ENGINEERING DEPARTMENT

CRUISE 250

Spring 2014

SEA TRAINING II

Heading for The Far East

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CRUISE 250 SEA TRAINING II (ENGINE)

This instruction contains the requirements for your commercial Cruise project report. **Deadline: Your Cruise Project Binder must be submitted to the CMA Career Development Center within two weeks of your being discharged from the vessel.** The binder can be delivered in person or by mail. If sent by mail the postmark documenting when the package was sent shall not exceed two weeks from time of discharge. One easy option is to place the completed binder into a USPS Priority Mail Medium #2 Flat Rate Box. The box is free from any United States Post Office, and the shipping cost is approximately thirteen dollars.

You must have 60 days of documented sea time to successfully complete CRU 250. A grade of incomplete will be recorded until the required sea time has been documented. ***It is highly recommended that the cadet copy all important papers to carry on their person when departing the vessel***. Likewise you should also save a copy of all the Cruise Report Document electronic files to a flash drive and carry this with you. Baggage can sometimes be lost when traveling and it would be unfortunate if you had to repeat CRU 250 because your sea project was misplaced. If you encounter difficulties with your electronic version, you must immediately notify the Career Center.

During the summer semester the cadet must be ready to meet their assigned commercial vessel whenever directed to do so. ***Do Not make Any Plans That Would Limit Your Availability*** and then expect the Career Center to accommodate your schedule. Any cadet who fails to meet their assigned vessel will be immediately dropped from the CRU 250 Sea Training II course.

CRU 250 Sea Training II Guidelines

- Arrive on time, you should make every effort to be standing on the dock when the vessel arrives. Do not call the vessel, or the home office, to ask when the vessel is sailing.
- Cadets must always, be respectful to vessel officers and crew. You are required to follow all company safety protocols and any instruction given to you from a licensed vessel officer. Any serious misconduct of a cadet while aboard a commercial vessel can result in a failing course grade.
- Most commercial vessels require all crew members to be onboard one hour before the posted sailing time. Do not miss the ship as this will result in a course failure and you will be responsible for the cost of transportation home.
- Upon arrival you will report to the Captain unless your orders indicate otherwise.
- When you first join the vessel, be prepared to present all of your documentation in order to sign-on the vessel. You will have multiple documents and forms to complete before you are allowed to work or stand watch.
- Many of the vessels that you may be assigned to have unmanned engine rooms from (1700-0700). You may be barred from going into those spaces during those hours. Work with C/E or 1st A/E and see what can be worked out to allow you the necessary time to gather the information and trace systems. It may be necessary to gather information, take pictures, roughly trace system during the day and then work on your project in your stateroom during the evenings.

- The Academy considers CRU-250 to be a summertime project, and anticipates cadets will be working on their projects both before and after their shipboard tour of duty. The project is, however, intended to be primarily completed aboard ship with perhaps only minor polishing completed afterwards. You should be devoting several hours a day (outside of your normal watch and day work obligations) to work on your project. You may need to do external research to complete the project. Allow enough time to do so.
- This project is designed to provide you with a self-directed program and to serve as a comprehensive record of the progress and experiences of your commercial cruise.
- As a cadet, you are privileged to be afforded the opportunity to serve aboard commercial vessels and to also represent the California Maritime Academy both domestically and abroad.
- The commercial cruise sea project is a major undertaking and you should read through the entire project carefully before departing for your vessel. It is <u>your responsibly</u> to ensure that any questions that you may have concerning this project are answered before you leave.
- At the first opportunity discuss the requirements of the cruise project with either the Chief Engineer or First Assistant Engineer. Work with them to allocate the necessary time and watch/work schedule to plan, research and complete your project
- All work must be your own. You may not collaborate with other cadets aboard your vessel, or with cadets who were aboard the same vessel on previous cruises. The Cadet Regulations Handbook, the Academic Senate Policy on Inappropriate Student Academic Conduct and all applicable State and Federal laws concerning academic dishonesty, plagiarism, and other intellectual property rights are hereby incorporated by reference and are binding. Please familiarize yourself with the elements of the Academic Senate Policy on Inappropriate Student Academic Conduct before you depart for commercial cruise. If you have any questions on this issue, it is your responsibility to have them resolved prior to departing for commercial cruise.
- Be aware that U.S. Coast Guard regulations regarding drug and alcohol use apply to cadets. The current limit for crew aboard U.S. flag vessels is a blood alcohol content (BAC) of 0.04% and no alcohol consumption within four hours of assuming a watch or safety duty.
- Many shipping companies have a zero tolerance concerning alcohol and drug usage. Facilities such as container yards and refineries have equally stringent drug policies and you may be subject to drug testing when requesting entry to their facility in order to board the vessel.
- Officers aboard ship are being paid to do their job, not to teach you. Do not expect the ship's crew to create mini-classes or adventures for you. Any attention you are given or interest shown to you is a gift. You can best show your appreciation by maintaining the highest levels of integrity, grooming, promptness, cheerfulness, and a general "can-do" attitude and willingness to volunteer and help-out.

