# Sea Term 2016
# Engineering Training Program Manual

## Massachusetts Maritime Academy
## Buzzards Bay, Massachusetts

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# *TABLE OF CONTENTS*

## 1. Introduction

The 2016 Engineering Training Program Manual describes the training program and summarizes the policies of the Engineering Department in effect for the Winter 2016 Sea Term aboard the Training Ship *Kennedy*.

Cadets are responsible for familiarizing themselves with the information in this booklet, particularly the cruise grading, qualification examination, and STCW assessment policies.

Cadets should make every effort to make the most out of the Sea Term. The Sea Term provides every cadet unlimited opportunities to learn in a dynamic environment. More than any other event, the cruise is what makes a Massachusetts Maritime Graduate different from everyone else. Work hard, study hard, help your shipmates, and do your best. Effort applied to knowledge, understanding and proficiency now will yield results after graduation!

Safety is paramount during the Sea Term. The ship is a dangerous place. Failure to follow safety rules, rules that range from common sense to highly technical procedures, can cause you to put yourself or others in danger. A fire or catastrophic shipboard accident could cost all of us our lives. So be alert, know your duties, and think safety first!

LT Katie McClellan

Engineering Training Coordinator

Sea Term 2016

## 2. Overview

The Massachusetts Maritime Academy engineering training program aboard the Training Ship *Kennedy* is an intensive effort to achieve the following goals:

- Provide a safe training platform for which to train engineering cadets.
- Continue to expose students to the principles of Marine Engineering as an integrated component of a four-year long educational program.
- Afford all engineering students the opportunity to develop and increase their marine engineering skills, particularly in the areas of maintenance and repair.
- Support the training and assessment requirements of STCW 95.
- Utilize the training vessel to support these goals to the maximum extent possible.

During the 52 day-long training cruise, more than 450 students will take part in the engineering training program, and it would be impossible to achieve these goals without extensive planning and coordination. This document lays out the plan.

The training program consists of six different graded components, which are described in the following sections. These components, and their purposes are:

| | |
|---|---|
| **Training** | Develop engineering knowledge and hands-on skills. |
| **Maintenance** | Develop skills in the maintenance of the vessel, including planned and unplanned equipment outages, maintenance cycles, casualty control, and project management. |
| **Watch Standing** | Develop watch standing skills. |
| **P&ID Exams** | Verify knowledge of engineering systems. |
| **Qualification** | Verify knowledge of engineering operations. |
| **STCW Assessment** | Demonstrate engineering skills. |

### 2.1. Time Organization

The training program is designed around the **training day**, which is defined as a day when a cadet division is assigned to the training program. There are four cadet divisions aboard the vessel that rotate between Training, Watch Standing, Utility, and Maintenance assignments. The twenty-four (24) training days are typically scheduled Monday through Saturday when the vessel is at sea. In port, students are usually granted liberty and are unavailable for training. However, under unusual circumstances, an in-port day, at-anchor day, or a Sunday at Sea day may be designated, in whole or in part, as a training day.

The training day concept insures that every student receives the complete training program, while at the same time affording the program some degree of flexibility as the cruise schedule and calendar inevitably change. The training program consists of twenty-four training days plus two examination days.

Naturally, learning occurs on every day of the cruise; however, in order to assure that all cadets receive the same baseline opportunities, the formal classroom and lab exercises training program described in this document are conducted on the training days only.

## 2.2. Cadet Organization

Cadets are divided into a number of different groups for organizational purposes during the cruise.

For scheduling and duty assignments, engineering cadets are divided into four ***divisions***, designated **(1, 2, 3, 4)**. Fourth-class divisions are further divided into two **groups** for Deck and Engine training assignments. These groups are called the ***4/c sections***.

Divisions will be assigned to watch (W), training (T), utility (U), and maintenance (M) as shown on the cruise calendar at the end of this document.

When assigned to **Engineering Training**, 1/c, 3/c, & 4/c divisions are further subdivided into three **groups** known as class groups. Groups are assigned class, laboratory, STCW Assessments, or assignments on a daily basis. A full engineering class schedule is included at the end of this document.

The majority of second class cadets will sail commercially for their third training cruise as part of the commercial shipping program and not be on the training ship. Those 2/c cadets who are aboard the training ship will generally take part in the first class training program.

While assigned to **watch**, engineering divisions are subdivided into three sections **(1, 2, 3)** known as watch sections. Each watch section is assigned two 4-hour watches per day.

