress and maintain trim and drafts within prescribed limits.

LAB Number 12 Execution of a ballast plan

The expected Learning Outcome is that the trainee:

.1 Use the LCHS simulator to Start Heavy Weather Ballast
Discharge is nearing completion.