Curriculum Action Request (CAR) Form
COURSE (New Course, Course Modification, Five Year Review) Curriculum Proposal # 2015.21
University of Hawai'i Maui College *(for CURCOM use only)*

1. Curriculum Action

☐ New Course ☑ Course Modification ☐ Five Year Review

2. Proposer

Clifford Rutherford

3. Department

☐ Allied Health ☐ Business & Hospitality ☑ Career & Tech Education
☐ English ☐ Humanities ☐ Social Science
☐ Science/Tech/Eng/Math

4. Course Alpha

WELD

5. Course Number

19 C

6. Course Title

Welding for Automotive Applications

7. If this is a course modification or a five year review, please check the curriculum items being modified.

☐ 1. Course Alpha ☐ 2. Course Number ☐ 3. Course Title
☑ 4. Credits ☑ 5. Contact Hours ☑ 6. Course Description
☑ 7. Prerequisites ☑ 8. Corequisites ☐ 9. Rec Prep
☐ 10. Cross-list w other course ☐ 13. Grading Method ☐ 14. Repeatable for credit?
☑ 15. SLOs ☑ 16. Course Competencies ☑ 17. Content & Timeline
☑ 18. PLOs ☑ 19. CASLOs ☑ 21. Method of Delivery
☑ 22. Text and Materials ☑ 23. Maximum Enrollment ☐ 29. Course Designation
☑ 31. Catalog Modification
☐ Other

8. Proposed Semester

Fall 2015

9. Effective Semester (1 Year from Proposed Semester)

Fall 2016

University of Hawaii Maui College
WELD 19C - Welding for Automotive Applications

2015.21

1. **Course Alpha.**

   WELD

2. **Course Number.**

   19C

3. **Course Title/Catalog Title.**

   Welding for Automotive Applications

4. **Number of Credits.**

   3

5. **Contact Hours/Type.**

   6 hour lecture/lab

6. **Course Description.**

   Introduces theory and practices of gas and arc welding of ferrous metals with automotive applications. Includes procedures in flat, horizontal, and overhead work for brazing, flame cutting, and welding of aluminum, stainless steel, and other metals. Designed as a support course for trades.

7. **Pre-Requisites.**

   None

8. **Co-requisites.**

   None

9. **Recommended Preparation.**

   None

10. **Is this a cross-listed course?**

    NO

11. **Reason for Proposal. Why is this course being proposed or modified? This question requires specific information as part of the explanation.**

    Modify existing course

12. **Effective Semester and Year.**

    Fall 2016

13. **Grading Method. What grading methods may be used for this course?**

- Standard (Letter,Cr/NCr,Audit) (0)

14. Is this course repeatable for credit? How often can this course be counted toward a degree or certificate?

NO

15. Course Student Learning Outcomes (SLOs).

Competency/ Course SLO	Identify and employ safety procedures for automotive welding applications	Identify and select equipment components for automotive welding applications	Perform basic automotive industry welding tasks	Select welding procedures based upon material and application	Employ industry standard shop safety procedures
Describe the fire triangle	☑				☑
Identify basic welding terms	☑	☑	☑	☑	
Identify basic types of welds		☑	☑	☑	
List welding positions		☑	☑	☑	
List metal properties		☑	☑	☑	☑
Follow safety procedures	☑	☑	☑		☑
Identify welding power sources	☑	☑	☑	☑	☑
Determine correct polarity	☑	☑	☑	☑	☑
Locate and describe use of all shop safety equipment	☑	☑		☑	☑
Define metal inert gas (MIG) welding wire classification system			☑	☑	
Identify oxyfuel and metal inert gas (MIG) welding components	☑	☑	☑		☑
Perform oxyfuel and metal inert gas (MIG) welding equipment safety inspection	☑	☑	☑		☑
Demonstrate oxyfuel and metal inert gas (MIG) welding) set-up procedure	☑	☑	☑	☑	☑
Adjust carburizing, neutral and oxidizing flames	☑		☑	☑	☑
Demonstrate oxyfuel shut-down procedure	☑		☑		☑
Demonstrate oxyfuel cutting skills	☑	☑	☑	☑	☑
Perform flat, horizontal, vertical, and overhead position oxyfuel brazing	☑	☑	☑	☑	☑
Perform horizontal, vertical, and overhead position oxyfuel steel welding	☑	☑	☑	☑	☑
Explain metal inert gas (MIG) welding procedures	☑	☑	☑	☑	
Perform flat, horizontal, vertical, and overhead fillet metal inert gas (MIG) welding	☑	☑	☑	☑	☑
Perform shop cleanup and material storage duties	☑				☑