- This is an extremely small industry. Behaviors that seemed funny or harmless at the time will be long remembered. Guard your reputation jealously. Remember that you are in training to be a junior officer; act accordingly. Cadet misbehavior has cost the Academy lost shipping berths, which can adversely affect the entire program for many years. The maritime industry is small and competitive. You will be working with this pool of people for many years to come.
- It is very important that you keep your stateroom tidy and clean at all times. The Vessel Master has the right to inspect your room at any time and many do so.
- You are to report to the vessel in Khaki uniform unless otherwise directed. (If you are flying internationally you will wear dress slacks and a polo shirt.)

What to Bring on Cruise:

The following list is a guideline only. Do not call the company or the vessel to see what they have. The following are recommended:

- ***Modern Marine Engineer's Manual, Volumes 1 and 2***
- A copy of the cruise instructions (printed and electronic)
- A 2" three ring binder, heavy duty, white. Must have a clear pocket on the outside cover so that a sheet of paper can be inserted to identify the contents. (See appendix for approved list)
- Eight tab set of dividers
- Clear sheet protectors, to protect the following documents: Discharge letter/documentation, ship's officer evaluations, engineering competencies, cadet ship evaluation and letter of recommendation
- Engineering graph paper, three-hole punched
- 8 GB USB Flash Drive for recording your project files (Those cadets serving on Military Sealift Command vessels are exempted due to company restrictions)
- Pen
- Pencils, # 2 and colored
- Paper
- Laptop and battery charger for same
- Graphics and letter stencils and templates for drawing of valve, machinery, etc.

Documentation

- Passport
- Merchant Mariner Credentials
- TWIC Card
- Drivers License/State Identification
- CMA shipping orders
- Medical Insurance card

What to Bring on Cruise: (continued)

Clothing
Khaki Uniforms x 2
Boiler Suit
Work Clothes x 2
Steel Toe Work Boots
Hard hat
Safety Goggles
Hearing Protection
Gloves
Tennis/Casual Shoes
Bates, Navy Black Oxford Shoes
Socks – 5 black, 5 white
Underwear & T-Shirts – 5/7 Pair
Swimsuit
Sweater
Black CMA Jacket
Yellow Rain Gear
CMA Ball Cap

Miscellaneous
Toiletries
Medications
Eye Glasses, contacts (extra pair, sets)
Knife
Flashlight
Camera, memory and battery charger for same
Sun Glasses
Cell Telephone
Phone Card
Money

CRUISE 250 SEA TRAINING II (ENGINE)

GRADING

Grading for CRU 250 is determined by the quality of the Cruise Report. The project will be graded on accuracy, completeness, neatness, and organization. This a project that you should feel very proud of producing, make sure that it shows.

Deductions will be given for the following items:

- A deduction of up to 15% can be imposed if the report is poorly organized, has frequent spelling mistakes, or is poorly written.
- A deduction of up to 15% can be imposed if the Engineering Competencies are not completed.
- A deduction of up to 10% can be imposed for ***each*** missing or poorly documented system drawing.
- A deduction of up to 10% can be imposed for ***each*** of the major heading groups that are poorly documented. The Table of Contents lists seven (7) major headings:
    - Introduction
    - Daily Journal
    - Main Propulsion
    - Auxiliary Systems
    - Electric Power Plant
    - SOLAS
    - Miscellaneous Items (optional)

Licensed Engineering Officer Evaluation (s)

Provide "Ship's Officer Review of Cadet Performance" forms {see appendix) to the Chief Engineer and First Assistant Engineer. Provide additional forms to their reliefs, if these officers rotate during your cruise. The officers may provide copies and discuss their completed evaluations with you; or they may simply mail the evaluation to the Engineering Technology Department at the address on the evaluation form. Make sure that your evaluations cover the entire time period spent at sea. The expectation is that the student will devote enough time and effort to receive excellent evaluations. There is no grade associated with this evaluation, but if there is a significantly negative assessment, the company shall be questioned and a determination made as to the cause (s) of this negative review. A negative review can substantially lower your overall course grade or result in course failure depending on the circumstances.

Engineering Competencies

Discuss the course requirement for you to demonstrate engineering competencies (see appendix) with the Chief Engineer and First Assistant Engineer when you report aboard the vessel. If it is not possible for you to demonstrate a competency to a licensed engineering officer, then you most provide an explanation detailing the circumstances in your project introduction.

