Comprehensive Program Review Report

Program Review - Environment Control Technology

Program Summary

2020-2021

Prepared by: Bill Reilly
What are the strengths of your area?: Student Success:
For 2019-2020 the student success rate of all ECT classes averaged 93%. All ECT courses have high success rates ranging from 92%-96%. The average class size ranges from 45-53 students which provides a FTES/FTEF of 17.05.

Employment:
The Environmental Control Technology (ECT) field (aka, Heating Ventilation, Air Conditioning [HVAC]) continues to have robust labor demand. Attached labor market information from CCCCO and EMSI indicate 257 annual openings within the Central Valley South sub-region. Additionally, employment demand outpaces graduate supply by over 200. Such strong need for employees helps drive enrollment. Consequently, the program turns away several potential students due to schedule, space, and instructional limitations. Average wait list each semester is 17-20; therefore we turn numerous students away from this program each semester. The ECT area has strong ties to industry partners; for example about 17-23 employers attend a contractors BBQ that is hosted at the Tulare Annex each spring. This last spring it had to be cancelled to due COVID. Graduates from last semester all have found employment in the field.

Instruction:
The full-time instructor, Bill Reilly, is a dedicated educator with thirty four years of HVAC teaching experience. He also continues to operate his own HVAC business which ensures he is continuously up-to-date with current trends, environmental issues, and industry standards. He also participates in industry-related professional development, updates, seminars, trainings, etc.

Graduates:
COS ECT graduates are heavily recruited in the immediate area due to the reputation of the program and the education provided. Graduates from Spring 2020 all found jobs in the HVAC. Many employers are COS/HVAC graduates and prefer to hire COS graduates over other programs.
What improvements are needed?: Average wait list each semester is 17-20; therefore we turn numerous students away from this program each semester. In the past there has a nigh program. However, we are unable to find a evening adjunct to teach the HVAC courses. Faculty and Dean will begin to explore a part time/weekend program to see if we can address the high demand for this program. Options for a part time HVAC program will be presented to the Advisory Board in April to get industry feedback.
Describe any external opportunities or challenges.: Find qualified adjunct to teach in evenings or possibly weekends.
Overall SLO Achievement: SLO are achieved and this is indicated by the high student success rates in each ECT course.
Changes Based on SLO Achievement: Ongoing need to increase technical diagnostic skills in ECT courses
Overall PLO Achievement: Great program outcomes is codified by high pass rates and 100% employment of graduates.
Changes Based on PLO Achievement: No changes in current curriculum. But there is a need to explore growth because 6 years ago it was a day and night time program.
Outcome cycle evaluation: Outcomes assessment is being worked on as there are some SLO that need to be updated.

Action: 2020-2021 Continue to support student success in the hybrid format for 2020-2021.

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Provide students the technology support as well as face to face access to hands labs that are required to complete the ECT SLO.

Leave Blank:
Implementation Timeline: 2020 - 2021
Leave Blank:
Leave Blank:
Identify related course/program outcomes: All SLO are met with action.
Person(s) Responsible (Name and Position): Bill Reilly
Rationale (With supporting data): COS determined that Fall and Spring for 2020-2021 will be primarily online with some technical labs such as ECT allowed for face to face labs with social distancing, masks and lab disinfecting.
Priority: High
Safety Issue: Yes
External Mandate: Yes
Safety/Mandate Explanation: College and Chancellors Office have determined the online/hybrid teaching.

Resources Description

Technology - Technology update of laptops; need additional Chrome books due to the hybrid classroom. (Active)
Why is this resource required for this action?: In order for student to succeed and pass the EPA 608 Refrigerant Licensing test.
Notes (optional):
Cost of Request (Nothing will be funded over the amount listed.): 10000

Action: 2020-2021 Improve student diagnostic skills

Improve student diagnostic skills through training equipment purchase.

Leave Blank:
Implementation Timeline: 2020 - 2021
Leave Blank:
Leave Blank:
Identify related course/program outcomes: SLO #4, ECT282- upon completion of this course, students will be able to diagnose a Simugas computer simulator traininer with a score of 70% or better on a skilled exam.
PLO #1- Air Cond, Heating and Refrigeration Skill Certificate; at the end of this program, students will be able to electrically and mechanically diagnose and/or repair an HVAC system with basic entry-level skills
Person(s) Responsible (Name and Position): Bill Reilly
Rationale (With supporting data): The industry is constantly evolving requiring students to gain greater understanding of the fundamentals using the most recent technology updates being used by the industry. Due to retirement of full-time instructor, industrial advisory committee rational is currently unavailable. According to the US Dept of Labor's O-Net, Troubleshooting and Operation Monitoring are skills of high importance for HVAC technicians. See attached document (skills_49-9021-01.xls). Advisory committee members and industry literature confirm the tremendous importance of diagnostic skill development for anyone working in this industry.
Priority: Medium
Safety Issue: No
External Mandate: Yes
Safety/Mandate Explanation: Industry partners have expressed interest in the diagnostic skills.

