

Program Information Report**HVAC Energy Management Technician (CVHVEM)****Advanced Certificate****Program Effective Term: Fall 2014**

In this program, students will learn about the operation of HVAC commercial equipment and techniques used to reduce energy consumption. Topics such as boiler efficiency, chiller energy use and absorption cooling energy usage are emphasized. The reduction of energy consumption to reduce building energy costs will be the focus of energy audits.

Program Admission Requirements:

Completion of the Heating, Ventilation, Air Conditioning, and Refrigeration - Residential (CTHVRR) certificate or HVA 101 or industry experience.

Continuing Eligibility Requirements:

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

Major/Area Requirements

	(20 credits)
HVA 201 Energy Audits	4
HVA 220 Managing Chiller Energy Usage	4
HVA 225 Managing Absorption Cooling Energy Usage	4
HVA 230 Commercial Boiler Efficiency	4
HVA 235 Building Automation	4

Minimum Credits Required for the Program:**20**

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.

Program Name: Division and Department: Type of Award: Effective Term/Year: Initiator:	<u>HVAC Energy Management Technician</u> <u>ATP/ HVAC</u> ☐ AA ☐ AS ☐ AAS ☐ Cert. ☒ Adv. Cert. ☐ Post-Assoc. Cert. ☐ Cert. of Comp. <u>Fall 2014</u> <u>Les Pullins</u>		Program Code: <u>47.0201</u> CIP Code: <u>15.0501</u>
Program Features 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.	The new HVAC energy management courses are designed to train students to maintain peak efficiency or reduce energy usage of the building HVAC mechanical equipment. Students learn equipment operation, modification, and procedures to maintain or improve energy efficiency on HVAC equipment. WCC HVAC programs have been granted HVAC Excellence certification. This new program will be reviewed for certification as well. The program will feature combustion efficiency analysis and power usage with hands-on emphasis.		
Need Need for the program with evidence to support the stated need.	HVAC Technicians are in high demand. Bureau of Labor and statistics state HVAC job growth is much higher than the national average. This additional training will increase their job prospects. The Michigan Department of Technology, Management and Budget forecasts that jobs in Michigan for Heating, Air Conditioning and Refrigeration Mechanics and Installers will increase from 8,760 jobs in 2008 to 10,480 in 2018, a 19.6% increase.		
Program Outcomes/Assessment 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> 1. Identify operating and maintenance conditions to improve boiler efficiency. 2. Identify operating and maintenance conditions to reduce power consumption on chillers. 3. Recognize and apply operating and maintenance conditions used to develop an energy saving schedule to reduce HVAC equipment power use.	<u>Assessment method</u> 1. Departmental Final 2. Departmental Final 3. Departmental Final	

LN done
logged 1/16/14 sjr
Office of Curriculum & Assessment

Curriculum 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.	HVA 201 Energy Audits – 4 credits HVA 220 Managing Chiller Energy Usage – 4 credits HVA 225 Managing Absorption Cooling Energy Usage – 4 credits HVA 230 Commercial Boiler Efficiency – 4 credits HVA 235 Building Automation – 4 credits Total Credit Hours – 20 credits																							
Budget Specify program costs in the following areas, per academic year:	<table border="1"> <tr> <td></td> <td>START-UP COSTS</td> <td>ONGOING COSTS</td> </tr> <tr> <td>Faculty</td> <td>\$ 8000.</td> <td>\$ 24000.</td> </tr> <tr> <td>Training/Travel</td> <td>4000.</td> <td>2500.</td> </tr> <tr> <td>Materials/Resources</td> <td>2000.</td> <td>2500.</td> </tr> <tr> <td>Facilities/Equipment</td> <td>5500.</td> <td>2500.</td> </tr> <tr> <td>Other</td> <td>SIEMENS Partnership</td> <td></td> </tr> <tr> <td>TOTALS:</td> <td>\$ 19500.</td> <td>\$ 31500 .</td> </tr> </table>		START-UP COSTS	ONGOING COSTS	Faculty	\$ 8000.	\$ 24000.	Training/Travel	4000.	2500.	Materials/Resources	2000.	2500.	Facilities/Equipment	5500.	2500.	Other	SIEMENS Partnership		TOTALS:	\$ 19500.	\$ 31500 .		
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Program Description for Catalog and Web site	In this program, students will learn about the operation of HVAC commercial equipment and techniques used to reduce energy consumption. Topics such as boiler efficiency, chiller energy use and absorption cooling energy usage are emphasized. The reduction of energy consumption to reduce building energy costs will be the focus of energy audits.																							
Program Information	Accreditation/Licensure – HVAC Excellence Advisors – Les Pullins Advisory Committee - TBD Admission requirements – Heating, Ventilation, Air Conditioning and Refrigeration – Residential certificate (CTHVRR) <u>or</u> HVA 101 <u>or</u> Industry Experience Articulation agreements - TBD Continuing eligibility requirements – Earn a “C” or better in all program courses																							

Assessment plan:

Program outcomes to be assessed	Assessment tool	When assessment will take place	Courses/other populations	Number students to be assessed
Identify operating and maintenance conditions to improve boiler efficiency.	Departmental Final	Every 3 years	All	All
Identify operating and maintenance conditions to reduce power consumption on chillers.	Departmental Final	Every 3 years	All	All
Recognize and apply operating and maintenance conditions used to develop an energy saving schedule to reduce HVAC equipment power use.	Departmental Final	Every 3 years	All	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.

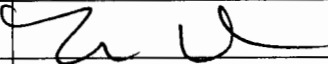
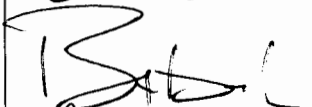
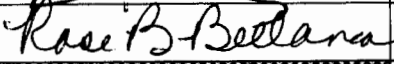
The department final will be scored using an answer key.

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

70 % of students will score 70 % or higher.

3. Indicate who will score and analyze the data.

Department Faculty will score and analyze the data

REVIEWER	PRINT NAME	SIGNATURE	DATE
Department Chair/Area Director	Les Pullins		1/16/2014
Dean	Marilyn Donham		1/16/14
Vice President for Instruction ☐ Approved for Development ☒ Final Approval	William Abernethy		1/23/14
President	Rose Bellanca		2/02/14
Board Approval			2/25/14