CRUISE 250 SEA TRAINING II (ENGINE)

CRUISE PROJECT REPORT INSTRUCTIONS

Your cruise project report should fully describe your commercial cruise experience and the ship to which you were assigned. This document contains the ***minimum*** requirements for your commercial cruise project, and serves as a guide for your report. Take pride in your accomplishment by writing a clear and comprehensive report describing your experiences and what you have learned.

The project binder must be a 2", three-ring binder and be white in color. It must have a clear pocket on the outside cover so that a cover sheet including the cadet's name, vessel name, and current year can be inserted. A picture of the vessel on the cover sheet is highly desirable but not mandatory. In addition to the front cover the name of the student must be displayed along the spine of the binder.

The report text font shall be Times New Roman size 12 for the body and 14 for titles. The report should be double spaced in its entirety.

At the front of the report please include your discharge letter, ship's officer evaluations, engineering companies cadet ship evaluation and letter of recommendation if applicable.

The Table of Contents should follow the listed format and it must include the page numbers for each heading. Do not deviate from the listed Table of Contents format (see page 11) as this will make it harder for the instructor to locate information. Non-compliance will result in a significant reduction in the report grade!

You should use the built-in Table of Contents feature included in Microsoft Word software. The feature is listed under the "References" heading and a description can be found using Microsoft Help. (CRU-250_Cruise_Project_Template_2014_r2)

Dividers must be included which properly separate each of the seven (7) different headings. The dividers must have a tab which is clearly marked with the proper heading.

Take photographs of the vessel equipment, maintenance work, projects you complete, safety drills, and important engineering spaces. Incorporate the pictures into your journal, main propulsion, auxiliary, electrical and SOLAS systems sections of your report.

Pictures are to be placed within the body of the text. Each picture should be labeled for proper identification and its importance should be described in the text directly following the listing.

Only use clear plastic sheet protectors to protect important documents such as: Engineering Competency sign-off sheets, Cadet Evaluation, letter of recommendation and Crewmember Discharge Paperwork. Don't use sheet protectors for the body of the text because it makes the report difficult to read and prohibits instructional comments.

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The nine (9) required system drawings which must be drawn by hand are noted by the "*" symbol. You are required to personally trace each system and derive your drawing from this work. It is recommended that you make a rough copy as you physically trace the lines and include this in the report just behind your clean copy. These drawings must be completed in pencil (no copies) and they must include all system valves, pumps, pressure gauges, vent lines, pressure switches, pressure transmitters, thermometers, temperature transmitters, control valves, or any other pertinent equipment. The drawing shall include labeling for all major system components.

For those systems ***which are not*** noted with the "*****" symbol the expectation is that the student will trace the piping system, but there is no requirement for a drawing that is drawn-by-hand. A copy taken from the vessel system engineering manual or a simple sketch is sufficient.

Photographs of engineering spaces and related equipment are strongly encouraged. The picture should be identified directly below the inserted photograph.

As an example of the information that could be included under a typical equipment or system heading:

III. Main Propulsion

a. Main Propulsion Drive (Slow-speed diesel engine is used for example)

A drawing of the engine should be placed in the report if it is available
Engine manufacturer
Engine model number
Engine output in kW
Engine bore & stroke
Engine firing order
Reversing mechanism
Engine construction
How is the exhaust valve actuated and what component closes the valve?
Is the engine trunk piston or crosshead type?
Is the engine two or four stroke-cycle?
How is the piston crown cooling accomplished?
How is oil transferred into the crosshead pin?
Is the camshaft driven by a chain or is it by a gear drive?
Is the thrust bearing separate or incorporated into the engine frame?
Photographs of spare engine components with a short discussion

c. Lubricating Oil System

Include the system drawing
Lubricating oil pumps: number, type of pump, and drive motor kW
    Is a pressure switch fitted so that a pump stand-by feature is provided?
    How does the stand-by feature work?
Does the system have a control valve fitted?
    If so what parameter is controlled, Temperature?
    What type of control valve is used and how does it function.

How is the temperature monitored and what type of instrument transmits this signal to the controller?

Describe the flow path to each of the system bearings

Any important system design features such as separators, coolers, etc.

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Table of Contents

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DETAILED INSTRUCTIONS PER REPORT HEADING

Introduction

A. Give a general description of the vessel.
   1. When and where was it built?
   2. Cargo type and description of load methods.
   3. Size of the vessel including dead weight tonnage and dimensions.
   4. Type of vessel propulsion.
   5. Vessel Operator
   6. Vessel Owner (Documentation is typically listed in the wheelhouse)
   7. Routine ports of call, vessel route, and typical voyage length.

B. Give a detailed description of vessel crew organization.
   1. Include the responsibilities of each crew member, both licensed and unlicensed.

C. Give an overview of vessel maintenance.
   1. Does the vessel have a Preventative Maintenance Program? If so describe it.
   2. How is vessel maintenance assigned to crew members?
   3. Who arranges for any engineering shore gangs and who is responsible to supervise the work they perform aboard the vessel?
   4. During your stay how often did shore gangs board the vessel and what type of work did they perform.