PSLO/Course SLO	Identify and employ safety procedures for automotive welding applications	Identify and select equipment components for automotive welding applications	Perform basic automotive industry welding tasks	Select welding procedures based upon material and application	Employ industry standard shop safety procedures
Diagnose, service, and repair the modern internal combustion engine.					
Diagnose, service, and repair the brake system.					
Diagnose, service, and repair the automatic transmission and transaxle.					
Diagnose, service, and repair the power train system.					
Diagnose, service, and repair the electrical system.					
Diagnose, service, and repair the fuel system.					
Diagnose, service, and repair the emission system.	☑	☑	☑	☑	☑
Diagnose, service, and repair the ignition system.					
Diagnose service and repair the heating and air conditioning system.					
Diagnose, service, and repair the steering and suspension	☑	☑	☑	☑	☑

system.					
To be able to write customer repair orders and estimates.					
To be able to orally communicate, to customer, management, parts person and other technicians.	☑	☑			
To be able to use computer to retrieve information for repairs and estimates.					
To be able to write resumes and be able to use job interview techniques.					

16. Course Competencies.

Competency
Describe the fire triangle
Identify basic welding terms
Identify basic types of welds
List welding positions
List metal properties
Follow safety procedures
Identify welding power sources
Determine correct polarity
Locate and describe use of all shop safety equipment
Define metal inert gas (MIG) welding wire classification system
Identify oxyfuel and metal inert gas (MIG) welding components
Perform oxyfuel and metal inert gas (MIG) welding equipment safety inspection
Demonstrate oxyfuel and metal inert gas (MIG) welding) set-up procedure
Adjust carburizing, neutral and oxidizing flames
Demonstrate oxyfuel shut-down procedure
Demonstrate oxyfuel cutting skills
Perform flat, horizontal, vertical, and overhead position oxyfuel brazing
Perform horizontal, vertical, and overhead position oxyfuel steel welding
Explain metal inert gas (MIG) welding procedures
Perform flat, horizontal, vertical, and overhead fillet metal inert gas (MIG) welding
Perform shop cleanup and material storage duties

17. Recommended Course Content and Timeline. The course content facilitates the course competencies. Course content may be organized by weeks, units, topics or the like.

2 Weeks: Safety and basic tools
2-3 Weeks: Oxyfuel cutting and flat position brazing
2-3 Weeks: Polarity, terms, positions, welds and horizontal welding
3-4 Weeks: Types of welds, shop cleanup, overhead and vertical position brazing and steel welding
4-5 Weeks: Metal inert gas (MIG) welding hands on projects

Instruction is self-paced: utilizes written and reading exercises, live and video supported demonstrations, hands-on project work, and individual and group discussions as required.

18. Program Learning Outcomes.

Program SLO
Diagnose, service, and repair the modern internal combustion engine.
Diagnose, service, and repair the brake system.
Diagnose, service, and repair the automatic transmission and transaxle.
Diagnose, service, and repair the power train system.
Diagnose, service, and repair the electrical system.
Diagnose, service, and repair the fuel system.
Diagnose, service, and repair the emission system.

Diagnose, service, and repair the ignition system.
Diagnose, service and repair the heating and air conditioning system.
Diagnose, service, and repair the steering and suspension system.
To be able to write customer repair orders and estimates.
To be able to orally communicate, to customer, management, parts person and other technicians.
To be able to use computer to retrieve information for repairs and estimates.
To be able to write resumes and be able to use job interview techniques.

19. College-wide Academic Student Learning Outcomes (CASLOs).

Creativity - Able to express originality through a variety of forms.
Critical Thinking - Apply critical thinking skills to effectively address the challenges and solve problems.
Information Retrieval and Technology - Access, evaluate, and utilize information effectively, ethically, and responsibly.
Oral Communication - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.
Quantitative Reasoning - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantative reasoning accurately and appropriately.
Written Communication - Write effectively to convey ideas that meet the needs of specific audiences and purposes.

20. Linking.

21. Method(s) of delivery appropriate for this course.

- Classroom/Lab (0)

Vocational/Technical Classroom and welding lab

22. Text and Materials, Reference Materials, and Auxiliary Materials.

Recommended Text:
Gas Metal Arc Welding, Hobart Brothers, Hobart Welding Text
Oxyacetylene Welding, Cutting and Brazing, Hobart Brothers, Hobart Welding Text

Reference Book:
Welding Fundamentals, Mike Gellerman, Delmar

23. Maximum enrollment.

16- Welding lab equipment capacity

24. Particular room type requirement. Is this course restricted to particular room type?

YES
Vocational Technical welding shop/lab

25. Special scheduling considerations. Are there special scheduling considerations for this course?

NO

26. Are special or additional resources needed for this course?

Current welding shop equipment repair and replacement as needed

27. Does this course require special fees to be paid for by students?

NO

28. Does this course change the number of required credit hours in a degree or certificate?

Yes: Automotive Technology Certificate of Achievement (CA) from 51-54 to 52-55 credits. Automotive Technology AAS requirements from 68-71 to 69-72 credits.