**2016 Sea Term Estimated Engineering Section Sizes**

| Class | Aboard | Division | Watch Section | Group |
|---|---|---|---|---|
| 4/c | 237 | 60 | 15 | 20 |
| 3/c | 130 | 33 | 9 | 11 |
| 2/c | 0 | 0 | 0 | 0 |
| 1/c | 121 | 31 | 8 | 11 |

## 2.3. Overall Training Program Assessment and Grading Policy

The Engineering assessment and grading policy is described below. All cadets are advised to familiarize themselves with the policy, so that there will be no misunderstandings of how Sea Term grades are determined.

Engineering Cruise Grades will be determined by a weighted average of a cadet's individual grades for the designated graded segments of the engineering training program. These segments and weights are as follows:

| | 1/c | 3/c | 4/c |
|---|---|---|---|
| Training Exam | 25% | 30% | 30% |
| C/E Qualification Exam | 25% | | |
| Oiler Qualification Exam | | 30% | |
| Fireman Qualification Exam | | | 25% |
| P&ID Exam | | | 15% |
| STCW Assessments | 25% | 15% | 5% |
| Rate Supervisor Evaluation and/or Maintenance Grade | 25% | 25% | 25% |
| Total | 100% | 100% | 100% |
| Class Attendance | - 5 points for each absence | | |

For fourth-class cadets, the grade determined above will be weighted with grades from the Deck, Engine, and the Along-side training segments of the fourth class cruise to produce a final cruise grade.

***All STCW assessments for the individual's class MUST be completed and passed before the training ship docks in Buzzards Bay at the completion of the sea term. Specifically, Assessments must be completed by 1600 Friday 19 February 2016. Students failing to pass all required assigned assessments by that time will receive a FAILURE for the cruise.***

***A minimum grade of a C- must be obtained on the Sea Term for all license track cadets to satisfy the STCW knowledge based components of the sea term.***

## 3. Engineering Training

Engineering training is the formal instructional portion of the training cruise. Engineering training is divided into two components: *Classroom* training, and *hands-on* or *maintenance* training. A number of STCW knowledge based components are presented during the training segment.

All engineering cadets and all fourth class cadets must participate in the Engineering Training classes and maintenance training forums. First, Second, and Third class engineering cadets will receive two classroom days, two lab training days, and two STCW assessment days. Fourth-class cadets will receive one day of classroom training and two days of hands-on training in the areas of basic and advanced mechanical skills.

### 3.1. Classroom Training

Cadets receive formal instruction in appropriate engineering topics during the classroom-training portion of the cruise. The subjects covered in the classroom-training segment are listed below.

#### 3.1.1. First & Second Class Learning Objectives

First and second-class cadets will receive eight days of classroom and lab training in the following subject areas:

| | |
|---|---|
| Watch responsibilities and taking over the watch | CFR's |
| Stearing Gear | TG Start-up |
| Main Switchboard | Causality Control |
| Evap and water makers | USCG Electronics Review |

### 3.1.2. Third Class Learning Objectives

Third class cadets will receive eight days of classroom and lab training in the following subject areas:

| | |
|---|---|
| OWS/MSD & Regs | Intro to Diesel I |
| Bilge, ballast, level readings, cargo pumping and systems | Causality Control |
| Auxiliary Machinery controls, temperature, and levels | Hydralics |
| Main propulsion machinery control, pressure, and temperature | Deck Machinery |

### 3.1.3. Fourth Class Learning Objectives

Fourth-class cadets will receive two days of classroom training (plus one day during the sea term alongside period) in the following subject areas:

| | |
|---|---|
| Machinery space terms, equipment, and alarms | Fire Extinguishing and fire-fighting equipment |
| Basic hand tools, power tools, and measuring | |
| Overview of Valves & Pumps | |

## 3.2. Hands-On Training

Cadets take part in a formal Hands-on Training program aboard the training ship in support of the following STCW requirements:

- Use appropriate tools for fabrication and repair operations typically performed on ships (Competence 31A1)
- Use hand tools and measuring equipment for dismantling, maintenance, repair and re-assembly of shipboard plant and equipment (Competence 31A2)
- Use hand tools, electrical and electronic measuring and test equipment for fault finding, maintenance and repair operations (Competence 31A3)
- Application of safe working practices in the workshop environment (KUP 31A1.4)
- Interpretation of machinery drawings and handbooks (KUP 31A2.2)

### 3.2.1. First Class Hands-On Training

The **first class** hands-on program covers the following topics:

- Single Phase AC Motors
- Motor Controls

### 3.2.2. Third Class Hands-On Training

The **third class** hands-on program covers the following topics:

- Gear pump Maintenance/Shaft Alignment. (OICEW 8-2C)
- Heat Exchangers (OICEW 8-2F)
- Valve Overhaul (OICEW 8-2E)
- Manifolds/Hydronics Trainer (OICEW 8-2D)
- Gauge Glass Maintenance
- Operation and Maintenance of a Wilden Pump

### 3.2.3. Fourth Class Hands-On Training

The **fourth class** hands-on program covers the following topics:

