WASHTENAW COMMUNITY COLLEGE
COURSE-SYLLABUS APPROVAL FORM (CSAF)

APP 123

SECTION I. SUBMISSION INFORMATION

1. Course:
Discipline/No: APP 123 **Title:** Math and Science for Plumbers **Start Term** F02

Division Code: HAT Department Code: CIND Org #: 14725 Don't publish: ☒ in College Catalog ☒ in Time Schedule ☒ on Web Page

2. Type of Approval:
- ☒ Full Approval
- ☐ Conditional Approval

☐ This proposal previously received conditional approval for the term: _____

3. Reason for Submission: This Course is being submitted for: (check all that apply)
- ☐ New Course Approval
- ☐ Five-year Syllabus Review ☐ No changes to course
- ☒ Major Change(s)
- ☐ Minor Change(s)*
- ☐ Reactivation of Inactive Course
- ☐ Inactivation

*If requesting a change to a course that has conditional approval, please submit a complete syllabus.

4. Change Information:

Minor Changes
- ☐ Course Discipline/Number (was _____)
- ☐ Course Title (was _____)
- ☐ Course Description
- ☐ Class Capacity (was: ____)
- ☐ Pre or Co-requisites
- ☐ Course Objectives (minor changes)
- ☐ Distribution of Contact Hours (contact hours were: lect: _____ lab _____ clin _____ other _____)
- ☐ Other _____

Major Changes
- ☒ Credit hours (credits were: 04)
- ☐ Change in Grading Method
- ☐ Total Contact Hours (total contact hours were: _____)
- ☐ Approval for offering an Honors Section
- ☐ Approval for offering Distance Learning Sections
- ☐ General Education Distribution Course: Add ☐ Remove ☐
- ☐ Pre or Co-requisites (that affect other departments)

5. Rationale
Decrease # of credit hours from 4 to 3

Changes are are being made in response to data from Assessment: yes ☐ no ☐

SECTION II. SIGNATURES

1. Department Review

Will any new resources be required? No, none anticipated ☒ Yes ☐
You must consult all departments that may be affected by this course. List departments contacted below and attach relevant documents.

Does the department support approval of this course? ☒ yes ☐ no

Print: Patricia Crider (Faculty/Preparer) Signature Patricia Crider Date: 6/6/02

Print: _____ (Department Chair) Signature _____ Date: _____

2. Division Review

Is this a curricular priority for your division? ☐ yes ☐ no (Comment _____)
What is the estimated enrollment? _____

Recommendation ☒ Yes ☐ No _____ (Dean's Signature) Date 6/27/02

3. Curriculum Committee Review

Recommendation ☒ Yes ☐ No Ruth A. Hatcher (Curriculum Committee Chair's Signature) Date 9.12.02

4. Vice President for Instruction and Student Services Approval

Approval ☒ Yes ☐ No _____ (Executive Vice President's Signature) Date _____

ACS Code _____ **Entered in Banner** 10/09/02 **Entered in Access** 9/23/02 **Log File** 9/23/02

Approved for General Education Area/Group _____ **Syllabus Date** 2003-2004

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SECTION III. COURSE SYLLABUS
A. COURSE DETAILS

Discipline & No.: APP 123 **Title:** Math and Science for Plumbers

1. Description:

This course will enable students to understand the formulas for finding: areas, volumes, perimeters, and circumferences that are needed in the plumbing and pipefitting trades. It is designed to enable students to figure pitch, grade, and off sets with different angles in job-site simulated situations.

2. Credit Hours: 03
If Variable credit, Give Range: ____ to ____ credits
If repeatable for credit, how many times ____

3. Contact Hours per Semester:
Lecture: 30
Lab: 30
Clinical:
Other:
Total Contact Hours:

4. Class Capacity: 24

5. Course Options:
☐ Distance learning
☐ Honors
☐ P/NP Grading

6. Prerequisite(s)

and/or	"("	Course	Min Grade	*Concurrent Enrollment	Test Name	Min. Score	")"	**Level I	**Level II
☐	☐			☐				☐	☐
☐	☐			☐				☐	☐
☐	☐			☐				☐	☐
☐	☐			☐				☐	☐
☐	☐			☐				☐	☐
☐	☐			☐				☐	☐
☐	☐			☐				☐	☐
☐	☐			☐				☐	☐

Other Prerequisites

Consent Required ☐

7. Corequisites:

8. Course Purpose:
☒ Program Requirement
☐ General Education
☐ Program Support
☐ Basic Skills/Developmental
☐ Transfer
☐ Industry/Professional Dev
☐ Enrichment

If a program requirement, specify the program(s)
Local 190 apprenticeship program

Please send syllabus for Transfer evaluation to:
☐ EMU
☐ UM

Accepted for transfer:
☐ EMU
☐ UM

9. Terms Course will be offered:

Terms	Session Length (e.g. 15 weeks, 1st 7½ weeks, etc.)	Day	Eve	Even years only	Odd years only
☒ Fall	15 weeks	☐	☒	☐	☐
☒ Winter	15 weeks	☐	☒	☐	☐
☒ Spr/Summer	15 weeks	☐	☒	☐	☐

