

2017 CRUISE TRAINING PROGRAM

Department of Marine Transportation

FIRST CLASS

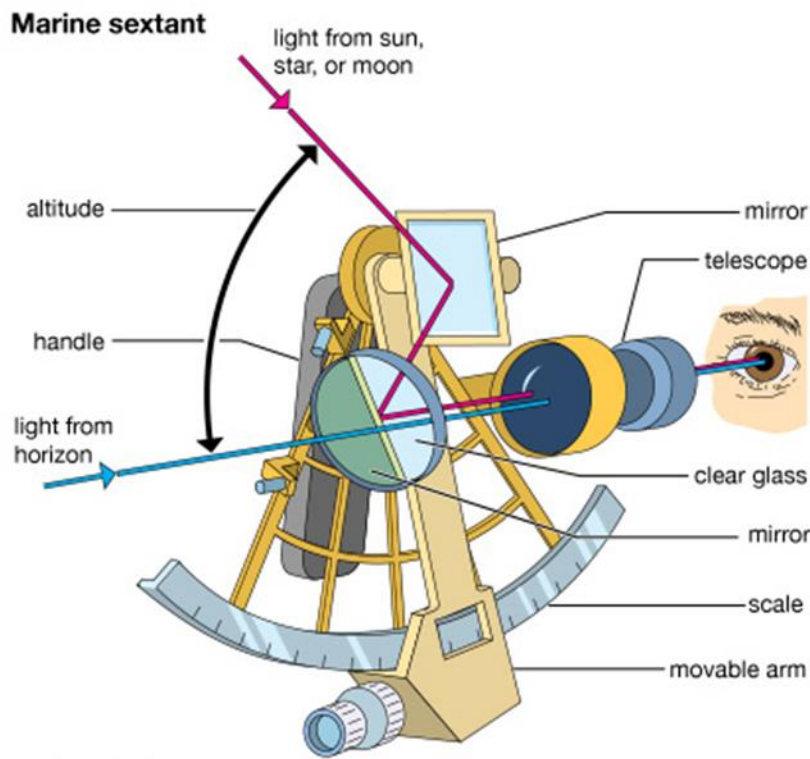
Celestial Navigation Project

STCW Assessments

2017 Training Voyage of U.S.T.S. Kennedy

“No matter how important a man at sea may consider himself, unless he is fundamentally worthy the sea will someday find him out”.

Felix Riesenberg



Manual # _____

Cadet _____

Division _____

Berthing Location _____

2017 Version

Department of Marine Transportation

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MT Celestial Navigation Project --- Sea Term 2017

The 2017 Celestial portion of your overall Sea Term Grade will be composed as follows:

Celestial Mid-Term	10% of final grade
Celestial Final Exam	15% of final grade
Cel-Nav Project Practice Problems	25% of final grade

In order to ensure that you are ready for your assessments and to assess other skills you must **correctly** complete and receive a grade on all the practice items that are on the project practice sign-off record sheet associated with each assessment BEFORE attempting an assessment. If the work is incorrect or improperly done, or if the Cel-Nav Training Officer suspects a computer program has been used, it will not constitute a sign off for that practice item. Practice problems will be graded by a Cel-Nav Training Officer on a ten point scale with each block on the Cel Nav Practice Sheet being worth one point.

The master sea term Assessment Completion Sheet will be kept by Capt. Mayhofer. He will periodically review your Celestial Navigation Project Assessment Record and transfer completed assessments to his files. One copy will be given to you at the start of the Sea Term for your own record keeping.

You will possess the Celestial Navigation Project Practice and Assessment Records containing the signatures from the Assessment Officers during the sea term. Loss of either of these documents will result in re-doing all practice sights and all assessments not recorded in the Record sheets to date. **THIS IS YOUR RESPONSIBILITY, DO NOT LOSE IT!!!!**

All practice sights must be witnessed and initialed by either a Watch Officer or an Assessment Officer when taken. This merely indicates that the student took his/her own sight. All work must be entered properly into the Navigation Journal and then submitted to the Cel-Nav Training Officer(s) for review before proceeding further. You must follow the instructions and formats given to you with this manual. These officers will be available in the Fwd / Aft Nav Labs from 1800-2200 every evening of each training day.

