

Curriculum Action Request (CAR) Form  
**COURSE** (New Course, Course Modification, Five Year Review)  
University of Hawai'i Maui College

Curriculum Proposal # 2015.22  
(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 D

6. Course Title

Welding for Construction Applications

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

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

8. Proposed Semester

Fall 2015

9. Effective Semester (1 Year from Proposed Semester)

Fall 2016

**University of Hawaii Maui College**  
**WELD 19D - Welding for Construction Applications**

**1. Course Alpha.**

WELD

**2. Course Number.**

19D

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

Welding for Construction Applications

**4. Number of Credits.**

3

**5. Contact Hours/Type.**

6 hour lecture/lab

**6. Course Description.**

Introduces theory and practices of arc and gas welding of ferrous metals dealing with building construction 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 construction welding applications	Identify and select equipment components for construction welding applications	Perform basic construction industry welding tasks	Select welding procedures based upon material and application	Employ industry standard shop safety procedures
Describe the fire triangle	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
Identify basic welding terms	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Identify basic types of welds		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
List welding positions		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
List metal properties		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Follow safety procedures	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Identify welding power sources	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Determine correct polarity	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Locate and describe use of all shop safety equipment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Define shielded metal arc welding (SMAW) wire classification system			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Identify oxyfuel and shielded metal arc welding (SMAW) components	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Perform oxyfuel and shielded metal arc welding (SMAW) equipment safety inspection	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Demonstrate oxyfuel and shielded metal arc welding (SMAW) set-up procedure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Adjust carburizing, neutral and oxidizing flames	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Demonstrate oxyfuel shut-down procedure	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Demonstrate oxyfuel cutting skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Perform flat, horizontal, vertical, and overhead position oxyfuel brazing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Perform horizontal, vertical, and overhead position oxyfuel steel welding	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Explain shielded metal arc welding (SMAW) procedures	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Perform horizontal, vertical, and overhead fillet shielded metal arc welding (SMAW) welding	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Perform shop cleanup and material storage duties	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>

Course SLO/PSLO	Use and maintain appropriate materials, tools, equipment, and procedures to carry out tasks performed on construction projects according to safety and industry standards.	Use math, computer, and oral and written communication skills to solve construction project problems.	Create and maintain accurate documentation of construction and maintenance projects.	Describe industry standards Green Building practice in construction and maintenance projects.	Read and interpret blueprints, and/or schematics, and specifications to plan projects.	Demonstrate the craftsman standards of dependability, punctuality, and quality.	Examine and use proper mechanical, electrical, and carpentry codes and standards applicable to construction and repair.
Identify and employ safety procedures for construction welding applications	<input checked="" type="checkbox"/>						
Identify and select equipment components for construction welding applications	<input checked="" type="checkbox"/>						
Perform basic construction industry welding tasks	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Select welding procedures based upon material and application	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Employ industry standard shop safety procedures	<input checked="" type="checkbox"/>						

## 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 shielded metal arc welding (SMAW) wire classification system
Identify oxyfuel and shielded metal arc welding (SMAW) components
Perform oxyfuel and shielded metal arc welding (SMAW) equipment safety inspection
Demonstrate oxyfuel and shielded metal arc welding (SMAW) 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 shielded metal arc welding (SMAW) procedures
Perform horizontal, vertical, and overhead fillet shielded metal arc welding (SMAW) 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: Shielded metal arc welding (SMAW) 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

Use and maintain appropriate materials, tools, equipment, and procedures to carry out tasks performed on construction projects according to safety and industry standards.

Use math, computer, and oral and written communication skills to solve construction project problems.

Create and maintain accurate documentation of construction and maintenance projects.

Describe industry standard Green Building practices in construction and maintenance projects.

Read and interpret blueprints, and/or schematics, and specifications to plan projects.

Demonstrate the craftsmanship standards of dependability, punctuality, and quality.

Examine and use proper mechanical, electrical, and carpentry codes and standards applicable to construction and repair.

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

<b>Creativity</b> - Able to express originality through a variety of forms.
<b>Critical Thinking</b> - Apply critical thinking skills to effectively address the challenges and solve problems.
<b>Information Retrieval and Technology</b> - Access, evaluate, and utilize information effectively, ethically, and responsibly.
<b>Oral Communication</b> - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.
<b>Quantitative Reasoning</b> - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately.
<b>Written Communication</b> - 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 Welding Shop Classroom and Lab

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

Required Text:

Shielded 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 shop equipment capacity

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

YES

Vocational Welding Classroom and 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: changes credits for Certificate of Professional Development (CPD), Welding for Trades from 2 to 3

**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:	Sustainable Construction Technology	PE - Program Elective
BAS:		
Developmental/Remedial:		

Certificate of Professional Development (CPD): Welding for Trades (3 credits)

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

None

**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 Catalog 2015-2016: Program Map p. 53 and course description and credits p. 142

**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 quantitative 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.	0

Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.	1
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
<b>Standard 4 - Oral Communication</b> 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.	1
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
<b>Standard 5 - Critical Thinking</b> 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
<b>Standard 6 - Creativity</b> 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