

CMI COURSE CURRICULUM COURSE ACTION

Course Title: Math for Construction **Alpha Number:** VCARP 108 **CIP No.** 46.0000

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:

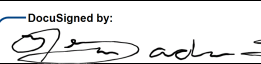
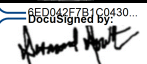
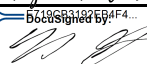
☒ Change in Alpha Number or Title (unless letter abbreviation has not previously been used)

- ☒ Edit to course description that does not alter the substance of the course
☐ Change to recommended texts
☐ Other

☐ 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	Waisake Savu	 DocuSigned by: 6ED042F7B1C0430...	4/21/2025
Curriculum Committee Chair	Desmond Doulatram	 DocuSigned by: 8A4E9FDD06E14D5...	5/4/2025
Dean	Rigjeta Lord	 Signed by: 6719CB3192EB4F4...	5/4/2025
VPASA	Dr. Elizabeth Switaj	 DocuSigned by: 809EB3BDDC23455...	5/5/2025

CMI COURSE OUTLINE**CIP No.** 46.0201**Version No.** 004VCARP 108Math for Construction**Alpha Number****Course Title****Previous Alpha Number:****Course Description:**

Incorporates all essential mathematics and calculations required for construction workers to effectively carry out their tasks. It includes instruction on reading and accurately using measurement tools, analyzing and interpreting readings, and applying algebraic and geometric principles to transform written or verbal instructions into completed projects. Furthermore, the course builds on the mathematical knowledge and skills acquired in Math for Construction I, emphasizing their application in practical, real-world construction scenarios.

Course originally prepared by: Diane Myazoe- Debrum

July 2010

Most recent revision by:Rigietta LordWAVESApril/2025**Course mode(s):** x Face to Face (including Zoom) Hybrid Distance Education**Credits calculated by:** Credit Hour X Clock Hour**Contact Hours:** 105

Type	No. of Hours	No. of Credits	Maximum No. of Hours Online
Lecture/Seminar/Workshop	15	1	
Clinical			
Practicum			
Lab	90	2	
Fieldwork			
Studio Time			
Total	105	3	

Purpose(s) of Course: Degree Requirement _____
Degree Elective _____
General Education _____
Credit Certification X (Certificate of Completion in Carpentry)
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. Apply Fundamental Mathematical Operations
2. Use Ratios and Proportions in Construction Contexts
3. Interpret and Use Measurement Tools
4. Solve Construction problems using geometry
5. Plan and estimate construction materials

SLO Mapping:

Prerequisite Course SLO	Linked SLO from this Course	Explanation
NA	-	-

Links to Program Learning Outcomes:

SLO	Linked PLO	I/P/M	Explanation of Link
1	1,2	IP	Demonstrate basic construction fundamentals
2	2	P	Demonstrate basic framing and finishing fundamentals
3	7	I/P	Identify and use basic hand tools and power tools
4	2/5	P	Demonstrate basic framing and finishing fundamentals. Read and interpret plans and drawings
5	1/3	I/P	Demonstrate and practice essential employability skills. Practice construction safety precautions

Course Content: Students in this course will be introduced to

1. Introduction to Construction Mathematics
 - Overview of construction math applications
 - Importance of accuracy in construction
 - Introduction to course tools: calculators, scales, rulers, and measurement devices
2. Fundamental Mathematical Operations
 - Working with whole numbers (addition, subtraction, multiplication, division)
 - Adding, subtracting, multiplying, and dividing fractions and decimals
 - Converting between fractions and decimals
 - Practical construction scenarios (e.g., cutting materials to specific lengths)
 - Converting between decimals, fractions, and percentages
 - Application of percentages in construction (e.g., material wastage or discounts)
3. Ratios, Proportions and Scale Interpretation
 - Understanding ratios and proportions
 - Setting up and solving ratios and proportions
 - Determining mixing ratios for concrete or paint
 - Interpreting scale drawings and blueprints
 - Using proportions to calculate lengths, widths, and heights of structures

4. Measurement Tools and Systems
 - Metric vs. Standard measurement systems: conversions for length, weight, volume, and temperature
 - Real-world applications of measurement in construction
 - Accurate use of tape measures, metric and standard rulers
 - Reading and recording measurements
 - Measuring weight, volume, and temperature in construction tasks
5. Geometry in Construction
 - Identifying common shapes used in construction
 - Measuring and calculating dimensions of basic geometric shapes
 - Discovering dimensions of corresponding parts of similar shapes
 - Solving construction problems using geometry (e.g., determining areas for flooring, volumes for concrete pours)
6. Algebra and Materials Estimation
 - Applying algebraic equations to solve construction problems
 - Estimating materials for specific tasks (e.g., flooring, walls, and ceilings)
 - Planning and estimating materials for roof framing and exterior projects
 - Calculating quantities for interior finishing and cabinet-making

Higher Order Thinking Skills

- ☒ Analyzing the basic elements of an idea, experience, or theory
- ☐ Making judgements about the value or soundness of information, arguments, or methods
- ☒ Applying theories or concepts to practical 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

Required Forms of Regular and Substantive Interaction for Hybrid or Distance Education Courses (Select 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
- ☐ Facilitating a group discussion regarding the content of a course or competency through:
 - ☐ Live video discussion
 - ☐ Live texts 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. Number 2 pencil
2. Architect's scale
3. Engineer's scale
4. Protractor
5. Drawing paper
6. Blueprints
7. TV & DVD
8. Textbook - - Feirer, M. D., & Feirer, J. L. (2003). *Carpentry & building construction: Student text* (Student ed.). Glencoe/McGraw-Hill School Publishing. ISBN 978-0078227028

Connection to College Mission:

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. EC approved 4th Nov, 2020.BOR approved 1st December, 2020

The Math for Construction course aligns with the College of the Marshall Islands' mission by equipping students with practical, career-focused mathematical skills relevant to the construction industry. It supports student success through hands-on, technical education that prepares them for workforce opportunities in the Marshall Islands. Additionally, the course contributes to national development by addressing local industry needs and fostering applied learning connected to the country's infrastructure goals.

Connection to Department Mission:

The mission for the Vocational Carpentry program is to provide quality non-credit vocational courses for students to gain employment, pursue post-secondary education and develop an appreciation for life-long learning.

Approved by IEC on October 25,2017

The Math for Construction course supports the Vocational Carpentry program's mission by delivering foundational math skills essential for success in carpentry and related trades. It enhances students'

employability and readiness for post-secondary education by integrating real-world applications of measurement, estimation, and problem-solving. The course also encourages lifelong learning by building confidence in using math as a practical tool in everyday work and future learning opportunities.