

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)

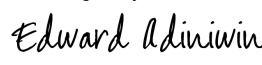
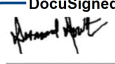


- Select all that apply:
 - Change in number of credit hours
 - Change in prerequisite
 - Substantive change in course content
 - Change to SLOs Other:

- 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
 - 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	<small>DocuSigned by:</small> 	9/2/2024
Curriculum Committee Chair	Desmond N. Doulatram	<small>DocuSigned by:</small> 	9/2/2024
Dean	Rigjeta R. Lord	<small>Signed by:</small> 	9/2/2024
VPASA	Dr.Elizabeth Switaj	<small>DocuSigned by:</small> 	10/30/2024

CMI COURSE OUTLINE

CIP No. 27.0199

Version No. 2

MART 102

Mathematics of Mariners

Alpha Number

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): Face to Face (including Zoom) Hybrid

Credits calculated by: 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 _____
 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	<p>CC RNW 1-5</p> <ol style="list-style-type: none"> 1. Maintain, handle, and use ropes for shipboard applications in accordance with established shipboard practice. 2. Provide a safe means of access to personnel embarking and disembarking the vessel. 0. Perform support duties during mooring and anchoring operations. 0. Carry out basic deck maintenance procedures. 0. Contribute to monitoring and controlling a safe watch. <p>CC RERW 1-4</p> <ol style="list-style-type: none"> 1. Carry out basic engine room watchkeeping duties safely and effectively. 2. Perform the lubrication/fuel and record keeping duties of an engine room rating in accordance with established procedure and safety requirements. 3. Carry out relevant operational checks of marine boilers, marine diesel engines, and related systems in accordance with 	I	<p>These duties of the navigational watch require the ability to complete basic mathematical operations</p> <p>These duties of the engine room watch require the ability to complete basic mathematical operations</p>

	<p>established procedure and safety/statutory requirements.</p> <p>4. Safely operate the onboard pollution control machinery and equipment in accordance with safety, statutory and environmental requirements.</p>		
2	<p>CC RNW 6-8</p> <p>6. Observe safety precautions during the stowage and handling of cargoes.</p>	I	<p>These duties of the navigational watch require solving basic math problems.</p> <p>These duties of the engine room watch</p>
	<p>7.Keep a proper lookout by sight and hearing.</p> <p>0. Perform the duties of a helmsperson.</p> <p>CC RERW 5-7</p> <p>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.</p> <p>0. Demonstrate proper use of PPE and safe use of hand tools.</p> <p>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.</p>		<p>require solving of basic math problems</p>

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:

- Analyzing the basic elements of an idea, experience, or theory
- Making judgments about the value or soundness of information, arguments, or methods
- Applying theories or concepts to practical problems or in new situations

Recommended Methods of Instruction

- Demonstration
- Lecture
- Small group discussion
- Class discussion
- Audio-Visual Aids
- Laboratory
- Supervised Practice
- Field Trips
- Other:

Recommended Assessment Tool Type(s):

- Case Study
- Critique of Performance
- Exam/Quiz In-Course
- Exam/Quiz Standardized (attach narrative describing development and validation process)
- Focus Group
- Group Project
- Individual Project
- Observation
- Portfolio Review
- Presentation
- Simulation
- Skill Performance
- Supervisor Evaluation
- Survey
- Written Assignment
- Laboratory practical

Required Forms of Regular and Substantive Interaction for Hybrid or Distance Education Courses (Selected at Least Two):

- Direct instruction through:
 - Live video lectures
 - Live audio-only lectures
 - 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
- Facilitating a group discussion regarding the content of a course or competency through:
 - Live video discussions
 - Live audio-only discussions
 - Live text chats
 - 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