29. Course designation(s) for the Liberal Arts A.A. degree and/or for the college's other associate degrees.

Degree	Program	Category
Associate in Arts:		
AS:		
AAS:	Automotive Technology	PR - Program Requirement
BAS:		
Developmental/Remedial:		

Requirement for Automotive Technology Certificate of Achievement (CA)

30. Course designation(s) for other colleges in the UH system.

WELD 16: Welding for AMT majors at Honolulu CC can receive credit for WELD 19C at UHMC.

31. Indicate the year and page # of UHMC catalog referred to. For new or modified courses, please indicate the catalog pages that need to be modified and provide a sheet outlining those changes.

UHMC 2015-2016 catalog: p. 35, Automotive Technology Program Map); p.142, course description, credits, and prereq

32. College-wide Academic Student Learner Outcomes (CASLOs).

Standard 1 - Written Communication Write effectively to convey ideas that meet the needs of specific audiences and purposes.	
Outcome 1.1 - Use writing to discover and articulate ideas.	0
Outcome 1.2 - Identify and analyze the audience and purpose for any intended communication.	1
Outcome 1.3 - Choose language, style, and organization appropriate to particular purposes and audiences.	0
Outcome 1.4 - Gather information and document sources appropriately.	1
Outcome 1.5 - Express a main idea as a thesis, hypothesis, or other appropriate statement.	0
Outcome 1.6 - Develop a main idea clearly and concisely with appropriate content.	0
Outcome 1.7 - Demonstrate a mastery of the conventions of writing, including grammar, spelling, and mechanics.	0
Outcome 1.8 - Demonstrate proficiency in revision and editing.	0
Outcome 1.9 - Develop a personal voice in written communication.	0
Standard 2 - Quantitative Reasoning Synthesize and articulate information using appropriate mathematical methods to solve problems of quantative reasoning accurately and appropriately.	
Outcome 2.1 - Apply numeric, graphic, and symbolic skills and other forms of quantitative reasoning accurately and appropriately.	0
Outcome 2.2 - Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.	0
Outcome 2.3 - Communicate clearly and concisely the methods and results of quantitative problem solving.	0

Outcome 2.4 - Formulate and test hypotheses using numerical experimentation.	0
Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results.	0
Outcome 2.6 - Assess the validity of statistical conclusions.	0
Standard 3 - Information Retrieval and Technology. Access, evaluate, and utilize information effectively, ethically, and responsibly.	
Outcome 3.1 - Use print and electronic information technology ethically and responsibly.	0
Outcome 3.2 - Demonstrate knowledge of basic vocabulary, concepts, and operations of information retrieval and technology.	0
Outcome 3.3 - Recognize, identify, and define an information need.	1
Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.	0
Outcome 3.5 - Create, manage, organize, and communicate information through electronic media.	0
Outcome 3.6 - Recognize changing technologies and make informed choices about their appropriateness and use.	0
Standard 4 - Oral Communication Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.	
Outcome 4.1 - Identify and analyze the audience and purpose of any intended communication.	0
Outcome 4.2 - Gather, evaluate, select, and organize information for the communication.	0
Outcome 4.3 - Use language, techniques, and strategies appropriate to the audience and occasion.	0
Outcome 4.4 - Speak clearly and confidently, using the voice, volume, tone, and articulation appropriate to the audience and occasion.	1
Outcome 4.5 - Summarize, analyze, and evaluate oral communications and ask coherent questions as needed.	1
Outcome 4.6 - Use competent oral expression to initiate and sustain discussions.	1
Standard 5 - Critical Thinking Apply critical thinking skills to effectively address the challenges and solve problems.	
Outcome 5.1 - Identify and state problems, issues, arguments, and questions contained in a body of information.	0
Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem.	0
Outcome 5.3 - Formulate research questions that require descriptive and explanatory analyses.	0
Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.	0
Outcome 5.5 - Evaluate a problem, distinguishing between relevant and irrelevant facts, opinions, assumptions, issues, values, and biases through the use of appropriate evidence.	0
Outcome 5.6 - Apply problem-solving techniques and skills, including the rules of logic and logical sequence.	1
Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions.	1
Outcome 5.8 - Communicate clearly and concisely the methods and results of logical reasoning.	1
Outcome 5.9 - Reflect upon and evaluate their thought processes, value system, and world views in comparison to those of others.	0
Standard 6 - Creativity Able to express originality through a variety of forms.	
Outcome 6.1: Generate responses to problems and challenges through intuition and non-linear thinking.	0
Outcome 6.2: Explore diverse approaches to solving a problem or addressing a challenge.	0
Outcome 6.3: Sustain engagement in activities without a preconceived purpose.	0
Outcome 6.4: Apply creative principles to discover and express new ideas.	0
Outcome 6.5: Demonstrate the ability to trust and follow one's instincts in the absence of external direction	0
Outcome 6.6: Build upon or adapt the ideas of others to create novel expressions or new solutions.	0

33. Additional Information