Washtenaw Community College Comprehensive Report

UAT 309 Combustion Analysis
Effective Term: Spring/Summer 2025

Course Cover

College: Advanced Technologies and Public Service Careers
Division: Advanced Technologies and Public Service Careers
Department: United Association Department (UAT Only)
Discipline: United Association Training
Course Number: 309
Org Number: 28200
Full Course Title: Combustion Analysis
Transcript Title: Combustion Analysis
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Web Page
Reason for Submission: Inactivation
Change Information:
   Consultation with all departments affected by this course is required.
Rationale: U.A. Course no longer relevant: outcomes have changed enough to create a new course.
Proposed Start Semester: Winter 2025
Course Description: This sustainable energy course is designed to educate UA instructors on the essential information required to train apprentices and journeymen on achieving higher fuel efficiencies, better system performance and reduced greenhouse gas emissions by performing and understanding combustion analysis. It is necessary to perform a combustion analysis on all combustion systems to ensure safe operation at peak efficiency. Upon successful completion and assessment, participants will receive a certification that attests to their knowledge of combustion analysis and carbon monoxide safety. Limited to United Association Instructor Training program graduates.

Course Credit Hours

Variable hours: No
Credits: 1.5
The following Lecture Hour fields are not divisible by 15: Student Min ,Instructor Min
Lecture Hours: Instructor: 22.5 **Student:** 22.5
The following Lab fields are not divisible by 15: Student Min, Instructor Min
Lab: Instructor: 1.5 **Student:** 1.5
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 24 **Student:** 24
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

General Education
Degree Attributes
Below College Level Pre-Reqs

Request Course Transfer
Proposed For:

Student Learning Outcomes

1. Incorporate combustion analysis into courses at the home local.
    Assessment 1
    Assessment Tool: Survey of UA training coordinators/supervisors.
    Assessment Date: Spring/Summer 2011
    Assessment Cycle: Every Three Years
    Course section(s)/other population: All
    Number students to be assessed: 75% of all students who teach related HVACR courses on behalf of the local union.
    How the assessment will be scored: Survey questionnaire
    Standard of success to be used for this assessment: Based on the number of students who teach the learned materials in the subsequent year, 75% will score an average of satisfactory or above on the survey questionnaires to be completed by UA training coordinators/supervisors.
    Who will score and analyze the data: The UA Program Administrator will coordinate with UA training coordinators and the training departments about the implementation of the assessment plan and the collection of data from UAT faculty and will discuss the results with UAT faculty.

2. Demonstrate combustion analysis techniques and evaluate results.
    Assessment 1
    Assessment Tool: Survey of UA training coordinators/supervisors.
    Assessment Date: Spring/Summer 2011
    Assessment Cycle: Every Three Years
    Course section(s)/other population: All
    Number students to be assessed: 75% of all students who teach related HVACR courses on behalf of the local union.
    How the assessment will be scored: Survey questionnaire
    Standard of success to be used for this assessment: Based on the number of students who teach the learned materials in the subsequent year, 75% will score an average of satisfactory or above on the survey questionnaires to be completed by UA training coordinators/supervisors.
    Who will score and analyze the data: The UA Program Administrator will coordinate with UA training coordinators and the training departments about the implementation of the assessment plan and the collection of data from UAT faculty and will discuss the results with UAT faculty.

Course Objectives
1. Insert combustion analysis material into existing apprentice and journeyman courses for use at the home local.
2. Create stand-alone combustion analysis courses for use at the home local.
3. Pass a certifying exam on combustion analysis and carbon monoxide safety.
4. Demonstrate tools for measuring levels of carbon monoxide in exhaust systems.
5. Demonstrate adjustments to combustion systems that increase efficiency and safety.

New Resources for Course

Course Textbooks/Resources
Textbooks

Manuals
Periodicals
Software

Equipment/Facilities

Level III classroom

Reviewer	Action	Date
Faculty Preparer:		
Tony Esposito	*Faculty Preparer*	*Nov 01, 2024*
Department Chair/Area Director:		
Marilyn Donham	*Recommend Approval*	*Nov 04, 2024*
Dean:		
Eva Samulski	*Recommend Approval*	*Nov 06, 2024*
Curriculum Committee Chair:		
Randy Van Wagnen	*Reviewed*	*Apr 15, 2025*
Assessment Committee Chair:		
Vice President for Instruction:		
Brandon Tucker	*Approve*	*Apr 15, 2025*

MASTER SYLLABUS

Course Discipline Code & No: UAT 309 **Title:** Combustion Analysis
Effective Term Fall 2009

Division Code: ___VCT___   **Department Code:** ___UA__   **Org #:** _28200_

Don't publish: ☐College Catalog   ☒Time Schedule   ☐Web Page

Reason for Submission. Check all that apply.
☒New course approval
☐Three-year syllabus review/Assessment report
☐Course change

☐Reactivation of inactive course
☐Inactivation (Submit this page only.)