D. Discuss any problems you encountered on cruise that affected your ability to meet the sea training requirements outlined in these instructions. Such as the vessel is not being fitted with a listed system or piece of equipment. If possible the cadet should substitute a system or piece of equipment that may be fitted to your vessel but is not included on the list.

E. Do not refer to acronyms unless they are defined. Once the initial usage of the acronym is defined it is proper to use the acronym in the body of the text which follows. For example: Controllable Pitch Propeller (CPP)

Journal

The journal is a daily log of all engineering related activities that you accomplish over the course of the cruise. The heading for each daily entry should include the calendar date and indicate the number of days you have been on the vessel.

June 23 - Day 30

The journal entry should include information on who you worked with, what types of tasks you accomplished, details on any vessel maintenance, were the vessel is located,

and anything new that you learned on that day. Include any major evolutions in the propulsion plant, significant preventive or corrective maintenance, special projects, and/or other activities in which you participated. Comment on any troubleshooting of operational problems and the impact of required corrective maintenance on ship operations. Discuss any new engineering skills that you acquired and include any skills that you feel should be covered in more detail in the CMA program.

Include your personal observations regarding the leadership style and management of the Engineering Department. Every vessel has a different management style depending on the nature of the Chief Engineer and Master. Does the ship have regular safety meetings? What safety protocols do they enforce such as electrical Lock-Out-Tag-Out? How seriously do they perform their weekly emergency drills, and is safety a serious management concern? You are encouraged to detail any problems that you had with any of the vessel staff but keep it professional. The discussion should contained details of what happened, or what action you felt was inappropriate, but it should not degrade to name calling.

Main Propulsion

If available, place a copy of the general plant arrangement drawing in the report. (You are not required to draw this item)

The five (5) required system drawings which must be drawn by hand are noted by the "*" symbol.

Describe your ship's main propulsion plant including the type of engine(s) and its basic operating characteristics including maximum ship speed, shaft horsepower, type of fuel, fuel consumption, etc. If possible include a copy of the technical drawings from the equipment manual. For those students that have made the selection to complete the sea training program not on a commercial vessel, but joining either the USCG or USN vessels. Those students would accept full responsibility to successfully complete the documentation even if their particular vessel did not include the required sections and descriptions listed below. They would be required to select a vessel that would give them the best chance to be successful.

A. For diesel-powered vessels the Main propulsion section must include descriptions of the:
   a. Main engine(s)
   b. *Fuel oil system
   c. *Main lubricating oil system
   d. Local control stand and speed governor
   e. *Fuel injection system including high-pressure pumps and injectors
   f. *Cylinder lubrication system including cylinder oil pumps (On Crosshead Engines) (If not Crosshead, then a drawing of reduction gear, line shaft and propeller is required)
   g. Jacket water system (HTFW)
   h. Turbocharger & Intake air system

i. Engine exhaust stack including silencers and waste heat boiler
j. *Starting air system
k. (*) Reduction gear, line shaft and propeller, If you are on Medium Speed without crosshead, (See Cylinder Lubrication Above)

B. For steam-powered vessels the Main Propulsion section shall include descriptions of the:
   a. Propulsion turbines
   b. Fuel oil system
   c. Lubricating oil system
   d. Turbine controls and throttle arrangement
   e. Propulsion boilers
   f. Boiler combustion controls
   g. *Turbine bleed steam system
   h. *Feed and condensate auxiliaries
   i. Main condenser
   j. *Condensate System
   k. *Feed system
   l. *Auxiliary exhaust system
   m. Reduction gear, line shaft and propeller

C. For gas turbine vessels the Main propulsion section must include descriptions of the:
   a. Main engine(s)
   b. Fuel oil system
   c. Lubricating oil system
   d. *Propulsion turbine control system
   e. *Engine starting system
   f. *Intake air system
   g. *Exhaust stack including engine silencer and waste heat boiler if fitted
   h. Engine enclosure
   i. *Reduction gear, line shaft and propeller
   j. Water Jet or Thruster if fitted

D. For diesel electric-powered vessels the Main propulsion section must include descriptions of the:
   a. Main power generator(s)
   b. *Fuel system
   c. *Lubricating oil system
   d. *Fuel injection system
   e. Jacket water system (HTFW)
   f. Turbocharger & Intake air system
   g. *Power distribution one line drawing
   h. *High and Low voltage switchboards
   i. Main propulsion motor(s)
   j. Propulsion controls
   k. Line shaft and propeller (Propulsion Pod, if fitted)

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Auxiliary Engineering Systems

The three (3) required system drawings which must be drawn by hand are noted by the "*" symbol.