Every cadet in the training division and utility maintenance divisions is **required** to be present for morning and evening stars every training day unless cancelled by Capt. Mayhofer, **No exceptions!** Muster sheets will be posted in the Fwd Nav Lab for cadets to sign in on. Any Cadet not present will be placed on report. Cadets in the deck maintenance division are encouraged to attend. Cadets in the watch division should attend as often as their watch responsibilities permit.

All STCW sights must be witnessed by an Assessment Officer ONLY and worked out immediately under their observation. Watch officers cannot witness STCW assessments.

MT Celestial Navigation Project --- Sea Term 2017

Sign-off reviews by the Cel-Nav Assessment Officers will give priority to the current training division cadets followed by utility division cadets, followed by deck maintenance and watch division cadets.

You must get work signed off within 24 hours of your sight, No exceptions!

All cadets not in the watch division doing celestial navigation shall remain out of the bridge, utilizing the bridge decks to port/starboard from the bridge wings aft, including the flying bridge deck and Nav. Lab deck. Dead reckoning plots will be kept on a chart in the aft navigation lab for your use. **DO NOT DISTURB THE BRIDGE WATCH.**

All Cadets, regardless of division and training cycle, must have at least 3 practical assessments signed off and completed prior to arrival in the first port of call, Aruba, on January 20, 2017 or face liberty restriction.

All Cadets, regardless of division and training cycle, must have at least 4 total practical assessments signed off and completed prior to arrival in the second port of call, Barbados, on January 27, 2017 or face liberty restriction.

All Cadets, regardless of division and training cycle, must have at least 5 total practical assessments signed off and completed prior to arrival in the third port of call, St. Thomas, on February 3, 2017 or face liberty restriction.

All Cadets, regardless of division and training cycle, must all 7 practical assessments signed off and completed prior to arrival in the fourth and final port of call, Ft. Lauderdale, on February 10, 2017 or face liberty restriction.

MT Celestial Navigation Project --- Sea Term 2017

GENERAL:

- Course, Speed and DR Position of the vessel MUST be included with EVERY ENTRY in the Navigational Journal. One DR on the top of a page for observations at three different times is ***not*** acceptable.
- Work must be correct for credit. If work is poor, sloppy or illegible it will be rejected and cannot be used later after it is corrected.
- Work must be complete for credit. It is at the instructor's discretion to allow you to take back some work to finish, if it was submitted prematurely. However, it could be rejected and not allowed to be used again.
- ***AM and PM star observations are not optional for the training division.*** When the candidate's division is assigned to Training, the candidate shall be in the Navigation Lab ready to observe morning/evening stars not later than 30 minutes Prior to star time. ***Should a candidate be late or absent for any reason, the celestial navigation project grade will be reduce by five (5) points for each occurrence.*** Proper uniform (no boiler suits) must be worn at star time (both morning/evening). Cadets in the training division are not to wear boiler suits to celestial training.
- Any azimuths or amplitudes must have the compass record section (in the back of Navigational Journal) completed in order to be accepted.
- Cadets not in sight of Assessment Officers when taking a sight must have the sight signed off by one of the watch officers. This only signifies that the cadet took a sight and recorded that data. This can only be done for the "Practice" categories (the white lines on the matrix, not for assessments).
- All STCW Assessments must be completed entirely before Assessment Officers, as these must be done under controlled conditions.

PLOTTING SHEETS IN GENERAL:

- ALL WORK must be neat and legible! Anything else will NOT be signed off.
- LABEL all plotting sheets with name and date in upper right hand corner.
- All plots must include course line (labeled with course and speed) and DRs for the times in the area of the sights.
- All plots must be accompanied by GPS position and DRs at time of LOP or celestial fix.
- If a running fix is done, or if a star fix is obtained, write the fix's Time and Latitude and Longitude on the sheet, along with the latitude and longitude of the GPS for the same time.
- For star time, advance or retard all lines of position to one time. This STAR TIME will usually be assigned by the First Class Training Officer each day and posted on the Dry Erase Board in the Cadet Chart Room. DO NOT compute a star fix for any other time without special permission to do so by the Assessment Officers.