- Thread Black Iron Pipe (OICEW 2-1C)
- Soldering Copper Tube (OICEW 1-1D)
- Join PVC Pipe
- Flare Soft Copper Tube
- Compression Fitting Soft Copper Tube
- Measuring Tools / Vernier Calipers / Micrometer
- Drill and Tap Hole (OICEW 1-1E)
- External Threads (OICEW 2-1C)
- Hand Tool Usage
- Electrical Wiring / Electrical Safety
- Bend Soft Copper Tube (OICEW 1-1E)

## 3.3. Training Periods

The Training Day is divided into four periods:

| | |
|---|---|
| Period 1: 0815 - 0945 | Period 3: 1230-1400 |
| Period 2: 1000 - 1130 | Period 4: 1415-1545 |

On each training day at 0800, members of the training division shall muster in the Engineering Training Quarters located in lower five hold for training assignments and attendance. The designated muster areas in the Engineering Training Quarters are:

- 4/C – Center Labs aft
- 3/C – Center Labs, port side
- 1/C & 2/C – Center Labs, forward

## 3.4. Engineering Classrooms

The following classrooms and laboratory areas, located in the Engineering Training Quarters,

will be used for engineering training:

- First & Second Class – Classroom 55 & 57
- Third Class – Classroom 53
- Fourth Class – Classroom 51
- Center and Port Side Laboratory Spaces are used for all Maintenance Training labs.

### 3.5. Attendance Policy

Cadets are required to attend all scheduled training classes. Cadet final cruise grades will be reduced by five points for each class or lesson missed. In order to avoid attendance penalties, cadets are encouraged to make up missed classes with other sections. Consult the schedule to see when classes are repeated. The Cadet is responsible for material covered during classes missed due to "No Duty" status.

### 3.6. Learning Disabilities

Accommodations will be made for those individuals who have presented the Engineering Training Coordinator with support documentation that identifies a need due to a learning disability. Any cadet who requires additional time for examination due to documented learning disabilities must identify himself to the Engineering Training Coordinator prior to the commencement of the training cycle. If you have a disability and feel you will need accommodations in order to complete course requirements, please contact the Disability Resource Coordinator. Students are strongly recommended to contact the Disability Resource Coordinator before the start of the Sea Term so that accommodations can be provided. On board the sea term, LT McClellan also serves as the Disability Resource Coordinator. Any questions regarding same should be directed, in confidence, to LT McClellan.

### 3.7. Training Assessment

Engineering training will be assessed by examination. All cadets will have at least one training exam during the Sea Term. The fourth class examination shall take place on the second day of training and during the scheduled exam days. All other engineering cadets will be examined during the second exam day. Qualification exams will be held on a to-be-determined date(s).

## 4. Watch Standing

The watch standing phase of the cruise provides students an opportunity to assume responsibility for the operation of shipboard machinery in a realistic shipboard environment under the supervision of a licensed Marine Engineer. Additionally, watch standing allows the cadet to utilize and practice proper watch standing procedures.

The watch standing phase of a cadet's training supports many STCW requirements including:

- ☑ Maintain a safe engineering watch (Competence 31A4)
- ☑ Duties associated with taking over and accepting a watch (KUP 31A4.1)
- ☑ Routine duties undertaken during a watch (KUP 31A4.2)
- ☑ Maintenance of the machinery space logbook and the significance of the readings taken (KUP 31A4.3)
- ☑ Duties associated with handing over a watch (KUP 31A4.4)
- ☑ Operate main and auxiliary machinery and associated control systems (Competence 31A6)

- ☑ Operate pumping systems and associated control systems (Competence 31A7)

Engineering watch standing policies and job descriptions are described in detail in the *Watch-standing Manual* published separately.

Most cadets will stand watch for approximately eight days while the cruise is underway, according to a schedule to be promulgated and periodically posted by the engineering adjutant.

The following watch positions will require a round to be made prior to mustering for the watch:

- ☑ Cadet Engineer (CE)
- ☑ Assistant Cadet Engineer
- ☑ Boiler Engineer
- ☑ Lower CE
- ☑ Auxiliaries Engineer (AMR CE)
- ☑ Refer/Evap Engineer

Watch grading will be influenced by knowledge of machinery and plant status. It is the responsibility of all hands to ensure that the machinery information board is neat and accurate at all times. Status changes to the information board are to be brought to the attention of the Senior Watch Officer and Cadet Engineer of the Watch.

## 4.1. Engineering Watch Assessment

The watch phase will be graded on a both a ***situational analysis*** basis and an ***assessment*** basis for each class.

