

**WASHTENAW COMMUNITY COLLEGE
COURSE-SYLLABUS APPROVAL FORM (CSAF)**

APP 133

SECTION I. SUBMISSION INFORMATION

1. Course: Discipline/No: <u>APP 133</u> Title: <u>Hydronic Heating</u> Start Term <u>F02</u>				
Division Code: <u>HAT</u> Department Code: <u>CIND</u> Org #: <u>14725</u>		Don't publish: <input checked="" type="checkbox"/> in College Catalog <input checked="" type="checkbox"/> in Time Schedule <input checked="" type="checkbox"/> on Web Page		
2. Type of Approval: <input checked="" type="checkbox"/> Full Approval <input type="checkbox"/> Conditional Approval <hr/> <input checked="" type="checkbox"/> This proposal previously received conditional approval for the term: <u>F02</u>	3. Reason for Submission: This Course is being submitted for: (check all that apply) <input type="checkbox"/> New Course Approval <input type="checkbox"/> Five-year Syllabus Review <input type="checkbox"/> No changes to course <input checked="" type="checkbox"/> Major Change(s) <input type="checkbox"/> Minor Change(s)* <input type="checkbox"/> Reactivation of Inactive Course <input type="checkbox"/> Inactivation <small>*If requesting a change to a course that has conditional approval, please submit a complete syllabus.</small>			
4. Change Information: <table style="width:100%;"> <tr> <td style="width:50%; vertical-align: top;"> Minor Changes <input type="checkbox"/> Course Discipline/Number (was _____) <input type="checkbox"/> Course Title (was _____) <input type="checkbox"/> Course Description <input type="checkbox"/> Class Capacity (was: _____) <input type="checkbox"/> Pre or Co-requisites <input type="checkbox"/> Course Objectives (minor changes) <input type="checkbox"/> Distribution of Contact Hours (contact hours were: lect: _____ lab _____ clin _____ other _____) <input type="checkbox"/> Other _____ </td> <td style="width:50%; vertical-align: top;"> Major Changes <input checked="" type="checkbox"/> Credit hours (credits were: <u>04</u>) <input type="checkbox"/> Change in Grading Method <input type="checkbox"/> Total Contact Hours (total contact hours were: _____) <input type="checkbox"/> Approval for offering an Honors Section <input type="checkbox"/> Approval for offering Distance Learning Sections <input type="checkbox"/> General Education Distribution Course: Add <input type="checkbox"/> Remove <input type="checkbox"/> <input type="checkbox"/> Pre or Co-requisites (that affect other departments) </td> </tr> </table>			Minor Changes <input type="checkbox"/> Course Discipline/Number (was _____) <input type="checkbox"/> Course Title (was _____) <input type="checkbox"/> Course Description <input type="checkbox"/> Class Capacity (was: _____) <input type="checkbox"/> Pre or Co-requisites <input type="checkbox"/> Course Objectives (minor changes) <input type="checkbox"/> Distribution of Contact Hours (contact hours were: lect: _____ lab _____ clin _____ other _____) <input type="checkbox"/> Other _____	Major Changes <input checked="" type="checkbox"/> Credit hours (credits were: <u>04</u>) <input type="checkbox"/> Change in Grading Method <input type="checkbox"/> Total Contact Hours (total contact hours were: _____) <input type="checkbox"/> Approval for offering an Honors Section <input type="checkbox"/> Approval for offering Distance Learning Sections <input type="checkbox"/> General Education Distribution Course: Add <input type="checkbox"/> Remove <input type="checkbox"/> <input type="checkbox"/> Pre or Co-requisites (that affect other departments)
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5. Rationale Change in credits from 4 to 3 Changes are are being made in response to data from Assessment: yes <input type="checkbox"/> no <input type="checkbox"/>				

SECTION II. SIGNATURES

1. Department Review Will any new resources be required? No, none anticipated <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no Print: <u>Patricia Crider</u> Faculty/Preparer Signature: <u>Patricia Crider</u> Date: <u>6/6/02</u> Print: _____ Department Chair Signature: _____ Date: _____		
2. Division Review Is this a curricular priority for your division? <input type="checkbox"/> yes <input type="checkbox"/> no (Comment _____) What is the estimated enrollment? _____ Recommendation <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Dean's Signature: <u>[Signature]</u> Date: <u>6/24/02</u>		
3. Curriculum Committee Review Recommendation <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Curriculum Committee Chair's Signature: <u>[Signature]</u> Date: <u>9.12.02</u>		
4. Vice President for Instruction and Student Services Approval Approval <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Executive Vice President's Signature: <u>[Signature]</u> Date: <u>7/17/02</u>		
ACS Code _____	Entered in Banner <u>7/23/02</u>	Entered in Access <u>7/24/02</u> Log File <u>7/23/02</u>
Approved for General Education Area/Group _____		Syllabus Date <u>7/23/02</u>

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SECTION III. COURSE SYLLABUS

A. COURSE DETAILS

Discipline & No.: APP 133 **Title:** Hydronic Heating

1. Description:

Students in this course will be introduced to hydronic heating. Topics will include: terminology; hydronic heating calculations; and radiation. Students will gain experience in piping layout, equipment selection, and pipe sizing. In-depth discussions covering techniques used for troubleshooting for air in systems, hydronic heating, piping connections and installation of equipment and controls will also be introduced.