The following auxiliary engineering systems are to included in the report:

a. Auxiliary Boiler and/or Waste Heat Boiler
b. *Refrigeration System
c. Air Conditioning System
d. Distilling Plant (s)
e. *Compressed Air System (s)
f. Hydraulic Power System (s) (if fitted)
g. Steering Gear
h. Sewage Treatment System (MSD)
i. *Bilge System and Oily Water Separator (OWS)
j. Ballast System

Electric Power Plant

The required system drawing which must be drawn by hand is noted by the "*" symbol.

a. Describe your ship's electric plant including basic operating characteristics; number and type of generators, normal and maximum electrical loads, voltage (s) supplied emergency (backup) power, etc. Include an electrical distribution sketch.
b. *One line diagram of the electrical distribution system, including Automatic Bus Transfer.
c. Ship service generator(s)
d. Main switchboard
e. Emergency generator
f. Emergency switchboard
g. Emergency batteries

Safety of Life at Sea (SOLAS)

a. Describe each of your ship's fire detection and fixed firefighting systems including basic operating characteristics; alarm features, extinguishing agent, activation method, etc.

b. Describe the escape routes from the engine room including emergency breathing and personal protection equipment available along the route.

c. Describe your ship's outfitting of lifeboats and/or life rafts including, the type of survival craft, capacity, etc.

d. Safety Inspections and procedures that you participated in.

e. Training handouts, for example:
   1. Lock Out Tag Out (LOTO)
   2. Confined Space training
   3. Hot Work Permit
   4. Fall Protection
   5. Slips, Trips and Falls
   6. Electrical Safety
   7. Fire Protection
   8. Driving (Forklift)
   9. HAZCOM (Hazard Communication)
   10. HAZMAT (Hazard Material)
   11. EAP (Emergency Action Plan)
   12. Powered Tool Safety
   13. Hand Tool Safety
   14. PPE (Personal Protection Equipment)
   15. Flammable, Combustible Liquids, and Compressed Gasses
   16. Hearing Protection
   17. Anything else that pertains to safety

Miscellaneous Items

This could include any of the following:

A. Training certificates

B. Procedures or inspection that you performed or participated in such as:
   1. Bunkering Procedures
   2. Startup Procedures
   3. Safety inspection check off list
   4. Round Sheets
   5. UNREP

C. Hand Outs for any other system or items that you found interesting

Appendix, Daily Journal Example

June 28 – Day 30

I've adopted the habit of being down in the Motor Control Room (MCR) at least 15 minutes before 0600. The only person down there at that time is the 1st, and I like that he sees me as the first person to show up every day, even though he hardly acknowledges me when I get there. I've come to realize that the 1st works far harder than the Chief. The 1st always has something going on. Frankly, I don't know when he finds time to sleep.

Oily Water Separator (OWS)

I assisted the Second Engineer in cleaning the OWS today. We removed the top cover, thoroughly cleaned the unit interior and replaced the resin bead bed. Pressure tested the unit after replacing the top cover and found a leak at one of the pipe unions. The sealing face of the union was damaged and the union required replacement. We did not find any leakage when testing the unit on the second try. I ran the oily water separator on the starboard bilge holding tank for two hours in the afternoon. In the beginning we had some concern because the oil monitor was going into alarm but this quickly settled out.

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Check Off List. In order to successfully finish this sea training program; a check off list is supplied and needs to be completed and included with your turned in documentation. Grading for CRU 250 is determined by the quality of the Cruise Report. The project will be graded on accuracy, completeness, neatness, and organization.

Deductions will be given for the following items:

- A deduction of up to 15% can be imposed if the report is poorly organized, has frequent spelling mistakes, or is poorly written.
- A deduction of up to 15% can be imposed if the Engineering Competencies are not completed.
- A deduction of up to 10% can be imposed for ***each*** missing or poorly documented system drawing.
- A deduction of up to 10% can be imposed for ***each*** of the major heading groups that are poorly documented. The Table of Contents lists seven (7) major headings:
    - Introduction
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    - Main Propulsion
    - Auxiliary Systems
    - Electric Power Plant
    - SOLAS
    - Miscellaneous Items (optional)

Introduction

- ☐ Ship description
- ☐ Date Built
- ☐ Cargo Type
- ☐ Routine Ports of Call
- ☐ Engine Department Organization

Journal

- ☐ Daily Work Log
- ☐ Imbedded Pictures

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Propulsion Systems

- ☐ Main Engine and Propulsion Controls
- ☐ Main Engine Auxiliaries
- ☐ Scavenging, exhaust, and starting air system
- ☐ Reduction Gear, line shaft and propeller

Auxiliaries

- ☐ Auxiliary and exhaust gas boilers
- ☐ Refrigeration systems
- ☐ Air conditioning system
- ☐ Distilling Plant
- ☐ Compressed Air System
- ☐ Hydraulic power system
- ☐ Steering gear
- ☐ Sewage treatment plant
- ☐ Bilge system and oily water separator
- ☐ Ballast