Resources Description

Equipment - Instructional - Purchase diagnostic trainers - 5 per year. (Active)
Why is this resource required for this action?: Diagnostic trainers have to be purchased and updated on a regular basis.
Notes (optional):
Cost of Request (Nothing will be funded over the amount listed.): 30000

Action: 2020-2021 Provide each student a packaged unit heating/AC

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Provide each student a package unit heating/AC in order to meet SLOs in timely manner. No need to purchase as industry will donate damaged units that can be used to meet with requirement.

Leave Blank:
Implementation Timeline: 2020 - 2021
Leave Blank:
Leave Blank:
Identify related course/program outcomes: Relates to all SLO in ECT courses.
Person(s) Responsible (Name and Position): Bill Reilly; working with industry partners to donate equipment
Rationale (With supporting data): Currently ECT program has 20 package units; another 4 are need to provide one per student.
Priority: Medium
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation:

Action: Improve student diagnostic skills

Increase and improve student critical thinking and improve industry-based skills. Also, obtain industry-standard diagnostic equipment and tools related to high-efficiency heating products.

Leave Blank: Continued Action
Implementation Timeline: 2019 - 2020
Leave Blank:
Leave Blank:
Identify related course/program outcomes: SLO #4, ECT282. Upon completion of this course the students will be able to diagnose a Simugas computer simulator trainer with a score of 70% or better on a skilled exam.
PLO# 1, Air Cond, Heating and Refrigeration Systems Skill Certificate. At the end of this program, students will be able to electrically and mechanically diagnose and/or repair an HVAC system with basic entry-level skills.

DO 2.1
DO 2.4
Person(s) Responsible (Name and Position): Bill Reilly
Rationale (With supporting data): The industry is constantly evolving requiring students to gain greater understanding of the fundamentals using the most recent technology updates being used by the industry. Due to retirement of full-time instructor, industrial advisory committee rational is currently unavailable. According to the US Dept of Labor's O-Net, Troubleshooting and Operation Monitoring are skills of high importance for HVAC technicians. See attached document (skills_49-9021-01.xls). Advisory committee members and industry literature confirm the tremendous importance of diagnostic skill development for anyone working in this industry.
Priority: High
Safety Issue: Yes
External Mandate: No
Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2020 - 2021 09/22/2020
Status: Action Completed
High efficiency heating products were purchased and implemented in the curriculum. This equipment allowed students to work on industry based skills and obtain employment.
Impact on District Objectives/Unit Outcomes (Not Required):

Resources Description

Equipment - Instructional - HVAC instructional lab heating and cooling units. Two each Package Units @ $4000 each and one Heat Pump at @ $4000. Rank #1 (Active)

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Why is this resource required for this action?: Ranked #1
Advisory committee members confirm diagnostic skill development is of the greatest importance for employable graduates. This diagnostic skill development can only be attained through industry-relevant and current instructional lab equipment. This resource request reflects some of the lab equipment necessary to meet employer expectations.

RSD's Sept 9, 2019 training symposium on "Low NOX Furnaces" included advice for HVAC educators relating to the forthcoming environmental concerns and requirements. Combustion, chemical, and emissions considerations are being taught in preparation for significant changes arriving by 2023. Employees will be expected to have this knowledge and skill upon initial employment.

DO 2.1
DO 2.4
Notes (optional):
Cost of Request (Nothing will be funded over the amount listed.): 12000

Link Actions to District Objectives

District Objectives: 2018-2021
District Objective 2.1 - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years
District Objective 2.4 - By 2021, Increase the percentage of CTE students who achieve their employment objectives by 5 percentage points

District Objectives: 2013-2015
2013-2015: District Objective #1 - District Objective #1 for 2013-2015: Provide effective academic support services as measured by an increase in the rate at which students successfully complete courses.

District Objectives: 2015-2018
District Objectives - 2.2 - Increase the number of students who earn an associate degree or certificate annually.
District Objectives - 2.4 - Increase Career Technical Education course success rates and program completion annually.
District Objectives - 3.1 - Reduce the achievement gap of disproportionately impacted student groups annually, as identified in the Student Equity Plan.