Change information: Note all changes that are being made. Form applies only to changes noted.

☐Consultation with all departments affected by this course is required.
☐Course discipline code & number (was _____)*
   *Must submit inactivation form for previous course.
☐Course title (was _____)
☐Course description
☐Course objectives (minor changes)
☐Credit hours (credits were: _____)

☐Total Contact Hours (total contact hours were: _____)
☐Distribution of contact hours (contact hours were:
   lecture: _____ lab _____ clinical _____ other _____)
☐Pre-requisite, co-requisite, or enrollment restrictions
☐Change in Grading Method
☐Outcomes/Assessment
☐Objectives/Evaluation
☐Other _____

Rationale for course or course change. Attach course assessment report for existing courses that are being changed.

Approvals Department and divisional signatures indicate that all departments affected by the course have been consulted.

Department Review by Chairperson   ☐ New resources needed   ☐ All relevant departments consulted

Print: _Dan Welch_   Signature _W. Welch_   Date: _12/11/09_
   Faculty/Preparer

Print: _Dan Welch_   Signature _W. Welch_   Date: _12/11/09_
   Department Chair

Division Review by Dean
☐ Request for conditional approval

Recommendation ☒ Yes ☐ No   _____ Dean's/Administrator's Signature   Date _12/12/09_

Curriculum Committee Review
Recommendation
☐ Tabled   ☒ Yes ☐ No   _____ Curriculum Committee Chair's Signature   Date _1/5/10_

Vice President for Instruction Approval

_____ Vice President's Signature   Date _Jan. 14, 2010_

Approval ☒ Yes ☐ No ☐ Conditional

Please return completed form to the Office of Curriculum & Assessment and email an electronic copy to sjohn@wccnet.edu for posting on the website.

MASTER SYLLABUS

*Complete ALL sections which apply to the course, even if changes are not being made.

Course: __UAT 309__	Course title: ___Combustion Analysis___

Credit hours: __1.5__ If variable credit, give range: _____ to _____ credits	Contact hours per semester:		Are lectures, labs, or clinicals offered as separate sections?	Grading options:

Credit hours: __1.5__

If variable credit, give range:

_____ to _____ credits

Contact hours per semester:

	Student	Instructor
Lecture:	22.5	22.5
Lab:	___	___
Clinical:	___	___
Practicum:	___	___
Other:	___	___
Totals:	22.5	22.5

Are lectures, labs, or clinicals offered as separate sections?

☐ Yes - lectures, labs, or clinicals are offered in separate sections

☐ No - lectures, labs, or clinicals are offered in the same section

Grading options:

☐ P/NP (limited to clinical & practical)

☐ S/U (for courses numbered below 100)

☒ Letter grades

Prerequisites. Select one:

☒ College-level Reading & Writing   ☐ Reduced Reading/Writing Scores   ☐ No Basic Skills Prerequisite

(Add information at Level I prerequisite)   (College-level Reading and Writing is _not_ required.)

In addition to Basic Skills in Reading/Writing:

Level I (enforced in Banner)

Course	Grade	Test	Min. Score	Concurrent Enrollment Can be taken together)	Corequisites Must be enrolled in this class also during the same semester)
_____	___	_____	___	☐	_____
☐ and ☐ or _____	___	_____	___	☐	_____
☐ and ☐ or _____	___	_____	___	☐	_____
☐ and ☐ or _____	___	_____	___	☐	_____

Level II (enforced by instructor on first day of class)

Course	Grade	Test	Min. Score
_____	___	_____	_____
☐ and ☐ or _____	___	_____	_____
☐ and ☐ or _____	___	_____	_____

Enrollment restrictions (In addition to prerequisites, if applicable.)

☐ and ☐ or Consent required   ☒ and ☐ or Admission to program required   ☐ and ☐ or Other (please specify):

Program: UA Instructor Training Program   _____

Please send syllabus for transfer evaluation to:
Conditionally approved courses are not sent for evaluation.
Insert course number and title you wish the course to transfer as.