MT Celestial Navigation Project --- Sea Term 2017

Practice:

a. Computation of Star Time:

Make sure proper DR was used for time of event.

Use second estimate if necessary

Star time is half way between Nautical and Civil Twilight in the A.M. and half way between Sunset and Civil Twilight in the P.M.

b. Computation of LHA of Aries for Star Time

Make sure proper DR was used for time of event.

Use second estimate if necessary.

Time Diagram required to show GHA Aries and LHA Aries.

Azimuths and altitudes of at the best five stars according to altitude, magnitude and azimuth must be listed.

A Sketch showing the relative location of each star to vessel heading must be included.

c. Computation of Sunrise:

Make sure proper DR was used for time of event.

Use second estimate if necessary

Practice:

a. Computation of Sunset:

Make sure proper DR was used for time of event.

Use second estimate if necessary

b. Computation of Star Time:

Make sure proper DR was used for time of event.

Use second estimate if necessary

Star time is half way between Nautical and Civil Twilight in the A.M. and half way between Sunset and Civil Twilight in the P.M.

c. Computation of LHA of Aries for Star Time

Make sure proper DR was used for time of event.

Use second estimate if necessary.

Time Diagram required to show GHA Aries and LHA Aries.

Azimuths and altitudes of at the best five stars according to altitude, magnitude and azimuth must be listed.

A Sketch showing the relative location of each star to vessel heading must be included.

STCW ASSESSMENT OICNW 1-1A Adjust a sextant - as per your Control Sheet, students must demonstrate the proper adjustment of the sextant to a designated officer. ***This assessment must be completed before observing any sunlines or star LOPS for practice credit or assessments.***

MT Celestial Navigation Project --- Sea Term 2017

Practice: AM or PM azimuths

Two practice azimuths any combination of morning and afternoon.

Must be completed prior to attempting the next practical assessment.

Azimuths must have at least a two hour period between successive azimuths.

- Record which repeater used.
- Record which bearing circle used.
- Record that the repeater was checked against master gyro (there is no such thing as "repeater error").
- Work determining gyro error shall be shown on the page with azimuth calculations.
- ***The compass comparison section in the back of the navigation journal must be complete for credit.***

STCW ASSESSEMENT OICNW 1-5F Azimuth of Sun -- As per your Control Sheet, students must demonstrate the proper taking of an azimuth, AM or PM, and demonstrate the ability to record the time of the observation accurately. There are no calculations involved in this assessment.

Practice: AM or PM Amplitudes

- Record which repeater used.
- Record which bearing circle used.
- Record that the repeater was checked against master gyro (there is no such thing as "repeater error").
- Work determining gyro error shall be shown on the page with azimuth or amplitude calculations.
- One amplitude must be taken with lower limb 2/3 diameter above the horizon, and one amplitude with center of sun on visible horizon. Due to lack of gyro repeaters and azimuth circles, students can "share" the observations of AMPLITUDES ONLY provided that, all available repeaters are being used and the students are physically present when the observations occurred. Otherwise, observations by someone else cannot be used.
- The compass comparison section in the back of the navigation journal must be complete for credit.

Practice: AM or PM Sunlines

- For each "sunline" requirement, take two sights in quick succession (within a minute or two of each other) resetting the sextant after the first observation.
- Compute and plot both sunlines for their respective times.
- If there are large differences between the two investigate why. Correct any mistakes if possible and re-plot if necessary. **DO NOT SUBMIT THEM FOR CREDIT IF THEY DO NOT WORKOUT WELL.**
- Sunlines submitted for credit must be plotted on a plotting sheet with the following:
 - DR track started from a previous fix (provided by Capt. Mackey every A.M. and/or noon) properly labeled;
 - DR position for the time of the sunlines;
 - GPS position for time of sunlines for assessment purposes.
 - Label all sunlines properly with time of observation.
 - Draw appropriate time diagram indicating GHA, LHA, Longitude, Meridian Angle.
 - Date all plotting sheets in upper right hand corner with date of observation.
 - Must be completed before attempting to complete OICNW 1-1B that follows.