2. Credit Hours: <u>03</u> If Variable credit, Give Range: _____ to _____ credits If repeatable for credit, how many times _____	3. Contact Hours per Semester: Lecture: <u>30</u> Lab: <u>30</u> Clinical: _____ Other: _____ Total Contact Hours: _____	4. Class Capacity: <u>24</u>	5. Course Options: <input type="checkbox"/> Distance learning <input type="checkbox"/> Honors <input type="checkbox"/> P/NP Grading
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6. Prerequisite(s) and/or "((" Course	Min Grade	*Concurrent Enrollment	Test Name	Min. Score	**Level "")"	I	II	Other Prerequisites
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
<input type="checkbox"/> _____	_____	<input type="checkbox"/>	_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

Consent Required

7. Corequisites:

8. Course Purpose: <input checked="" type="checkbox"/> Program Requirement <input type="checkbox"/> General Education <input type="checkbox"/> Program Support <input type="checkbox"/> Basic Skills/Developmental <input type="checkbox"/> Transfer <input type="checkbox"/> Industry/Professional Dev <input type="checkbox"/> Enrichment	If a program requirement, specify the program(s) <u>Local 190 apprenticeship program</u> _____ _____	Please send syllabus for Transfer evaluation to: <input type="checkbox"/> EMU <input type="checkbox"/> UM _____ _____ _____	Accepted for transfer: <input type="checkbox"/> EMU _____ <input type="checkbox"/> UM _____ _____ _____ _____
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9. Terms Course will be offered:		Day	Eve	Even years only	Odd years only
Terms	Session Length (e.g. 15 weeks, 1 st 7½ weeks, etc.)				
<input checked="" type="checkbox"/> Fall	<u>15 weeks</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Winter	<u>15 weeks</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Spr/Summer	<u>15 weeks</u>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. MAJOR INSTRUCTIONAL UNITS

1. Hydronic Heating

C. INSTRUCTIONAL OBJECTIVES

Hydronic Heating

The student will:

1. Define various hydronic terms
2. Calculate hydronic terms
3. Describe radiation required
4. Demonstrate proper piping layout
5. Demonstrate understanding of proper equipment selection and pipe sizing
6. Describe probability of air in system
7. Demonstrate proper hydronic heating piping connections
8. Demonstrate understanding of proper installation of equipment
9. Describe controls used

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D. INSTRUCTIONAL METHODS, EVALUATION CRITERIA, AND ASSESSMENT

1. Instructional Methods:

<input checked="" type="checkbox"/> Lecture/Discussion _____ <input type="checkbox"/> Clinical Instruction _____ <input checked="" type="checkbox"/> Laboratory Assignments _____ <input type="checkbox"/> Internet Assignments _____ <input type="checkbox"/> Computer Simulations _____ <input type="checkbox"/> On-Site Work Experience _____ <input type="checkbox"/> Team Assignments _____ <input type="checkbox"/> Demonstrations _____	<input type="checkbox"/> Performances _____ <input type="checkbox"/> Group Critiques _____ <input type="checkbox"/> Field Trips _____ <input type="checkbox"/> Telecourse _____ <input type="checkbox"/> ITV Course _____ <input type="checkbox"/> Self-Paced Instruction _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____
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2. Evaluation Criteria:

<input checked="" type="checkbox"/> Attendance _____ <input checked="" type="checkbox"/> Class Discussion _____ <input checked="" type="checkbox"/> Papers _____ <input type="checkbox"/> Portfolios _____ <input type="checkbox"/> Projects _____ <input type="checkbox"/> Reports _____ <input type="checkbox"/> Clinical Assignments _____ <input checked="" type="checkbox"/> Home Work _____	<input checked="" type="checkbox"/> Quizzes _____ <input checked="" type="checkbox"/> Tests _____ <input type="checkbox"/> Midterm _____ <input checked="" type="checkbox"/> Final Exam _____ <input type="checkbox"/> Presentations _____ <input type="checkbox"/> Individual Performance _____ <input type="checkbox"/> Group/Team Performance _____ <input type="checkbox"/> Other _____
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3. Assessment of Student Achievement:

<input type="checkbox"/> Departmental Exam _____ <input type="checkbox"/> Follow-on Tracking _____ <input type="checkbox"/> Standardized Test _____ <input type="checkbox"/> Portfolio Assessment _____	<input checked="" type="checkbox"/> Pre-test/Post-test _____ <input type="checkbox"/> Simulations _____ <input type="checkbox"/> Comprehensive Project _____ <input type="checkbox"/> Other _____
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F. EQUIPMENT, FACILITIES, TEXTS, MATERIALS, AND SUPPLIES

1. Special Equipment/Facilities :

<input type="checkbox"/> Lab equipment _____ <input type="checkbox"/> Computer Lab _____ <input type="checkbox"/> CD ROM's _____ <input type="checkbox"/> Data Projector/Screen _____ <input type="checkbox"/> VCR _____ <input type="checkbox"/> TV Monitor _____	<input type="checkbox"/> ITV Classroom _____ <input type="checkbox"/> Off-Campus Sites _____ <input type="checkbox"/> Testing Center _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Other _____
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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 133

Title: Hydronic Heating

Course

Description: Students in this course will be introduced to hydronic heating. Topics will include: terminology; hydronic heating calculations; and radiation. Students will gain experience in piping layout, equipment selection, and pipe sizing. In-depth discussions covering techniques used for troubleshooting for air in systems, hydronic heating, piping connections and installation of equipment and controls will also be introduced.

Outline:

I. Hydronic Heating

1. Hydronic terminology
2. Calculations of hydronic terms
3. Radiation
4. Piping Layout
5. Equipment selection and pipe sizing
6. Air in system
7. Hydronic heating piping connection
8. Installation of equipment
9. Controls