# CMI COURSE CURRICULUM
## COURSE ACTION

**Course Title:** Mathematics for Mariners **Alpha Number:** MART 102 **CIP No.** 27.0199

**Type of Action:**

_____New Course (attach narrative justification for course creation)

_____ Substantive Revision (attach narrative justification for changes, including assessment and/or achievement data and feedback from the advisory committee if relevant)

Select all that apply:
_____Change in number of credit hours
_____Change in prerequisite
_____Substantive change in course content
_____Change to SLOs _____Other:

__x___Non-substantive Revision
Select all that apply:
_____Change in Alpha Number or Title (unless letter abbreviation has not previously been used)
_____Edit to course description that does not alter the substance of the course
_____Change to recommended texts
__x__Other: Change in number of contact hours to 120

_____ Reinstitution of Archived Course (attach narrative justification for reinstitution, including evidence of demand, evidence of capacity, feedback from the advisory committee if relevant, and commentary that speaks directly to the reasons the course was initially archived))

_____ Reaffirmation of Course (only allowable if course completion rate exceeds ISS, the benchmark has been met for the majority of SLO assessments, and there is no evidence of inequitable levels of achievement across subpopulations; attach evidence)

**Approvals:**

| | Name | Signature | Date |
|---|---|---|---|
| **Department Chair** | Edward Adiniwin | DocuSigned by: Edward Adiniwin 8A4D36588E1D48C... | 9/2/2024 |
| **Curriculum Committee Chair** | Desmond N. Doulatram | DocuSigned by: Employee signature/Department Co-Chair 8A4E9FDD06E14D5... | 9/2/2024 |
| **Dean** | Rigieta R. Lord | Signed by: Rigieta R. Lord E719CB3192EB4F4... | 9/2/2024 |
| **VPASA** | Dr.Elizabeth Switaj | DocuSigned by: 89BEB3BDDC23455... | 10/30/2024 |

# CMI COURSE OUTLINE

**CIP No.** 27.0199 **Version No.** 2

MART 102 — **Alpha Number**
Mathematics of Mariners — **Course Title**
**Previous Alpha Number:**

**Course Description:**
Designed to provide instruction in basic math skills necessary for employment on board seagoing vessels. Emphasizes practical application problems relating to shipboard work.

**Course originally prepared by:** Mary Van Auken, Ruth Abbot and Don Hess 2/14
**Most recent revision by:** Maritime Program WAVES January 2023
Maritime Program WAVES August/2024

**Course mode(s):** X Face to Face (including Zoom) X Hybrid

**Credits calculated by:** X Credit Hour ____ Clock Hour ____ N/A

**Contact Hours:** 120

| Type | No. of Hours | No. of Credits | Maximum No. of Hours Online |
|---|---|---|---|
| Lecture/Seminar/Workshop | 75 | 5 | 15 |
| Clinical | | | |
| Practicum | | | |
| Lab | 45 | 1 | |
| Fieldwork | | | |
| Studio Time | | | |
| **Total** | 120 | 6 | 15 |

**Purpose(s) of Course:**
Degree Requirement _____
Degree Elective ____Liberal Arts_____
General Education _____
Credit Certification Rating forming Part of a Navigation Watch
Rating forming Part of an Engine Room Watch
Developmental _____
CTE/TVET ___X_____
ABE/Adult HS _____

**Distribution Area:**
Humanities _____
Social Sciences _____
Mathematics (Credit) _____
Science _____

**Prerequisite:** None

**Student Learning Outcomes:**

Upon completion of this course, students will be able to:
1. Add, subtract, multiply and divide whole numbers and fractions
2. Solve typical shipboard math problems using standard formulas and notations

**SLO Mapping:** N/A

**Links to Program Learning Outcomes:**

| SLO | Linked PLO | I/P/M | Explanation of Link |
|---|---|---|---|
| 1 | CC RNW 1-5<br>1. Maintain, handle, and use ropes for shipboard applications in accordance with established shipboard practice.<br>2. Provide a safe means of access to personnel embarking and disembarking the vessel.<br>0. Perform support duties during mooring and anchoring operations.<br>0. Carry out basic deck maintenance procedures.<br>0. Contribute to monitoring and controlling a safe watch.<br>CC RERW 1-4<br>1. Carry out basic engine room watchkeeping duties safely and effectively.<br>2. Perform the lubrication/fuel and record keeping duties of an engine room rating in accordance with established procedure and safety requirements.<br>3. Carry out relevant operational checks of marine boilers, marine diesel engines, and related systems in accordance with | I | These duties of the navigational watch require the ability to complete basic mathematical operations<br><br>These duties of the engine room watch require the ability to complete basic mathematical operations |