Electrical Distribution

- ☐ Ships service generators
- ☐ Main switchboard
- ☐ Remote load centers
- ☐ Transformers
- ☐ Inverters and power conditioners
- ☐ Emergency generator
- ☐ Emergency switchboard
- ☐ Emergency batteries

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SOLAS

- ☐ Vessel fire detection and fixed firefighting systems
- ☐ Escape routes, emergency breathing apparatus and PPE
- ☐ Lifeboats and life rafts
- ☐ Training Handouts
- ☐ Training Certificates

Grammar and Spelling

- ☐ Grammar errors corrected
- ☐ Spelling errors corrected

Drawings

- ☐ N**ine (9) required system drawings please check your required drawings as per your type of vessel.**

Appearance and Formatting

- ☐ Cover Sheet
- ☐ Acronyms Defined
- ☐ At the front of the report: discharge letter, ship's officer evaluations, engineering competencies, cadet ship evaluation and letter of recommendation in sheet protectors
- ☐ Table of Contents
- ☐ Project binder, labeled front and student name on spine
- ☐ Correctly Labeled dividers
- ☐ Followed all instructions as given

The automatic table of contents is provided for you to use as a template for your cruise project report. Do not deviate from it without very specific cause. The table will automatically update the page numbers of any headings listed as "Heading 1," "Heading 2," or "Heading 3." The automatic table will also add any new headings you insert. Any string designated as "Heading" 1,2, or 3 will be listed on level 1,2, or 3 respectively (i.e. in the "main propulsion" section and "main propulsion drive" subsection).

It's very tedious to accurately follow this required report format manually – it is therefore recommended that you use the automatic table. You <u>may</u> change the font size and type of the headings if necessary, but beware of altering the "heading #" style; else MS Word can't follow it. It is highly recommended, though, that you <u>do not</u> make changes to the font size and type. To update the table at any time, single click anywhere on the table itself. As your report grows to unwieldy length, it may also become handy to link to sections of the report by *ctrl + left mouse button*.

Unfortunately, fourth level headings don't exist, but similar tables can be constructed for figures and tables in the "References" menu of MS Word.

Smooth Sailing!

Table of Contents

Introduction

Daily Journal

Main Propulsion

Main Propulsion Drive

Fuel Oil System

Lubricating Oil System

(Varies with vessel propulsion type, see page 10)

Auxiliary Systems

Auxiliary Boiler and/or Waste Heat Boiler

Refrigeration System

Air Conditioning System

Distilling Plant(s)

Compressed Air System(s)

Hydraulic Power System(s) (if fitted)

Steering Gear

Sewage Treatment System (MSD)

Bilge System and Oily Water Separator (OWS)

Ballast System

Electric Power Plant

One line diagram of the electrical distribution system, including Automatic Bus Transfer

Ship service generator(s)

Main switchboard

Remote switchboards (Load Centers), (MCC-Motor Control Centers)

Transformers, Inverters and Power Conditioning Equipment

Emergency generator

Emergency switchboard

Emergency batteries

Safety Of Life At Sea (SOLAS)

Fire Fighting Systems

Escape Routes

Lifeboats

Safety Training Program

Miscellaneous Items

Cadet Engineering Competency Sign-Off Sheet

Cadet: _____ Vessel: _____

As a cadet on a commercial vessel, you will notice some difference from sailing on the GOLDEN BEAR. The ship's officers will not start-up and secure equipment just for training. For this reason it is important for you to be there when any equipment changes are made and to be present whenever the vessel is maneuvering in/out of port.

The following is a list of operational procedures you should assist with or observe. Discuss these engineering competencies with the Chief Engineer or First Assistant Engineer shortly after you arrive onboard. You are required to complete each item unless the equipment is not installed on the vessel. If for operational reasons it is not practical to complete an item you will verbally describe the procedure to the satisfaction of a licensed engineering officer. If a signoff cannot be completed, list the exception on this document and then include an explanation in the "Introduction" of your Engineering Report.