☐ E.M.U. as _____   ☐ _____ as _____

☐ U of M as _____   ☐ _____ as _____

☐ _____ as _____   ☐ _____ as _____

Course	Course title:
UAT 309	Combustion Analysis

Course description State the purpose and content of the course. Please limit to 500 characters.	This sustainable energy course is designed to educate UA instructors on the essential information required to train apprentices and journeymen on achieving higher fuel efficiencies, better system performance and reduced greenhouse gas emissions by performing and understanding combustion analysis. It is necessary to perform a combustion analysis on all combustion systems to ensure safe operation at peak efficiency. Upon successful completion and assessment, participants will receive a certification that attests to their knowledge of combustion analysis and carbon monoxide safety. Limited to UA Instructor Training Program graduates.	
Course outcomes List skills and knowledge students will have after taking the course. **Assessment method** Indicate how student achievement in each outcome will be assessed to determine student achievement for purposes of course improvement.	**Outcomes** (applicable in all sections)	**Assessment** Methods for determining course effectiveness
	1. Incorporate combustion analysis into courses at the home local.	Survey of UA training coordinators/supervisors.
	2. Demonstrate combustion analysis techniques and evaluate results.	Survey of UA training coordinators/supervisors.
Course Objectives Indicate the objectives that support the course outcomes given above. **Course Evaluations** Indicate how instructors will determine the degree to which each objective is met for each student.	**Objectives** (applicable in all sections)	**Evaluation** Methods for determining level of student performance of objectives
	Outcome 1: • Insert combustion analysis material into existing apprentice and journeyman courses for use at the home local	Class project
	• Create stand alone combustion analysis courses for use at the home local	Class project
	• Pass a certifying exam on combustion analysis and carbon monoxide safety	Certifying exam
	Outcome 2: • Demonstrate tools for measuring levels of carbon monoxide in exhaust systems	Student demonstration
	• Demonstrate adjustments to combustion systems that increase efficiency and safety	Student demonstration

List all new resources needed for course, including library materials.
No new resources are needed.

Student Materials:

List examples of types
    Texts
    Supplemental reading
    Supplies
    Uniforms
    Equipment
    Tools
    Software
	UA Training Department provides all the necessary books and materials for the students.	Estimated costs
		$ 0

Equipment/Facilities: Check all that apply. (All classrooms have overhead projectors and permanent screens.)

Check level <u>only</u> if the specified equipment is needed for <u>all</u> sections of a course.	☐ Off-Campus Sites
☐ Level I classroom Permanent screen & overhead projector	☐ Testing Center
	☐ Computer workstations/lab
☐ Level II classroom Level I equipment plus TV/VCR	☐ ITV
	☐ TV/VCR
☒ Level III classroom Level II equipment plus data projector, computer, faculty workstation	☐ Data projector/computer
	☐ Other

Assessment plan:

Learning outcomes to be assessed (list from Page 3)	Assessment tool	When assessment will take place (semester & year)	Course section(s)/other population	Number students to be assessed
Incorporate combustion analysis into courses at the home local.	Survey of UA training coordinators/supervisors.	Spring 2011 for students enrolled in Summer 2010, and every three years thereafter.	All	75% of all students who teach related HVACR courses on behalf of the local union
Demonstrate combustion analysis techniques and evaluate results.	Survey of UA training coordinators/supervisors.	Spring 2011 for students enrolled in Summer 2010, and every three years thereafter.	All	75% of all students who teach related HVACR courses on behalf of the local union

Scoring and analysis of assessment:

1. Indicate how the above assessment(s) will be scored and evaluated (e.g. departmentally developed rubric, external evaluation, other). Attach the rubric/scoring guide.

    Students' training activities will be scored and evaluated on a survey questionnaire covering both of the learning outcomes.

2. Indicate the standard of success to be used for this assessment.

    Based on the number of students who teach the learned materials in the subsequent year, 75% of them will score an average of satisfactory or above on the survey questionnaires to be completed by UA training coordinators/supervisors.

3. Indicate who will score and analyze the data (data must be blind-scored).

    The UA Program Administrator will coordinate with UA training coordinators and the training department about the implementation of the assessment plan and the collection of data from UAT faculty and will discuss the results with UAT faculty.

4. Explain the process for using assessment data to improve the course.

    The assessment will be shared with the appropriate UA training coordinators, training department and UAT faculty. The UA Program Administrator will solicit suggestions for improving the results and will work with UA training coordinators, the training department and UAT faculty to make needed changes to improve course content and student performance.