The majority of the time spent by the 4/c on watch in the engine room is spent investigating the operation of the many engineering systems which have previously been taught in class and labs during the Fall semester and during the Sea Term. Specifically, 4/c cadets are expected to trace out, understand, and be able to identify the major components of the Lube Oil System, Main Steam System, Fuel Oil System, Fire Main, and Main Circulation System. 4/c cadets are additionally responsible for completing the Engineering Sea Project as provided to each cadet. Engineering Training Rates will be available to assist 4/c cadets with the study of major systems and the Engineering Sea Project.

Cadets will also be graded on a situational analysis basis. In very broad terms, this means that the cadet on watch will be graded on how she or he is performing their watch assignment, how well they understand their watch assignment, and their understanding of the systems which are under their charge. Factors that may be considered in an individual watch grade are:

- ☑ Understanding of the duties and responsibilities of the assigned position
- ☑ Compliance with regulations, standing orders, good engineering practice
- ☑ Interest and attention to duty
- ☑ Mastery of engineering knowledge (at the cadet's level of training)
- ☑ Ability to follow directions and orders, including standing orders
- ☑ Ability to demonstrate practical factors
- ☑ Attitude and willingness to learn
- ☑ Superior achievement

- Leadership and supervisory abilities
- Recommendations from licensed watch officers

Watch grades will be determined through on-the-spot questions from engineering training officers and/or licensed engineering officers in the engine room. Generally, the Engineering Training Officers shall provide the grading. Licensed Engineering Watch Officers may provide watch standing grades at the discretion of the Chief Engineer.

Watch grades will be assessed in adherence to the following guidelines:

- Any cadet on watch can be assessed a watch grade during his or her watch and should expect to be graded during each watch.
- Watch grading shall not interfere with the cadet's performance of duty. If the cadet's duties prevent direct questions regarding the watch, the grader may grade the cadet based on observations of how the cadet is reacting to his or her duties.
- Grading may be based on *discussions* with the cadet on watch or *observation* of the duties being performed by the cadet.
- Licensed watch engineers may assign any grade, including one of zero points if, in their opinion, the cadet on watch is failing at his or her duties.
- Any cadet who is removed from the engine room for improper watch standing will also receive a grade of zero points for that watch. Such action will be further investigated by the engine training coordinator and/or Chief Engineer for possible further penalties.

## 5. Qualification Program

The Engineering Qualification Program consists of four exams given over the four-year program to verify the engineering skills of our cadets and to ensure their academic progression. These are written essay or multiple-choice examinations. A sample of the questions that may be used in the qualifications exams are published and distributed to the cadets prior to the exam. The sample questions are not intended to be all-inclusive, that is, exam questions need not have been published in the sample questions to be used. All exams require a minimum score of 70% to pass.

*Engineering Qualification Exams*

| Qualification Exam | Administered | Stipulations |
|---|---|---|
| Fireman | On Sea Term I | Successful completion is required for all engineers. Successful completion is pre-requisite for EN-2111, Auxiliary Machines II. |
| Oiler | Fall of 3/C year prior to Sea Term | Successful completion is required in order to pass EN-2231, Sea Term II. Cadets that do not pass the Oiler's Exam will not receive sea time or academic credit for Sea Term II. |
| Cadet Engineer | Fall of 1/C Year, prior to Sea Term IV | Successful completion is required in order to pass EN-4231, Sea Term IV. Cadets that do not pass the Cadet Engineer's Exam will not receive sea time or academic credit for Sea Term IV. Also, A cadet must graduate from the Academy within 18 months of passing the Cadet Engineer's exam or have to be reexamined and successfully pass the exam an additional time. |

A grade of 70% will be required in order to pass each qualification exam. Students must pass each exam in sequence in order to take the next level qualification exam.

Normal progression would have the cadet pass the Fireman exam on the 4/c cruise, the Oiler exam prior to or on the 3/c cruise, and the C/E exam prior to the 1/c cruise. Cadets who participate in the commercial shipping program in lieu of their 3/c cruise will take the Oiler exam prior to commercial shipping.

***A cadet must graduate from the Academy within 18 months of passing the Cadet Engineer's exam or have to be re-examined and successfully pass the exam an additional time.***

A student that is retaking the C/E exam as a result of the 18 month rule will not be allowed to use the prior C/E score as a basis for the 100% grade. If the above exams are not passed before the corresponding cruise, the exams will be taken on the cruise and the resulting mark will be recorded as the qualification grade. If the exam score is below 70%, it must be taken again and the average of all scores will be recorded.