Start Main Engine, including pre-STBY inspections, check offs and procedures	_____ Date
Secure main Engine, including after FWE inspections, check-off and procedures	_____ Date
Start and/or Secure Ship Service Generator	_____ Date
Light Off and/or secure Auxiliary Boiler	_____ Date
Start and/or secure distilling plant	_____ Date
Pump Bilges, start and/or secure (OWS) Oily Water Separator	_____ Date
Secure, clean and start Lube Oil Purifier	_____ Date
Secure, clean and start Fuel Oil Purifier	_____ Date
Bunker or Transfer Fuel Oil	_____ Date

Cadet Engineering Competency Sign-Off Sheet

Cadet: _____ Vessel: _____

Observe Ship Maneuvering from the (ECR) Engine Control Room	_____ Date
Test Emergency Diesel prior to Arrival or (STBY) Standby	_____ Date
<u>For Manned Engine Rooms:</u> Stand at least one entire engine sea watch with each of the watch standing engineers. Discuss their specific duties for the watch. (Include those duties in your introduction and your journal for that day) **<u>Licensed Engineering Watch Officer</u>** Please sign in the space provided to verify that the cadet stood the engineering watch to your satisfaction.	**<u>8 – 12 Watch:</u>** _____ Signature / Date
	<u>12 – 4 Watch:</u> _____ Signature / Date
	<u>4 – 8 Watch:</u> _____ Signature / Date
<u>For UMS Vessels:</u> Make rounds with the duty engineer for at least one day. Discuss their specific duties for the watch. (Include those duties in report introduction and daily journal)	_____ Signature / Date
<u>Chief Engineer</u> I verify that the cadet either completed or demonstrated satisfactory knowledge of the listed engineering competencies.	_____ Signature / Date
<u>Licensed Assistant Engineering Officer</u> I verify that the cadet either completed or demonstrated knowledge of an engineering competency to my satisfaction.	_____ Signature / Date
<u>Licensed Assistant Engineering Officer</u> I verify that the cadet either completed or demonstrated knowledge of an engineering competency to my satisfaction.	_____ Signature / Date

Performance Evaluation

Cadet: _____ Vessel: _____

Period of Observation – Date: _____ Date: _____

TO THE VESSEL CHIEF ENGINEER– In order for us to accurately rate the cadet's performance while onboard your vessel, we would appreciate your personnel evaluation of their performance. In addition, to the following few items, please feel free to comment on any of the strong or weak areas of their performance you have noticed.

Please mail this completed evaluation to:

Chair, Engineering Technology
California Maritime Academy
200 Maritime Academy Drive, Vallejo, CA 94590

You may provide the student with a copy at your discretion.

TO BE FILLED OUT BY LICENSED ENGINEERING OFFICERS
Please rate the cadet in the following areas using the scale indicated below:

Exceptional (E)	The cadet's performance is excellent for an individual of his/her experience
Very Good (VG)	The cadet's performance is above and beyond the normal requirements for good service
Good (G)	The cadet's performance meets expectations
Fair (F)	The cadet's performance just meets the minimum expectations and requirements
Unsatisfactory (U)	The cadet's performance is inadequate and not acceptable

	E	VG	G	F	U
1: Attitude – Willingness to Learn/Work					
2: Aptitude – Degree of natural ability in engineering					
Knowledge – Engineering System/operations knowledge, taking into account the cadets' experience level					
Dependability – can be counted on to carry out assignments					
Responsibility – willingness to assume responsibility					
Appearance – Personal, Dress and Quarters					

Signature: _____ Date: _____

Assistant Engineer

Chief Engineer's ENDORSEMENT

☐ I concur with the above evaluation

☐ I do not concur with the above evaluation (please comment)

Signature: _____ Date: _____

Chief Engineer

CAREER SERVICES

SUPPLEMENTAL INSTRUCTIONS FOR DOCUMENTATION

You **must** submit the following ***original documents*** by the due date to Career Services in the color plastic pouch provided in your Cruise Project materials (include *copies* with your submitted project, and keep *copies* for yourself):

- Your **original** discharges or sea service letters
- All supervisors' evaluations (sealed)
- PIC/DL forms (for cadets on tankers)
- TOAR documents (for deck cadets on tugs only)
- Cadet's Ship Evaluation
- Sea Service Report form

Copies of all sea service letters/discharges, TOAR and PIC/DL documents are to be submitted with your written project for grading. Both Career Services and the Commandant's Staff will review the evaluations received from Masters, Chief Mates, and Chief Engineers.

Failure to submit the required documentation to the Career Center by the due date of the project in the color plastic pouch provided will result in not receiving credit for your sea time, endorsements, cruise project and/or cruise course (8 credits).

Please do not hesitate to contact the Career Center if you have any questions.

Deborah Bauer, M.S.
Assistant Director of Sea Going Career Services
Cadet Shipping Coordinator
CAL MARITIME
200 Maritime Academy Drive
Vallejo, CA 94590
707.654.1072 office
707.654.1073 fax
dbauer@csum.edu

SEA SERVICE REPORT
CRU 200, 225, 250, 275

Cadet Name (*Last, First*):_____

Mariner Reference Number:_____

Employer/Company Name:_____

Vessel Name	Vessel Number *(USCG or Port of Registry)*	Vessel Number *(IMO)*
Type of Vessel *(Tanker, Tug, Ro-Ro, Ferry, Dredge, ATB, etc)*		
Vessel Tonnage (Gross/Net)	Mode of Propulsion *(Motor, Steam, Gas Turbine, etc)*	Horsepower (HP or KW)
Date of Embarkation	Port of Embarkation	
Date of Disembarkation	Port of Disembarkation	