MT Celestial Navigation Project --- Sea Term 2017

STCW OICNW 1-1B Measure Altitude of Sun

There are no calculations in this assessment.

Student(s) must take altitude with instructor and get approximate values as instructors.

Student(s) must determine exact UTC of measurement.

Practice: PRE COMPUTE and OBSERVE LAN -

- Estimate time of LAN using Meridian Transit method and estimate time of LAN using GHA method for a second estimate.
Pre-calculate Hs of LAN.
- Meridian Diagram REQUIRED for LAN computation NO EXCEPTIONS!
- OBSERVE LAN.
- Plot LAN observation on Plotting sheet with the following:
 - DR track started from a previous fix properly labeled;
 - DR position for the time of LAN;
 - GPS position for time of LAN for assessment purposes.
- Advance or Retard LAN to 1200 and label properly.

STCW OICNW 1-1D Measure Altitude of Sun at LAN

There are no calculations in this assessment.

Student(s) must take altitude with instructor and get approximate values as instructors.

Practice: Determine Latitude by Polaris

- Time Diagram required to show GHA and LHA Aries.
- No plot necessary only final latitude.

Practice: RUNNING FIX AT Noon

You are allowed to utilize sun lines and LANs already done for that day.

Plotting sheet shall have DR track, with DRs for time of each LOP.

After LAN is plotted, advance or retard latitude at LAN to 1200 ZT.

Advance the best of previous LOPs to 1200 (need a minimum of three LOP's for a fix).

Practice: Azimuth of Planet or Star

Record which repeater used.

Record which bearing circle used.

Record that the repeater was checked against master gyro (there is no such thing as "repeater error").

Work determining gyro error and deviation shall be shown on the page with azimuth calculations.

The compass comparison section in the back of the navigation journal must be complete for credit.

STCW OICNW 1-5G Azimuth of any body at night

There are no calculations in this assessment

Student(s) must take azimuth with instructor and get approximate values as instructors.

Student(s) must determine exact UTC of measurement.

MT Celestial Navigation Project --- Sea Term 2017

Practice: AM or PM Star Fixes

- Time Diagram required to show GHA and LHA Aries.
- If there are large differences between any LOPs, investigate why and correct.
- Re-plot if necessary. DO NOT SUBMIT THEM FOR CREDIT IF THEY DO NOT WORKOUT WELL.
- Plotting sheet shall have DR track, with a DR position and a GPS fix at the time of the star fix.
- Fix position to be within Three Miles (3) of instructor's solutions.
- Minimum of three stars (each shot twice in quick succession), or five individual stars to be calculated and plotted.
- Stars to be advanced to a common time as determined by instructor.
- Must be completed before attempting to complete OICNW 1-1C that follows.

STCW OICNW 1-1G Measure altitude of three stars

- There are no calculations in this assessment. Only a limited number of students per Assessment Officer will be allowed to assess at any one time.

Student(s):

- Will determine which star(s) to observe and in what order and inform the Assessment Officer.
- must take altitude with instructor and be within assessment parameters of the instructor altitudes.
- must determine exact UTC of measurement.
- must get at least three stars correct out of the number they took.
- Further instruction on how this assessment will be conducted can be found with the assessment control sheets.

STCW OICNW 1-1C Three Star Fix

- Time Diagram required to show GHA and LHA Aries, Meridian Angle.
- If there are large differences between any LOPs, investigate why and correct.
- Re-plot if necessary. DO NOT SUBMIT THEM FOR CREDIT IF THEY DO NOT WORKOUT WELL.
- Plotting sheet shall have DR track, with a DR position and a GPS fix at the time of the star fix.
- All work will be monitored in the navigation lab.
- Student will have 1-1/2 hours to determine a fix at a time designated by the examiner, based upon his/her star LOPs.

STCW OICNW 1-1E, 1-5F(A), & 1-5G(A)

- Paper plots/problems that will be given during the mid-term on Exam Day One and will comply with the appropriate Control Sheets.

STCW OICNW 1-1F

- Is a paper star fix problem that will be given during the final exam on Exam Day Two and will comply with the appropriate Control Sheets.