The Engineering Safety qualification exam must be passed before cadets can sit for the Fireman exam. Cadets who do not pass the Engineering Safety exam and are required to take the Fireman Exam will receive a score of zero for the Fireman portion of their grade.

| Specific Requirement of the Qualification Exams |
|---|
| Successful completion of Cadet Fireman's Qualification Exam by the end of Sea Term I (ST-0999) is *required* and is a pre-requisite for EN-2111, Auxiliary Machinery II. |
| Successful completion of Cadet Oiler's Qualification Exam by the end of Sea Term II (EN-2231) is *required* in order to receive sea time and academic credit for Sea Term II. |

Successful completion of Cadet Engineer's Qualification Exam by the end of the First Class cruise is *required* in order to receive sea time and academic credit for the First Class cruise. Cadets who do not pass the CE Exam *will* be required to make another senior cruise with MMA.

## 6. P&ID Exams

All Engineering Cadets, including all Fourth Class Cadets will demonstrate their knowledge of shipboard engineering systems by taking a *plate exam*. P&ID exams will be administered at the same time as the Training Exam.

The format of the P&ID exam is as follows. Students will be provided with a blank sheet of paper and a system will be chosen from the list below. Students will then have 30 minutes to produce a neat, accurate, labeled drawing of the selected system.

Plate exam scores will be based on the following standards:

- 100 - Complete neat, accurate, labeled diagram
- 15-point reduction for each major component missing or incorrectly added
- 10-point reduction for each minor component missing or incorrectly added
- 5-point reductions for other errors

The required systems include but are not limited to:

| **4/C P&ID's:** | **1/C & 3/C P&ID's - (all 4/c P&ID plus:)** |
|---|---|
| Lube Oil Service | Auxiliary Circulating System |
| Fuel Oil Service | MSD |
| Main Circulating Systems | Firemain (exclusive of hydrants) |
| Main Steam Systems | Potable Water System |
| | Main and/or Auxiliary Steam |

## 7. Shipboard Maintenance

Shipboard maintenance provides an opportunity for cadets to maintain the ship and equipment in good operating condition. Students will primarily work in small groups under the supervision of an officer or a rate. Different maintenance tasks will be performed each day according to operational requirements. Therefore, there is no assurance that each and every student will perform any given task; however, sufficient time is allocated to maintenance such that each student will experience a representative sample of maintenance projects.

Shipboard maintenance supports one or more of the following STCW items:

- Maintenance and repair at the operational level (Function 31C)
- Maintain marine engineering systems, including control systems (Competence 31C1)
- Safe isolation of electrical and other types of plant and equipment required before personnel are permitted to work on such plant or equipment (KUP 31C1.2)
- Undertake maintenance and repair to plant and equipment (KUP 31C1.3)
- Use appropriate tools for fabrication and repair operations typically performed on

ships (Competence 31A1)

- Use hand tools and measuring equipment for dismantling, maintenance, repair and reassembly of shipboard plant and equipment (Competence 31A2)
- Use hand tools, electrical and electronic measuring and test equipment for fault finding, maintenance and repair operations (Competence 31A3)

### 7.1. Maintenance Grade Policy

Shipboard maintenance shall represent 25% of the 1/C, 2/C, and 3/C grades and 15% of the 4/C Engineering grade. Each cadet is issued a Maintenance Record Sheet for which he or she is responsible. The Maintenance Record Sheet is to be completed each day by the cadet's immediate supervisor except 1/C cadets who must have them signed by a member of the ship's Engineering Staff. The average of all daily grades shall become the Maintenance Grade (each morning or afternoon grade shall be a half-day grade). Maintenance cards must be turned into the Engineering Training Office at the end of the cadet's last scheduled maintenance day.

Maintenance supervisors are the Chief Engineer, First Assistant Engineer, Second Assistant Engineer, Electrical Officer, Repairman, Engine Training Coordinator, Cadet Chief Engineer, and Cadet 1st Assistant Engineers. The Maintenance Supervisor may opt to sign each half day block or combine both half day blocks into a single day block.

Each cadet is responsible for his or her Maintenance Record Sheet and for insuring that said sheet is turned into the Engineering Training Coordinator at the completion of their final maintenance cycle. Missing data, including lost record sheets, will be assessed a rating of zero points for missing times/information.

## 8. Maintenance Grade Policy

In accordance with the provisions of STCW 95, MMA has incorporated practical demonstrations of competence into the training cruise. All assigned assessments must be passed to receive a grade for the cruise.

***All STCW assessments for the individual's class MUST be completed and passed before the training ship docks in Buzzards Bay at the completion of the sea term. Specifically, STCW Assessments must be completed by 1600 Friday 19 February 2016. Students failing to pass all required assigned STCW Assessments will receive a FAILURE for the cruise; there will be no makeups or incomplete grades issued.***

### 8.1. Assessment Criteria

The assessments to be conducted, as well as the detailed criteria for assessment are defined in the document titled *STCW Engineering Assessment Program*.