| | | | |
|---|---|---|---|
| | established procedure and safety/statutory requirements.<br>4. Safely operate the onboard pollution control machinery and equipment in accordance with safety, statutory and environmental requirements. | | |
| 2 | CC RNW 6-8<br>6. Observe safety precautions during the stowage and handling of cargoes. | I | These duties of the navigational watch require solving basic math problems.<br><br>These duties of the engine room watch |
| | 7.Keep a proper lookout by sight and hearing.<br>0. Perform the duties of a helmsperson.<br>CC RERW 5-7<br>0. Carry out operational checks on the shafting components of a marine propulsion plant and relevant hydraulic systems, including steering gear in accordance with established procedure and safety requirements.<br>0. Demonstrate proper use of PPE and safe use of hand tools.<br>0. As a member of the engine room crew, assist in the maintenance of relevant pumping systems, including the bilge and ballast system in accordance with established procedure and safety/statutory requirements. | | require solving of basic math problems |

**Course Content:** Students in this course will be introduced to:

1. Basic Math Operations
2. Whole Numbers
3. Fractions
4. Percent
5. Weight and Measurements
6. Basic Navigation Equations (speed x time = distance)

**Higher Order Thinking Skills: Students in this course will experience:**
__X__ Analyzing the basic elements of an idea, experience, or theory
__X__ Making judgments about the value or soundness of information, arguments, or methods
__X__ Applying theories or concepts to practical problems or in new situations

**Recommended Methods of Instruction**
_____ Demonstration
__X__ Lecture
__X__ Small group discussion
__X__ Class discussion
__X__ Audio-Visual Aids
__X__ Laboratory
__X__ Supervised Practice
_____ Field Trips
_____ Other:

**Recommended Assessment Tool Type(s):**
_____ Case Study
__X___ Critique of Performance
__X__ Exam/Quiz In-Course
_____ Exam/Quiz Standardized (attach narrative describing development and validation process)
_____ Focus Group
__X__ Group Project
__X__ Individual Project
__X___ Observation
_____ Portfolio Review
_____ Presentation
_____ Simulation
___X__ Skill Performance
_____ Supervisor Evaluation
_____ Survey
__X__ Written Assignment
_____ Laboratory practical

**Required Forms of Regular and Substantive Interaction for Hybrid or Distance Education Courses (Selected at Least Two):**
__X__ Direct instruction through:
__X__ Live video lectures
_____ Live audio-only lectures
__X__ Live text chats
_____ Assessing or providing feedback on a student's coursework
_____ Providing information or responding to questions about the content of a course or competency through:
____ Live video discussions
____ Live audio-only discussions
____ Live text chats
____ Asynchronous message boards or text chats
__X__ Facilitating a group discussion regarding the content of a course or competency through:
_X__ Live video discussions
____ Live audio-only discussions
_X__ Live text chats
_X__ Asynchronous message boards or text chats
_____ Other, specify:

**Note**: for distance education courses, if only two are selected, both must occur within the course on a weekly basis. If more than two are selected, the instructor may choose which two are used during each week.

**Equipment and Materials:**

1. Recommended texts: Hope, Ranger, *Maths for Mariners*, 2015, http://www.splashmaritime.com.au/Marops/data/text/Med3tex/Maths.pdf

0. Equipment/Facilities: Classroom, Copying Machine, Projectors, Laptop, Flat Screen, DVD player, Training videos

0. Materials and Supplies: Pencils, pens, notebooks, Xerox papers, white board markers and erasers, rulers, staplers and staples, folders

**Connection to College Mission:**

Mathematics for Mariners I provides what the CMI Mission states, "The College of the Marshall Islands will provide our community with access to quality, higher and further educational services, prioritize student success through engagement in relevant Academic, Career and Technical Education, and be a center for the study of Marshallese Culture. It will also provide intellectual resources and facilitate research specific to the needs of the nation".
*BOR approved 1st December, 2020*

The Mathematics for Mariners I course is for Seafarers to solve mathematical issues in maritime daily operations. The mathematics for Mariners I will get seafarers ready and qualify them for day-to-day duties in the shipping industry.

**Connection to Department Mission:**

The Mathematics for Mariner I course is connected to the mission of the department by "providing a high-quality educational service in maritime related vocational training to the Marshallese people and to students from other nations who desire maritime career opportunities in the area of maritime studies". When the student completes the course and he/she is found competent using basic mathematical calculations by the instructor, this will further qualify the seafarer for work in the shipping industry.

CC Approved: January 9 2023

**Justification for Hybrid:**

The online component allows students to grasp fundamental mathematical concepts and theories at their own pace, utilizing interactive tools and resources that can cater to different learning styles. This flexibility is particularly beneficial for working professionals and those with geographical constraints. In-person sessions can then focus on applying these mathematical principles through practical exercises and real-world maritime scenarios, ensuring students gain the hands-on experience critical for their roles. This blended approach not only improves learning outcomes by accommodating diverse needs but also aligns with modern educational trends, making the course more dynamic and engaging