MT Celestial Navigation Project --- Sea Term 2017

Cel Nav Assessment Methodology

OICNW #	ASSESSMENT DESCRIPTION	TYPE	
1-1A	Adjust Sextant	Practical	Assessment
1-1B	Measure Altitude of Sun	Practical	Assessment
1-1D	Measure Altitude of Sun at LAN	Practical	Assessment
1-1G	Measure altitude of at least 3 stars	Practical	Assessment
1-5F	Azimuth of Sun	Practical	Assessment
1-5G	Azimuth of any body at night	Practical	Assessment
1-1C	Three Star Fix	Practical	Assessment
1-1E	Advance three Sun Lines and plot	PAPER Exam	MID Term and Final
1-5F(A)	Azimuth of sun	PAPER Exam	MID Term and Final
1-5g(A)	Azimuth of night body	PAPER Exam	MID Term and Final
1-1F	Plot 3 LOPS for Star Fix	PAPER Exam	Final Exam Only

Practical Assessments are Pass or Fail. All practical assessments **must** be completed prior to the end of cruise and arrival in Buzzards Bay. Any Cadet not completing any of the practical assessment(s) will receive a FAILING grade for the sea term and will have to complete the entire Sea Term IV. Any cadet not completing an examination assessment will receive an incomplete "I" grade for sea term and must complete that assessment with Capt. Mayhofer after cruise in order to receive a letter grade for Sea Term IV.

MT Celestial Navigation Project --- Sea Term 2017

**Massachusetts Maritime Academy
TABLE A-II/1 Specification of Minimum Standard of Competence
OFFICER IN CHARGE OF A NAVIGATIONAL WATCH
Control Sheets
COURSE: MT 4371 Sea Term IV**

Failure to complete ANY of the seven (7) practical assessments associated with Sea Term IV by the end of cruise will result in a FAILING (“F”) grade for sea term and require the Cadet to repeat the entire Sea Term IV. Failure to complete ANY of the four (4) examination assessments during cruise will result in an INCOMPLETE (“I”) for sea term and require completion after cruise with Capt. Mayhofer in order to receive a letter grade for Sea Term IV.

Do not wait until the last leg of the voyage to try to get assessments completed. Historically the weather is poor between Miami and Buzzards Bay in February and you may not see the sun or stars at all during this period!!!!!! Remember, excuses will not be accepted for not completing this project.

On the below pages you will find the STCW Control Sheets for each of the above assessments outlining the required performance standards.

For any questions about these assessments contact Capt. Mayhofer.



Assessment OICNW-1-5G

Azimuth of any body at night

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

On vessel at night, and using a standard azimuth circle.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Read the gyro-compass bearing of any body.	<ol style="list-style-type: none"> 1. The azimuth of the body is read when the repeater is level. 2. The time of the reading noted and is within 1 second of UCT. 3. Reading obtained is within 0.5 of the assessor's observation.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.07 Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors	Azimuth of any body at night

Published: 2016-10-28-04:00



Assessment OICNW-1-5G(A)

Azimuth of any body at night

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

On a vessel or in a laboratory, given the UTC, azimuth bearing of body, assumed position, appropriate tables and almanac.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Determine gyro compass error from celestial body.	<ol style="list-style-type: none"> 1. The true azimuth of the body for the time of the reading is determined. 2. The gyrocompass azimuth is compared to the true azimuth and the gyro error is determined. 3. The solution is $\pm 0.5^\circ$ of the assessor's solution.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.07 Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors	Azimuth of any body at night

Published: 2016-10-28-04:00



Assessment OICNW-1-5F

Azimuth of the sun

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

On a vessel, using a standard azimuth circle.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Read the gyrocompass bearing of the sun and determine correct time of observation.	<ol style="list-style-type: none"> 1. The azimuth of the sun is read when the repeater is level. 2. The time of the reading noted and is within 1 second of UCT. 3. Reading obtained is within 0.5 of the assessor's observation.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.07 Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors	Azimuth of the sun

Published: 2016-10-28-04:00



Assessment OICNW-1-5F(A)