### 8.2. Assessments By Class

All classes are responsible for the assessments assigned for their class and for any Assessments that are below their class that they have not completed prior to Sea Term 2016. Assessments are expected to be completed while the cadet is in the Training Division rotation. Some assessments may be performed during maintenance, training and watch rotations, but only to the extent that they do not interfere with the cadet's primary duties. It is the responsibility of each cadet to

complete his or her STCW Assessments.

### 8.3. Designated Assessors

The STCW Code and USCG define the qualifications required to be a designated assessor. Aboard the training ship the following are the only Designated Assessors:

- LT McClellan
- Mr. Coleman
- Mr. Collins
- CDR Haynes
- Mr. Schreiber
- LT Trudeau
- LT Splaine
- Mr. Cruse
- CDR Bausch
- CDR Murray
- Mr. Shepard
- LCDR Pulis

All cadets are encouraged to practice assessments with their peers. Cadet watch grades can be influenced by their knowledge of the assessments which are included within this package and provided in the machinery space. Only the designated Assessors can assign credit for completion of an STCW assessment.

### 8.4. Assessment Scheduling

Assessments will be coordinated by the Engineering Training Officer to meet many goals, including coordination of assessments with prerequisite training classes, student and assessor availability, workload leveling, availability of time and equipment, etc. There are a large number of assessments that must be completed during the cruise, so it is important that all involved cooperate to insure that the schedule can be completed.

Completing assessments is the RESPONSIBILITY of individual cadets. Cadets shall be responsible to achieve completion of all STCW assessments before completion of the sea term. Assessment officers shall be available at least between 0800 and 1600 during each training day; hours may be expanded as necessary. Cadets must not delay in performing assessments. Assessments may be conducted while cadets are on a scheduled watch; not withstanding that the cadet's watch responsibility takes precedence over performing an assessment. Cadets are strongly encouraged to perform assessments when they are in the Training Division rotation. 4/c MMA assessments are to be conducted by the Training Rates.

Each division will have a schedule of Assessments that must be completed before each port. Failure to complete this schedule will result in lost grade points and may result in loss of liberty in the port. Designated Assessors may not be available to perform assessments in port.

As a rule of thumb, each cadet should attempt to complete one half of the required assessments during each of the two STCW Training Days. This means that a cadet must get started right away, and not put it off for later.

### 8.5. Assessment Grades

Levels of performance for demonstrations of skills are defined in the *STCW Engineering Assessment Program* document. For STCW purposes, demonstrations are pass-fail exercises, which must be passed successfully to receive a grade for the cruise. Cadets are encouraged to practice all assessments prior to his or her assessment appointment.

STCW assessments account for 15% of the Sea Term grade for all Engineering 1/c & 2/c cadets and 10% of the Engineering grade for 3/c cadets (see section 2.3). The grade is based on the

ability to successfully complete the Engine Room STCW assessments in a timely fashion. 4/c cadets must complete their assessments during their training and watch cycles. 1/c and 3/ cadets must complete assessments based on the schedule below. Failure to complete assessments by the designated times will result in a 5% grade loss per port. For example, a division 2 3/c cadet with only eight assessments completed by Aruba will be penalized five of the fifteen STCW grade points. Failure to complete all assessments before 1600 Friday, 19 February 2016 will result in a failing grade for the sea term.

Sea Term 2016

STCW COMPLETION SCHEDULE

| Port | STCW Assessments to be Completed before Port | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **1/C** | | | | **3/C** | | | |
| | Div 1 | Div 2 | Div 3 | Div 4 | Div 1 | Div 2 | Div 3 | Div 4 |
| Panama | 4 | 4 | 4 | 0 | 5 | 5 | 5 | 0 |
| Costa Rica | 4 | 4 | 4 | 4 | 5 | 5 | 5 | 5 |
| Aruba | 4 | 4 | 7 | 4 | 5 | 5 | 10 | 5 |
| Key West | 7 | 7 | 7 | 4 | 10 | 10 | 10 | 5 |
| 1600 Friday 19 February 2016 | 7 | 7 | 7 | 7 | 10 | 10 | 10 | 10 |

## 9. Engineering Rate System

All First Class Cadets that have been selected as Engineering Rates are given additional responsibilities and privileges, depending on their position.

### 9.1. Rate Duties and Responsibilities

A rate is responsible to his/her supervisor for a minimum of eight hours of work in each port. Rates are required to confirm with their supervisor prior to liberty in each port that they can go ashore. How and if these eight hours are to be covered is between the rate and their supervisor. Rates may also be assigned to the in-port watch bill. The Chief Engineer is the supervisor of all Rates and ultimately determines the engineering work required in port.

Rates are required to attend training class and stand watch with their division. The engineering adjutant will coordinate watch bill such that certain engineering rates, as requested by the Cadet Chief Engineer, will normally cover the 0400-0800 or the 1600-2000 watch of their designated watch day (excepting that training rates shall cover all watches). Rates are required to complete the entire engineering training program with their classmates.