<u>If service dates are broken, or cadet serves aboard various vessels – use additional tables to record each set of dates served and/or each vessel.</u>

Vessel Name	Vessel Number *(USCG or Port of Registry)*	Vessel Number *(IMO)*
Type of Vessel *(Tanker, Tug, Ro-Ro, Ferry, Dredge, ATB, etc)*		
Vessel Tonnage (Gross/Net)	Mode of Propulsion *(Motor, Steam, Gas Turbine, etc)*	Horsepower (HP or KW)
Date of Boarding	Port of Boarding	
Date of Disembarkation	Port of Disembarkation	

Vessel Name	Vessel Number *(USCG or Port of Registry)*	Vessel Number *(IMO)*
Type of Vessel *(Tanker, Tug, Ro-Ro, Ferry, Dredge, ATB, etc)*		
Vessel Tonnage (Gross/Net)	Mode of Propulsion *(Motor, Steam, Gas Turbine, etc)*	Horsepower (HP or KW)
Date of Boarding	Port of Boarding	
Date of Disembarkation	Port of Disembarkation	

Vessel Name	Vessel Number *(USCG or Port of Registry)*	Vessel Number *(IMO)*
Type of Vessel *(Tanker, Tug, Ro-Ro, Ferry, Dredge, ATB, etc)*		
Vessel Tonnage (Gross/Net)	Mode of Propulsion *(Motor, Steam, Gas Turbine, etc)*	Horsepower (HP or KW)
Date of Boarding	Port of Boarding	
Date of Disembarkation	Port of Disembarkation	

Vessel Name	Vessel Number *(USCG or Port of Registry)*	Vessel Number *(IMO)*
Type of Vessel *(Tanker, Tug, Ro-Ro, Ferry, Dredge, ATB, etc)*		
Vessel Tonnage (Gross/Net)	Mode of Propulsion *(Motor, Steam, Gas Turbine, etc)*	Horsepower (HP or KW)
Date of Boarding	Port of Boarding	
Date of Disembarkation	Port of Disembarkation	

Cadet Ship Evaluation Form

Cadets shall complete this form and return to **Career Services**.
Please complete this form after you depart from your vessel. Be honest and thorough in your answers. Your evaluation may be used to educate next year's cadets.
If so, your name will be removed.

Cadet Name: _____

……

Company:_____

Vessel: _____

Route: _____

1. Would you consider working for this company after graduation? If No, why not?

2. What would you tell a freshman cadet if they asked you about your experience?

3. After your experience on commercial, what would be your Dream Job?

4. What was your favorite thing about commercial cruise?

5. Did the officers treat you fairly and take an interest in your education?

6. Did you have your own room?

7. If you were paid on your commercial cruise, how much did you make?

Supervisor's Cadet Evaluation Form

Cadet's Name: _____

Vessel Name: _____

To the Cadet's Supervising Officer:

In order for us to accurately assess the cadet's performance while onboard your vessel; we would appreciate your personal evaluation of his/her performance. This evaluation will factor in to the cadets education and conduct record.

Please return this evaluation to the cadet a sealed envelope, with **your signature across the flap**.

TASK	ALWAYS	SOMETIMES	RARELY	NEVER
Reports daily at expected time and remains the required length of time.				
Completed assigned tasks as directed and in a timely manner.				
Wears proper uniform/work attire at all times.				
Exhibits a positive attitude toward assigned tasks.				
Always prepared with proper Personal Protective Equipment (PPE).				
Demonstrates a mature understanding of an officer's responsibility.				
Openly shares ideas and asks meaningful questions.				
Demonstrates an understanding of the importance of responsible watch standing.				
Demonstrates honesty in all situations.				
Adapts to the needs of the ship and fosters teamwork.				
Respects authority and follows chain of command.				
Seeks to maintain a pleasant atmosphere for working/learning.				
Shows adequate knowledge of equipment and its proper use.				
Able to conduct safety/security rounds independently.				

Supervisor's Cadet Evaluation Form

Please feel free to comment on any of the strong or weak areas of the cadet's performance you have noticed. Should you wish to discuss this cadet's performance aboard your vessel, please don't hesitate to contact me at careerdevelopment@csum.edu or (707) 654-1072.

I supervised the above cadet for approximately _____ days.

Comments:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Officer's Printed Name: _____ Position: _____

Officer's Signature: _____ Date: _____

Officer's Contact Information (optional) _____

Thank you for your time and consideration in this important matter.

Department of Career Services
careerdevelopment@csum.edu
(707) 654-1072
The California Maritime Academy
200 Maritime Academy Drive
Vallejo, CA 94590