Azimuth of the sun

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

On a vessel or in a laboratory, given the UTC, azimuth bearing of sun, assumed position, appropriate tables and almanac.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Determine gyro compass error.	<ol style="list-style-type: none"> 1. The true azimuth of the sun for the time of the reading is determined. 2. The gyrocompass azimuth is compared to the true azimuth and the gyro error is determined. 3. The solution is $\pm 0.5^\circ$ of the assessor's solution.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.07 Ability to determine errors of the magnetic and gyro-compasses, using celestial and terrestrial means, and to allow for such errors	Azimuth of the sun

Published: 2016-10-28-04:00



Assessment OICNW-1-1G

Measure the altitude of at least 3 stars

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

Aboard a ship at sea, given a standard marine sextant, a clear horizon, a clear or partly cloudy sky, and an accurate time, during a single twilight.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Measure the altitude of three stars and accurately record the times of the observation of each star.	<ol style="list-style-type: none"> 1. The altitude is within ± 0.5 minutes of arc, after correction for index error, as compared with the altitude measured by the assessor at the same time; and, 2. The time is within ± 2 seconds of UTC at the time of observation as determined by the assessor.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.01 Celestial Navigation Ability to use celestial bodies to determine the ship's position	Measure the altitude of at least 3 stars

Published: 2016-10-28-04:00



Assessment OICNW-1-1F

Star Fix

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

Aboard a ship at sea, or in a navigation laboratory, when given the assumed positions, the intercepts, azimuths, and times of three star observations, and on a standard plotting sheet appropriate for the dead reckoning position.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Plot the three lines of position and advance them to a common time.	The position of the star fix is within 1.0 nm of the assessor's solution.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.01 <i>Celestial Navigation</i> Ability to use celestial bodies to determine the ship's position	Star Fix

Published: 2016-10-28-04:00



Assessment OICNW-1-1E

Celestial running fix

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

Aboard a ship at sea, or in a navigation laboratory, when given the assumed positions, the intercepts, azimuths, and times of three observations of the sun, and on a standard plotting sheet appropriate for the dead reckoning position.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Advance all three lines of position to a common time.	The position of the running fix is within 1 nm of the assessor's solution.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.01 <i>Celestial Navigation</i> Ability to use celestial bodies to determine the ship's position	Celestial running fix

Published: 2016-10-28-04:00



Assessment OICNW-1-1D

Measure the altitude of the sun at meridian passage (local apparent noon)

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

Aboard a ship at sea, given a standard marine sextant, a clear horizon, a clear or partly cloudy sky.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Measure the altitude of the sun as it transits the meridian on which the vessel is located.	The altitude is within ± 0.5 minutes of arc, after correction for index error, as compared with the altitude computed by the assessor, or within ± 1.0 minutes of arc, after correction for index error, as measured by the assessor at meridian passage.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.01 <i>Celestial Navigation</i> Ability to use celestial bodies to determine the ship's position	Measure the altitude of the sun at meridian passage (local apparent noon)

Published: 2016-10-28-04:00



Assessment OICNW-1-1C

Measure the altitude of at least 3 stars

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

Aboard a ship at sea, given a standard marine sextant, a clear horizon, a clear or partly cloudy sky, and an accurate time, during a single twilight.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Measure the altitude of three stars and accurately record the times of the observation of each star. The candidate will then plot the three lines of positions and advance them to a common time.	The resultant position of the star fix is within 1.5 nm of the ship's GPS position at the corresponding time, or within 3 nm of the assessor's solution taken during the same time.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.01 <i>Celestial Navigation</i> Ability to use celestial bodies to determine the ship's position	Measure the altitude of at least 3 stars

Published: 2016-10-28-04:00



Assessment OICNW-1-1B

Measure the altitude of the sun

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

Aboard a ship at sea, given a standard marine sextant, a clear horizon, a visible sun, and an accurate time.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Measure the altitude of the lower limb of the sun and accurately record the time of the observation.	<ol style="list-style-type: none"> 1. The altitude is within ± 1.0 minutes of arc, after correction for index error, as compared with the altitude measured by the assessor at the same time; and, 2. The time is within ± 1 second of UTC at the time of observation as determined by the assessor.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	<p>A1.01 <i>Celestial Navigation</i></p> <p>Ability to use celestial bodies to determine the ship's position</p>	Measure the altitude of the sun

Published: 2016-10-28-04:00



Assessment OICNW-1-1A

Adjust a sextant

Assessed in MT-4371 Sea Term IV: Marine Transportation

Condition

On a ship underway or in a laboratory with a clear horizon, given a standard marine sextant with a total index error of no more than 2'.