#### 9.1.1. Training Rates

Training Rates serve to assist with the training and assessment of Third and Fourth Class cadets on watch and during hands-on training. Simultaneously, they must also fulfill the requirements of their own training program by standing watch, attending training classes, and taking exams. The work assignments of *Training Rates* are described below.

When their division is assigned to **Training**, watch training rates will attend regular first class training classes.

When their division is assigned to **Maintenance**, training rates will report to the Engineering Training Quarters to assist with maintenance training or be assigned to the engine room to serve as liaisons. These rates will serve as maintenance training instructors for the 4/c.

When their division is assigned to **Watch**, Training rates will stand their assigned watch.

#### 9.1.2. All Other Engineering Rates

When their divisions are assigned to **Maintenance**, carry out maintenance as directed by the Chief Engineer or the Cadet Chief Engineer.

When their division is assigned to **Watch**, most rates will stand 2 four-hour watches. At the discretion of the Chief Engineer certain rates shall stand a single four hour watch, normally either the 0400-0800 or 1600-2000 and during the workday, 0800-1600, carry out maintenance as directed by the Chief Engineer or the cadet chief. Any rates may stand two watches per day if needed.

When their division is assigned to **Training,** attend normal first class training.

## 10. Sea Term Schedule

*SEA TERM 2016 Watch, Maintenance, Training, & Utility Schedule*

| | | | | | | | DIVISION 1 | | | DIVISION 2 | | | DIVISION 3 | | | DIVISION 4 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date | Day | TD | D1 | D2 | D3 | D4 | UC | 4/C | | UC | 4/C | | UC | 4/C | | UC | 4/C | |
| | | | | | | | D1 | 1A | 1B | D2 | 2A | 2B | D3 | 3A | 3B | D4 | 4A | 4B |
| 1-Jan-16 | FRI | | | | | | All Cadet Officers Report | | | | | | | | | | | |
| 2-Jan-16 | SAT | | | | | | | | | | | | | | | | | |
| 3-Jan-16 | SUN | | M | M | U | W | All Other Cadets Report | | | | | | | | | | | |
| 4-Jan-16 | MON | | M | M | U | W | | | | | | | | | | | | |
| 5-Jan-16 | TUE | | U | W | M | U | | | | | | | | | | | | |
| 6-Jan-16 | WED | | U | W | M | U | | | | | | | | | | | | |
| 7-Jan-16 | THU | | U | W | M | U | | | | | | | | | | | | |
| 8-Jan-16 | FRI | | U | W | M | U | Emergency Drills | | | | | | | | | | | |
| 9-Jan-16 | SAT | | U | U | W | M | DEPART BUZZARDS BAY Time TBD | | | | | | | | | | | |
| 10-Jan-16 | SUN | SS | W | U | M | M | Sunday At Sea & 4C Meetings with Majors | | | | | | | | | | | |
| 11-Jan-16 | MON | 1 | W | M | T | U | W | DW | EW | M | DM | EM | T | DT | ET | U | DU | EU |
| 12-Jan-16 | TUE | 2 | W | M | T | U | W | DW | EW | M | DM | EM | T | DT | ET | U | DU | EU |
| 13-Jan-16 | WED | 3 | W | M | T | U | W | DW | EW | M | DM | EM | T | DT | ET | U | DU | EU |
| 14-Jan-16 | THU | 4 | M | T | U | W | M | DM | EM | T | DT | ET | U | DU | EU | W | DW | EW |
| 15-Jan-16 | FRI | 5 | M | T | U | W | M | DM | EM | T | DT | ET | U | DU | EU | W | DW | EW |
| 16-Jan-16 | SAT | 6 | M | T | U | W | M | DM | EM | T | DT | ET | U | DU | EU | W | DW | EW |
| 17-Jan-16 | SUN | SS | - | W | U | M | Sunday At Sea | | | | | | | | | | | |
| 18-Jan-16 | MON | 7 | T | U | W | M | T | DT | ET | U | DU | EU | W | DW | EW | M | DM | EM |