B. MAJOR INSTRUCTIONAL UNITS

1. Pipe formulas used in the industry
2. Reference Section of Book
3. Pipe Measurements 1
4. Pipe Measurements 2

C. INSTRUCTIONAL OBJECTIVES

Unit #1 Pipe Formulas used in the industry

The student will:

1. Calculate formulas for finding areas, volumes, perimeters, and circumferences.
2. Calculate formulas for finding pitch and grade
3. Figure off sets with different angles

Unit #2 Pipefitters and welder's handbook reference section

Using the Pipefitters and welders handbook as a reference, the student will:

1. Calculate units of length, area, volume, capacity, and weight
2. Conduct length conversions
3. Calculate area conversions
4. Calculate weight conversions
5. Calculate liquid capacity conversions
6. Calculate length, area, and volume formulas
7. Calculate grade, fall formulas
8. Calculate pressure formulas and electricity formulas
9. Conduct temperature conversions, fraction and decimal equivalents

Unit #3 Pipe Measurements 1

The student will:

1. Measure fittings properly
2. Demonstrate understanding of the terminology for measurement used in the plumbing industry

Unit #4 Pipe Measurements 2

The student will:

1. Accurately figure, measure and install different piping arrangements
2. Define and perform travel, off set and advance calculations
3. Demonstrate ability layout and measure multiple parallel pipes

D. INSTRUCTIONAL METHODS, EVALUATION CRITERIA, AND ASSESSMENT

1. Instructional Methods:

☒ Lecture/Discussion	☐ Performances
☐ Clinical Instruction	☐ Group Critiques
☒ Laboratory Assignments	☐ Field Trips
☐ Internet Assignments	☐ Telecourse
☐ Computer Simulations	☐ ITV Course
☐ On-Site Work Experience	☐ Self-Paced Instruction
☐ Team Assignments	☐ Other
☐ Demonstrations	☐ Other

2. Evaluation Criteria:

☒ Attendance	☒ Quizzes
☒ Class Discussion	☒ Tests
☐ Papers	☐ Midterm
☐ Portfolios	☒ Final Exam
☐ Projects	☐ Presentations
☐ Reports	☐ Individual Performance
☐ Clinical Assignments	☐ Group/Team Performance
☒ Home Work	☐ Other

3. Assessment of Student Achievement:

☐ Departmental Exam	☒ Pre-test/Post-test
☐ Follow-on Tracking	☐ Simulations
☐ Standardized Test	☐ Comprehensive Project
☐ Portfolio Assessment	☐ Other

F. EQUIPMENT, FACILITIES, TEXTS, MATERIALS, AND SUPPLIES

1. Special Equipment/Facilities :

☐ Lab equipment	☐ ITV Classroom
☐ Computer Lab	☐ Off-Campus Sites
☐ CD ROM's	☐ Testing Center
☐ Data Projector/Screen	☐ Other
☐ VCR	☐ Other
☐ TV Monitor	☐ Other

2. Texts:

Title: UA material supplied by local 190
Author: _____ Copyright Yr: _____
Publisher: _____ Est. Cost: _____

Title: _____
Author: _____ Copyright Yr: _____
Publisher: _____ Est. Cost: _____

Title: _____
Author: _____ Copyright Yr: _____
Publisher: _____ Est. Cost: _____

Title: _____
Author: _____ Copyright Yr: _____
Publisher: _____ Est. Cost: _____

Additional Texts:

3. Supplies and/or Uniforms students will have to Acquire: (e.g. calculators, uniforms, tools, etc.)

Descriptions	**Cost Estimates**

4. Reference Materials that will be used: (e.g. journals, books, manuals, maps, LRC reserves, etc.)

Title/Name	**Location**

5. Computer Software that will be used:

Title/Name	**Location**

6. Audio/Visual Materials that will be used: (e.g. films, video tapes, slides, audio tapes, CDs, etc.)

Title/Name	**Location**

Course: APP 123

Title: Math and Science for Plumbers

Course Description: This course will enable students to understand the formulas for finding: areas, volumes, perimeters, and circumferences that are needed in the plumbing and pipefitting trades. It is designed to enable students to figure pitch, grade, and off sets with different angles in job-site simulated situations.

Outline:

I. **Pipe Formulas used in the industry**
   1. Finding areas, volumes, perimeters, and circumferences.
   2. Finding pitch and grade
   3. Off sets with different angles

II. **Pipe fitters and welders handbook reference section**
   1. Units of length, area, volume, capacity, and weight
   2. Length conversions
   3. Area conversions
   4. Weight conversions
   5. Liquid capacity conversions
   6. Length, area, and volume formulas
   7. Grade and fall formulas
   8. Pressure formulas and electricity formulas
   9. Temperature conversions, fraction and decimal equivalents

III. **Pipe Measurements**
   1. Measure fittings properly
   2. Terminology for measurement used in the plumbing industry
   3. Measurement and installation of different piping arrangements
   4. Travel, off set and advance calculations
   5. Layout and measurement of multiple parallel pipes