Performance Requirements

Behavior	Standard
<i>The student will:</i>	<i>During assessment, the student shall, at a minimum:</i>
Remove the adjustable sextant errors	<ol style="list-style-type: none"> 1. The errors are removed in the following order: <ol style="list-style-type: none"> a. Perpendicularity; b. Side error; c. Parallelism 2. The index error is less than 1.0 minutes of arc.

Supports Table A-II/1 officer in charge of a navigation watch

Competence	Knowledge, Understanding & Proficiency	Task
Plan and conduct a passage and determine position	A1.01 Celestial Navigation Ability to use celestial bodies to determine the ship's position	Adjust a sextant

Published: 2016-10-28-04:00

MT Celestial Navigation Project --- Sea Term 2017

SEA TERM 2017

OICNW-1-1G, MEASURE THE ALTITUDE OF AT LEAST THREE STARS

CADET PROCEDURES:

1. To qualify for OICNW 1-1G, you must have completed all previous listed practice and assessments
2. You must notify the designated examiner (DE) of your desire to assess by 1600 the day of assessment for evening stars and 1800 the previous evening for morning stars. Your name will be put on the white board in the Nav. Lab. If you decide prior to star time you are not ready, you can withdraw your name from the list without penalty.
3. DE will provide you with a form for data recording
4. You must show the pre-computation of star time, LHA of Aires and stars you anticipate observing (altitude and azimuth).
5. Observations will be taken with the DE.
6. DE will determine time of observation and announce "mark".
7. At the time of "mark" you will record the required information on the data sheet.
8. Immediately after the round of stars you must hand the data sheet to the DE for assessment. Failure to hand in the data sheets will result in a failure of the assessment.
9. The DE will evaluate the sights as soon as possible after completion of the round of stars so stand by in the Nav. Lab for results. Do not bother the DE during the evaluation process.
10. At no time will you talk or compare results with others involved in the assessment process.
11. You are to do all your own work and time and data recorders (underclass) will not be allowed.

MT Celestial Navigation Project --- Sea Term 2017

Celestial Navigation Project Practice Record

Star Time, LHA Aries, and Sunrise

	1st	2nd	3rd
Time Diagram			
DR Lat & λ			
DR Calc OK, Either Method: Plot or Sailing			
List of 5 Best \star s w/alt & az			
Sketch of 5 Best \star s			
LHA Aries			
Sunrise			
Naut. Twil.			
Civil Twil.			
Star Time			
Practice Score (Max 10)			
Assessor			

Azimuth of SUN (AM or PM)

	1st	2nd	3rd
Time Diagram			
DR Lat & λ			
GMT			
GHA			
LHA			
Dec			
Zn			
Obs			
Deviation			
C.E. / Comp. Err. Page Entry			
Practice Score (Max 10)			
Assessor			

Sunset, Star Time and LHA Aries

	1st	2nd	3rd
Time Diagram			
DR Lat & λ			
DR Calc OK, Either Method: Plot or Sailing			
List of 5 Best \star s w/alt & az			
Sketch of 5 Best \star s			
LHA Aries			
Sunset			
Civil Twil.			
Naut. Twil.			
Star Time			
Practice Score (Max 10)			
Assessor			

Amplitude of SUN (AM or PM)

	1st	2nd	3rd
Time Diagram			
DR Lat & λ			
Obs of SUN (& which repeater)			
Dec			
Calculation -or- Table for Z			
Z with proper N/S/E/W labels			
Zn			
Variation			
Deviation			
Dev'n / Comp. Err. Page Entry			
Practice Score (Max 10)			
Assessor			