| 19-Jan-16 | TUE | 8 | T | U | W | M | T | DT | ET | U | DU | EU | W | DW | EW | M | DM | EM |
| 20-Jan-16 | WED | 9 | T | U | W | M | T | DT | ET | U | DU | EU | W | DW | EW | M | DM | EM |
| 21-Jan-16 | THU | 10 | U | W | M | T | U | DU | EU | W | DW | EW | M | DM | EM | T | DT | ET |
| 22-Jan-16 | FRI | | L | L | L | W | *CRISTOBAL, PANAMA* | | | | | | | | | | | |
| 23-Jan-16 | SAT | | W | L | L | L | | | | | | | | | | | | |
| 24-Jan-16 | SUN | | L | W | L | L | | | | | | | | | | | | |
| 25-Jan-16 | MON | 11 | U | W | M | T | U | DU | EU | W | DW | EW | M | DM | EM | T | DT | ET |
| 26-Jan-16 | TUE | 12 | U | W | M | T | U | DU | EU | W | DW | EW | M | DM | EM | T | DT | ET |
| 27-Jan-16 | WED | E-1 | M | W | M | U | EXAM DAY #1 | | | | | | | | | | | |
| 28-Jan-16 | THU | | U | M | W | M | Equator Crossing | | | | | | | | | | | |
| 29-Jan-16 | FRI | | L | L | W | L | *Puntarenas, Costa Rica* | | | | | | | | | | | |
| 30-Jan-16 | SAT | | L | L | L | W | | | | | | | | | | | | |
| 31-Jan-16 | SUN | | W | L | L | L | | | | | | | | | | | | |
| 1-Feb-16 | MON | 13 | W | M | T | U | W | EW | DW | M | EM | DM | T | ET | DT | U | EU | DU |
| 2-Feb-16 | TUE | 14 | W | M | T | U | W | EW | DW | M | EM | DM | T | ET | DT | U | EU | DU |
| 3-Feb-16 | WED | 15 | W | M | T | U | W | EW | DW | M | EM | DM | T | ET | DT | U | EU | DU |
| 4-Feb-16 | THU | 16 | M | T | U | W | M | EM | DM | T | ET | DT | U | EU | DU | W | EW | DW |
| 5-Feb-16 | FRI | | L | W | L | L | *ARUBA* | | | | | | | | | | | |
| 6-Feb-16 | SAT | | L | L | W | L | | | | | | | | | | | | |
| 7-Feb-16 | SUN | | L | L | L | W | | | | | | | | | | | | |
| 8-Feb-16 | MON | 17 | M | T | U | W | M | EM | DM | T | ET | DT | U | EU | DU | W | EW | DW |
| 9-Feb-16 | TUE | 18 | M | T | U | W | M | EM | DM | T | ET | DT | U | EU | DU | W | EW | DW |
| 10-Feb-16 | WED | 19 | T | U | W | M | T | ET | DT | U | EU | DU | W | EW | DW | M | EM | DM |
| 11-Feb-16 | THU | 20 | T | U | W | M | T | ET | DT | U | EU | DU | W | EW | DW | M | EM | DM |
| 12-Feb-16 | FRI | | W | L | L | L | *Key West, FL* | | | | | | | | | | | |
| 13-Feb-16 | SAT | | L | W | L | L | | | | | | | | | | | | |
| 14-Feb-16 | SUN | | L | L | W | L | | | | | | | | | | | | |
| 15-Feb-16 | MON | 21 | T | U | W | M | T | ET | DT | U | EU | DU | W | EW | DW | M | EM | DM |
| 16-Feb-16 | TUE | 22 | U | W | M | T | U | EU | DU | W | EW | DW | M | EM | DM | T | ET | DT |
| 17-Feb-16 | WED | 23 | U | W | M | T | U | EU | DU | W | EW | DW | M | EM | DM | T | ET | DT |
| 18-Feb-16 | THU | 24 | U | W | M | T | U | EU | DU | W | EW | DW | M | EM | DM | T | ET | DT |
| 19-Feb-16 | FRI | E-2 | M | M | U | W | EXAM DAY #2 | | | | | | | | | | | |
| 20-Feb-16 | SAT | | M | M | U | W | FIELD DAY - CAPE COD BAY | | | | | | | | | | | |
| 21-Feb-16 | SUN | | W | | | | ARRIVE BUZZARDS BAY | | | | | | | | | | | |
| 22-Feb-16 | MON | | | | | | *Buzzards Bay, MA* | | | | | | | | | | | |
| 23-Feb-16 | TUE | | | | | | | | | | | | | | | | | |

**Upperclass Legend:** (M) Maintenance, (T) Training, (UC) Upperclass, (W) Watch, (U) Utility

**4/c Legend:** (DM) Deck Maint., (DT) Deck Training, (DW) Deck Watch, (DU) Deck Utility, (EM) Engine Maint., (ET) Engine Training-Class, (EW) Engine Watch, (EU) Engine Utility

## 11. Engineering Training Department Staff

- LT McClellan 2016 Engineering Coordinator
- Mr. Coleman
- Mr. Collins
- CDR Haynes
- Mr. Schreiber
- LT Trudeau
- LT Splaine
- Mr. Cruse
- CDR Bausch
- CDR Murray
- Mr. Shepard
- LCDR Pulis