

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

ELEC

5. Course Number

23

6. Course Title

Electrical Wiring I

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 type="checkbox"/> 4. Credits	<input type="checkbox"/> 5. Contact Hours	<input type="checkbox"/> 6. Course Description
<input checked="" type="checkbox"/> 7. Prerequisites	<input 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 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  
ELEC 23 - Electrical Wiring I

1. **Course Alpha.**

ELEC

2. **Course Number.**

23

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

Electrical Wiring I

4. **Number of Credits.**

2

5. **Contact Hours/Type.**

- Hour lecture/lab (3)

6. **Course Description.**

Introduces principles of switching, circuits, code requirements, and appliances. Develops skill in practical applications.

7. **Pre-Requisites.**

ELEC 20, or consent

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 to update prerequisites, PLOs, SLOs, and competencies

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).**

Course SLO/Competency	Create splices and terminations in wires, conductors, and cables	Construct typical electrical circuits with NM cable and EMT conduit	Practice the NEC mandate and wiring color code	Locate and operate circuit breakers and fuses in an emergency	Perform routine electrical inspections on a weekly or monthly basis	Construct circuits on a low voltage or software based trainer	Recognize and identify 3 and 4 way switching circuits	Create and maintain timely records of electrical deficiencies	Practice industry standard safety procedures to complete basic electrical circuit analysis	Relate the importance of electrical grounding for equipment
Demonstrate basic wiring, splicing, and termination skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Practice industry standard techniques to complete basic wiring tasks	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Identify and assemble common electrical materials to safely construct low voltage circuits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Use low voltage or software based trainers to demonstrate the wiring color code system	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Examine the National Electrical Code (NEC) and related safety rules	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<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 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.
Demonstrate basic wiring, splicing, and termination skills	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Practice industry standard techniques to complete basic wiring tasks	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Identify and assemble common electrical materials to safely construct low voltage circuits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Use low voltage or software based trainers to demonstrate the wiring color code system	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Examine the National Electrical Code (NEC) and related safety rules		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

## 16. Course Competencies.

Competency
Create splices and terminations in wires, conductors, and cables
Construct typical electrical circuits with NM cable and EMT conduit
Practice the NEC mandated wiring color code
Locate and operate circuit breakers and fuses in an emergency
Perform routine electrical inspections on a weekly or monthly basis
Construct circuits on a low voltage or software based trainer
Recognize and identify 3 and 4 way switching circuits
Create and maintain timely records of electrical deficiencies
Practice industry standard safety procedures to complete basic electrical circuit analysis
Relate the importance of electrical grounding for equipment

## 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.

Content
2-4 Weeks: Splicing and termination of conductors
2-4 Weeks: Mapping an electrical system and description of circuits
2-4 Weeks: Single pole, 3 way, and 4 way switch networks
2-4 Weeks: Lighting and power circuits with NM cable and EMT conduit
2-4 Weeks: Advance circuit design and installation

## 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.
<input checked="" type="checkbox"/>	<b>Information Retrieval and Technology</b> - Access, evaluate, and utilize information effectively, ethically, and responsibly. <input checked="" type="checkbox"/> Preparatory Level
	<b>Oral Communication</b> - Practice ethical and responsible oral communications appropriately to a variety of audiences and purposes.
<input checked="" type="checkbox"/>	<b>Quantitative Reasoning</b> - Synthesize and articulate information using appropriate mathematical methods to solve problems of quantitative reasoning accurately and appropriately. <input checked="" type="checkbox"/> Preparatory Level
	<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)

Instructional methods may vary considerably with instructors and specific instructional methods will be at the discretion of the instructor teaching the course. Suggested techniques might include, but are not limited to:

Lecture, presentation, problem solving, and class exercises or readings  
Class discussion or guest lecturers  
Audio, visual, or internet presentations  
Student class presentations  
Group or individual projects  
Shop exercises and/or projects (individual or group)  
Interactive computer programs or websites  
Other contemporary learning techniques e.g., Service Learning, Co-op, self-paced, etc.)

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

Appropriate text(s) and materials will be chosen at the time the course is offered from those currently available in the field. Open Source optional.

Example: Residential Construction Academy House Wiring, Fletcher, 3RD Edition, ISBN: 9781111306212, Publication Date: 2012

Text may be supplemented with but not limited to videos, internet resources, workbooks, demonstration equipment and visual aids at the discretion of the instructor.

**23. Maximum enrollment.**

20 (Vocational Lab capacity)

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

YES  
Vocational Lab

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

NO

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

No

**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?**

No

**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	PR - Program Requirement
BAS:		
Developmental/Remedial:		

CO: Electrical Maintenance, Small Equipment Repair

**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 2015-2016: Program Map, page 53; Course prerequisites page 111

**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.	0
Outcome 1.3 - Choose language, style, and organization appropriate to particular purposes and audiences.	0
Outcome 1.4 - Gather information and document sources appropriately.	2
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.	1
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.	2
Outcome 2.2 - Demonstrate mastery of mathematical concepts, skills, and applications, using technology when appropriate.	2
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.	2
Outcome 2.5 - Define quantitative issues and problems, gather relevant information, analyze that information, and present results.	3
Outcome 2.6 - Assess the validity of statistical conclusions.	2
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.	1
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.	2
Outcome 3.4 - Access and retrieve information through print and electronic media, evaluating the accuracy and authenticity of that information.	2
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.	1
Outcome 4.2 - Gather, evaluate, select, and organize information for the communication.	2
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.	0
Outcome 4.5 - Summarize, analyze, and evaluate oral communications and ask coherent questions as needed.	0
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.	3
Outcome 5.2 - Identify and analyze assumptions and underlying points of view relating to an issue or problem.	2
Outcome 5.3 - Formulate research questions that require descriptive and explanatory analyses.	2
Outcome 5.4 - Recognize and understand multiple modes of inquiry, including investigative methods based on observation and analysis.	2
Outcome 5.5 - Evaluate a problem, distinguishing between relevant and irrelevant facts, opinions, assumptions, issues, values, and biases through the use of appropriate evidence.	1
Outcome 5.6 - Apply problem-solving techniques and skills, including the rules of logic and logical sequence.	3
Outcome 5.7 - Synthesize information from various sources, drawing appropriate conclusions.	3
Outcome 5.8 - Communicate clearly and concisely the methods and results of logical reasoning.	2
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.	1
Outcome 6.2: Explore diverse approaches to solving a problem or addressing a challenge.	1
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	2
Outcome 6.6: Build upon or adapt the ideas of others to create novel expressions or new solutions.	0

### 33. Additional Information