

## Program Information Report

### School of Construction Technology

Become part of the global community of skilled trades' professionals or skilled trades' managers. Design, plan, construct and complete structures for your home or for your career. You can earn a certificate or degree in Construction, Construction Management, Sustainable Building Practices or Heating, Ventilation and Air Conditioning. These programs offer the perfect blend of classroom education and hands-on training. At the Henry S. Landau Skilled Trades Center, you will be taught construction skills from the ground up. You can learn classic skills such as woodworking or modern techniques needed to maintain or improve your own structure. The HVAC program offers a wide range of training to equip high-end technicians with the knowledge and skills needed for successful entry into the field.

Washtenaw Community College offers programs at several levels for students who want to begin new careers, or advance in their existing careers. The first level is the certificate, which can vary from nine to thirty-six credits, depending on the field. Certificates generally prepare students for entry-level jobs.

After completing a certificate, students can progress to the next level, the advanced certificate. The credit hours required for these programs also vary. This type of certificate provides a more specialized level of skill development, and often allows students to upgrade their positions at their places of employment.

The next level, an Associate in Applied Science, is available for some programs. For some career fields, it is possible to earn a certificate, an advanced certificate, and an Associate in Applied Science degree in the same field. In these cases, the credit hours from the certificate and advanced certificate can be applied to the credit hours needed for the Associate in Applied Science degree.

Alternatively, students can earn an AAS in Occupational Studies by completing a certificate, an advanced certificate (if one exists) and General Education requirements.

### Construction

If you want to learn basic construction, prepare to take the Michigan Builder's License exam or are considering starting a construction business, this is the place to start.

**Program Information Report**

**Facility and Energy Management (CTFEM)**

**Certificate**

**Program Effective Term: Fall 2014**

In this program, students will develop the knowledge needed to understand and manage the energy usage of commercial and residential buildings and properties. With a foundation in facilities management, students will focus on principles of energy management, renewable energy and sustainability. Students will be introduced to areas that constitute the main consumers of energy, HVAC, plumbing and electrical. Strategies to evaluate energy consumption and recommended improvements will be covered.

**Continuing Eligibility Requirements:**

Students must earn a "C" or better in all courses.

<b>Major/Area Requirements</b>		<b>(18 credits)</b>
CON 235	Construction - Building Codes and Prints	3
ELE 106	Renewable Energy Technology	3
FMA 130	Introduction to Facility and Energy Management	3
FMA 150	Energy Management Principles	3
FMA 170	Building Sustainability LEED	3
FMA 190	Introduction to Mechanical, Plumbing and Electrical	3

**Minimum Credits Required for the Program: 18**

**PROGRAM PROPOSAL FORM**

- Preliminary Approval** – Check here when using this form for preliminary approval of a program proposal, and respond to the items in general terms.
- Final Approval** – Check here when completing this form after the Vice President for Instruction has given preliminary approval to a program proposal. For final approval, complete information must be provided for each item.

<b>Program Name:</b>	<u>Facility and Energy Management</u>		<b>Program Code:</b>  <b>CFEM</b>	
<b>Division and Department:</b>	<u>Advanced Technology and Public Services/ Construction</u>			
<b>Type of Award:</b>	<input type="checkbox"/> AA <input type="checkbox"/> AS <input type="checkbox"/> AAS <input checked="" type="checkbox"/> Cert. <input type="checkbox"/> Adv. Cert. <input type="checkbox"/> Post-Assoc. Cert. <input type="checkbox"/> Cert. of Comp.			
<b>Effective Term/Year:</b>	<u>Fall 2014</u>			<b>CIP Code:</b>
<b>Initiator:</b>	<u>Cristy Lindemann</u>			<b>150503</b>
<b>Program Features</b> Program's purpose and its goals. Criteria for entry into the program, along with projected enrollment figures. Connection to other WCC programs, as well as accrediting agencies or professional organizations. Special features of the program.	To expand on existing courses for those students and industry partners that wish to complete studies in Facility and Energy Management. Students learn building science, how buildings work and develop and implement energy conservation that will reduce operating costs and the impact on the environment.  All students can register for the program.  Courses are being used from the Sustainable Building program for portions of the certificate. LEED – USGBC and Green Advantage.  Focus more on management than hands-on.			
<b>Need</b> Need for the program with evidence to support the stated need.	Facility Management is a dynamic, evolving profession that faces new challenges and opportunities created by technological advances and global business development. As defined within the International Facility Management Association's (IFMA) official statement, it is:  "...the practice of coordinating the physical workplace with the people and the work of the organization – integrating the principles of business administration, architecture, and the behavioral and engineering sciences."  Projected growth within the next few years from US Bureau Labor and Statistics is 12% which is faster than average growth of industry sector.			
<b>Program Outcomes/Assessment</b> State the knowledge to be gained, skills to be learned, and attitudes to be developed by students in the program.  Include assessment methods that will be used to determine the effectiveness of the program.	<u>Outcomes</u>	<u>Assessment method</u>		
	1. Interpret building drawings. 2. Calculate energy use in buildings, plants and residential structures. 3. Identify manager's responsibilities with new construction and built environment. 4. Identify causes of energy loss with MEP.	1. Testing and portfolio 2. Testing and portfolio 3. Testing and portfolio 4. Testing		