Student Name: _____

Celestial Navigation Project Practice Record

Azimuth of Planet or Star

	1st	2nd	3rd
Time Diagram			
DR Lat & λ			
GMT			
SHA for ★ or v-corr for planet/moon			
LHA			
Dec			
Zn			
Obs			
C.E.			
Dev'n / Comp. Err.			
Page Entry			
Practice Score (Max 10)			
Assessor			

Pre-Comp LAN

	1st	2nd	3rd
Time Diagram			
DR Lat & λ			
DR Calc OK, Either Method: Plot or Sailing			
LAN Time est'd by Mer. Transit Method			
LAN Time est'd by GHA Method			
Pre-comp Hs of LAN			
Meridian Diagram (required)			
DR Track, DR for LAN Time			
Observed Hs of LAN			
Ship's 1200 GPS Posn Recorded			
Practice Score (Max 10)			
Assessor			

Sunline (AM or PM)

	1st	2nd	3rd
Time Diagram			
DR Lat & λ			
DR Track, DRs for Line Times			
Plotted 2x Lines			
LHA of SUN @ actual λ			
Ass'd λ / LHA for HO-229			
Dec			
Ho			
Hc			
Zn			
Practice Score (Max 10)			
Assessor			

Latitude by Polaris

	1st	2nd	3rd
Time Diagram			
DR Lat & λ			
Ho Polaris			
GHA Aries			
LHA Aries			
a0			
a1			
a2			
Proper Polaris Calculation			
Latitude by Polaris			
Practice Score (Max 10)			
Assessor			

Student Name: _____

Celestial Navigation Project Practice Record

Noon Running Fix

	1st	2nd	3rd
Time Diagrams (x3)			
DR Lat & λ			
Plotting Sheet prepared correctly			
DR Track, DRs for Line Times			
LAN Plotted			
LOP 1 Plotted and Adv/Ret			
LOP 2 Plotted and Adv/Ret			
Ship's 1200 GPS Posn Recorded			
Fix Plots OK / Works Out			
Position w/in 3nm (Bonus +10 if within 1.5nm)			
Practice Score (Max 10)			
Assessor			

Star Fix (AM or PM)

	1st	2nd	3rd
Time Diagrams (x3)			
DR Lat & λ			
Plotting Sheet prepared correctly			
DR Track, DRs for Line Times			
LOP 1 Plotted and Adv/Ret			
LOP 2 Plotted and Adv/Ret			
LOP 3 Plotted and Adv/Ret			
Ship's 1200 GPS Posn Recorded			
Fix Plots OK / Works Out			
Position w/in 3nm (Bonus +10 if within 1.5nm)			
Practice Score (Max 10)			
Assessor			

Student Name: _____

MT Celestial Navigation Project --- Sea Term 2017

Assessment Record

	Cleared to Assess	Assessment
	Instructor Initial & Date	Passed Initial & Date
Adjust a sextant OICNW 1-1A MUST BE COMPLETED BEFORE ANY OTHER PRACTICAL ASSESSMENTS		
Azimuth of Sun OICNW 1-5F All AM or PM practice azimuths completed BEFORE assessing		
Measure Altitude of Sun OICNW 1-1B All AM or PM practices Sunlines completed BEFORE assessing		
Measure altitude of Sun at LAN ICNW 1-1D All Pre-computation practices of LAN BEFORE assessing		
Azimuth of any body at night OICNW 1-5G All Azimuth of Planet or Star practices completed BEFORE assessing		
Measure altitude of at least 3 stars OICNW 1-1G All AM or PM Star Fix practices completed BEFORE assessing		
Three Star Fix OICNW 1-1C All AM or PM Star Fix practices completed BEFORE assessing		
MIDTERM EXAMINATION- Advance 3 Sun Lines and Plot OINCW 1-1E		
MIDTERM EXAMINATION - Azimuth of Sun OINCW 1-5F(A)		
MIDTERM EXAMINATION - Azimuth of Night Body OINCW 1-5G(A)		
FINAL EXAMINATION - Plot 3 LOPS for Star Fix OINCW 1-1 F		

Student Name: _____