*In Office of Curriculum & Assessment  
logged 1/16/14 sjf*

<b>Curriculum</b> List the courses in the program as they should appear in the catalog. List minimum credits required. Include any notes that should appear below the course list.	ELE 106 Renewable energy Technology -3 FMA <del>120</del> <sup>130</sup> Intro to Facility and Energy Management -3 FMA <del>140</del> <sup>150</sup> Intro to Mechanical, Plumbing and Electrical – 3 FMA <del>160</del> <sup>170</sup> Energy Management Principles -3 FMA <del>180</del> <sup>190</sup> Building Sustainability LEED -3 CON 235 Construction Building Codes and Prints – 3 ( or another)																							
<b>Budget</b> Specify program costs in the following areas, per academic year:	<table border="1"> <thead> <tr> <th></th> <th>START-UP COSTS</th> <th>ONGOING COSTS</th> </tr> </thead> <tbody> <tr> <td><b>Faculty</b></td> <td>\$2,000.00</td> <td>\$12,000.00</td> </tr> <tr> <td><b>Training/Travel</b></td> <td>\$2,500.00</td> <td>\$900 .00</td> </tr> <tr> <td><b>Materials/Resources</b></td> <td>\$500 .00</td> <td>\$1,250.00</td> </tr> <tr> <td><b>Facilities/Equipment</b></td> <td>\$5,000 .00</td> <td>\$1000 .00</td> </tr> <tr> <td><b>Other</b></td> <td></td> <td></td> </tr> <tr> <td><b>TOTALS:</b></td> <td><b>\$10,000 .00</b></td> <td><b>\$15,150.00</b></td> </tr> </tbody> </table>				START-UP COSTS	ONGOING COSTS	<b>Faculty</b>	\$2,000.00	\$12,000.00	<b>Training/Travel</b>	\$2,500.00	\$900 .00	<b>Materials/Resources</b>	\$500 .00	\$1,250.00	<b>Facilities/Equipment</b>	\$5,000 .00	\$1000 .00	<b>Other</b>			<b>TOTALS:</b>	<b>\$10,000 .00</b>	<b>\$15,150.00</b>
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<b>Program Description for Catalog and Web site</b>	In this program, students will develop the knowledge needed to understand and manage the energy usage of commercial and residential buildings and properties. With a foundation in facilities management, student will focus on principles of energy management, renewable energy and sustainability. Students will be introduced to areas that constitute the main consumers of energy, HVAC, plumbing and electrical. Strategies to evaluate energy consumption and recommend improvements will be covered.																							
<b>Program Information</b>	<b>Accreditation/Licensure</b> – LEED and Green Advantage (GA)  <b>Advisors</b> - TBD  <b>Advisory Committee</b> - TBD  <b>Admission requirements</b> – College Level  <b>Articulation agreements</b> - TBD  <b>Continuing eligibility requirements</b> – C or better in program courses																							

**Assessment plan:**

Program outcomes to be assessed	Assessment tool	When assessment will take place	Courses/other populations	Number students to be assessed
Interpret building drawings.	Test and Portfolio	Every Three Years	Program graduates who complete CON 235 - Construction Building Codes and Prints	ALL
Calculate energy use in buildings, plants and residential structures.	Test and Portfolio	Every Three Years	Program graduates who complete FMA 160 Energy Management Principles and FMA 140 Introduction to Mechanical, Plumbing and Electrical	ALL

Identify manager's responsibilities with new construction and built environment.	Test and Portfolio	Every Three Years	Program graduates who complete FMA 160 Energy Management Principles and FMA 140 Introduction to Mechanical, Plumbing and Electrical	ALL
Identify causes of energy loss with MEP.	Test	Every Three Years	Program graduates who complete FMA 160 Energy Management Principles and FMA 140 Introduction to Mechanical, Plumbing and Electrical	ALL

**Scoring and analysis plan:**

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

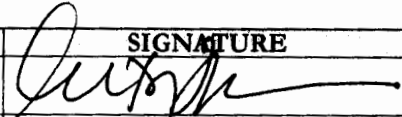
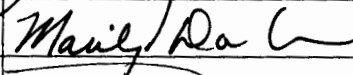

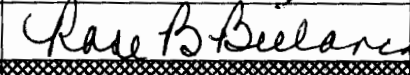
Departmentally-developed rubric

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

70 % of students will score 75% or higher.

3. Indicate who will score and analyze the data.

Departmental Faculty

REVIEWER	PRINT NAME	SIGNATURE	DATE
Department Chair/Area Director	Cristy Lindemann		1.1
Dean	Marilyn Donham		1.16.14
Vice President for Instruction <input type="checkbox"/> Approved for Development <input type="checkbox"/> Final Approval	Bill Abernethy		1/23/14
President	Rose Bellanca		2/04/14
Board Approval			2/25/14

3/28/14 done to