

HAWAI`I COMMUNITY COLLEGE
ANNUAL
INSTRUCTIONAL PROGRAM REVIEW
TEMPLATE

Diesel Mechanics

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July 1, 2012 to June 30, 2013

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Program/Unit Review at Hawai'i Community College is a shared governance responsibility related to strategic planning and quality assurance. It is an important planning tool for the college budget process. Achievement of Program/Unit Outcomes is embedded in this ongoing systematic assessment. Reviewed by a college-wide process, the Program/Unit Reviews are available to the college and community at large to enhance communication and public accountability.

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CERC Comments and Feedback (If you submitted a Comprehensive Program Review in 2011 or 2012, please complete this section)

CERC gave recommendations intended as suggestions for improvement. Provide a brief response to the suggestions made. i.e. Were suggestion(s) valid? Were change(s) made as a result of the suggestion(s)?

None

Program Description (Use the official description from catalog then give more in depth explanation of what the program does, who it serves and generally describe it's accomplishments)

This program prepares the student for employment as a skilled tradesperson who troubleshoots, maintains, and repairs various types of diesel engines, trucks, tractors, boats, and other heavy equipment.

Part I: Quantitative Indicators

NO ENTRY

Part II: Analysis of the Program

Alignment with College Mission and ILOs

Write a brief narrative describing the program and how it supports the College's mission and Institutional Learning Outcomes (ILOs).

College's mission:

Hawai'i Community College (Hawai'iCC) promotes student learning by embracing our unique Hawai'i Island culture and inspiring growth in the spirit of "E`Imi Pono." Aligned with the UH Community Colleges system's mission, we are committed to serving all segments of our Hawai'i Island community.

Program Mission:

The Diesel Mechanics Program's mission is to prepare students to be valued trades people who have the knowledge and skills necessary to effectively troubleshoot, maintain, and/or repair diesel engines, trucks, tractors, boats, and/or other heavy equipment, and upon graduation, meet the industry's entry level requirements of employment.

Describe how this program supports the College's mission.

By providing a learning environment that promotes student learning, inspires growth, and embraces our island culture and local community.

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Describe how this program supports the College's Institutional Learning Outcomes below.

ILO 1: Our graduates will be able to communicate effectively in a variety of situations.

Describe how the Program supports ILO1:

Our graduates have been taught to effectively communicate technical information and diagnostic skills under a variety of situations.

ILO 2: Our graduates will be able to gather, evaluate and analyze ideas and information to use in overcoming challenges, solving problems and making decisions.

Describe how this Program supports ILO 2:

Our graduates have been taught to gather, evaluate, troubleshoot, and repair problem they may face, in a variety of technical challenging situations. Making correct decision on repair procedures.

ILO 3: Our graduates will develop the knowledge, skills and values to make contributions to our community in a manner that respects diversity and Hawaiian culture.

Describe how this Program supports ILO 3:

Our graduates possess the required knowledge and technical skills that are required of them to be a productive technician within our community that respects diversity and Hawaiian culture.

Annual Report of Program Data (ARPD)

Based on the data from this Program's ARPD, analyze this program's strengths and weaknesses in terms of demand, efficiency, and effectiveness.

Overall Health-- Cautionary

Demand -- Unhealthy

The trend for Technical programs to increase enrollment when the unemployment rate rises is common. The Diesel Program is somewhat dependent on the construction industry which is starting to recover from the previous recession. Construction is slowly increasing in the mainland and therefore job placement in this county is still slow, while increased student count has subverted this ratio. Of program major (37.5) to new and replacement positions (4 County Prorated).

The Diesel Program will struggle with this rating should the economy remain the same. There were 37.5 majors listed in the data and four New and Replacement Positions (County Prorated), a ratio of 9.3 majors per job, an unhealthy ratio. Some of the graduates have indicated a willingness to pursue other avenues of training such as Auto Mechanics, Auto Body, Repair & Painting, or Machine Welding and Industrial Mechanics upon graduation. This program has helped some of the graduates locate jobs locally with some of the private and government industry. We have been supporting the industry with entry level technicians for the past 25 years.

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Efficiency -- Healthy

The fill rate of 100% and the Majors to FTE BOR Appointed Faculty of 37.5 indicate the program maintains a healthy efficiency rating. The program has been consistent in filling all of the 17 seats that are available during the 2012/2013 year, averaging 17.8 with some students dropping out due to rigor of the program not meeting their expectations.

Effectiveness -- Cautionary

Successful Completion decreased by three percent from the previous year and at 94% validates that the program is successful in retaining students through the two year program. We have had some students Withdrawal from the program for personal reasons.

Distance Education: Completely On-Line Classes

If applicable, based on the data on Distance Education (DE) from this Program's ARPD, analyze this program's strengths and weaknesses in terms of its DE offerings. Include future plans (i.e. will increase/decrease offerings; CARP 100 was not effective online, will try CARP 101 instead; increase professional development for faculty).

N/A

Perkins IV Core Indicators

If applicable, provide an analysis for any Perkin's Core Indicator for which this program did not meet the goal.

The Hawaii Community College safety coordinator recommended some of the shop areas be reconditioning due to safety issue. Removed and disposed of old out dated tools, training materials, damage and unsafe tools and related components that could affect student safety. Renovate the shop area to increase the safety of the students. Removed all tools and related components stripped walls (old paint) and repainted tool room. Reorganized tools and purchased some new tools using the Caterpillar scholarship funding. Nontraditional students has declined, I will emphasize on recruiting nontraditional students at career fairs or in situations when I am promoting the college or program.

Performance Funding

Briefly describe initiatives/strategies that this program has or will implement to increase any or all of the Performance Funding outcomes.

We actively utilize our office of student services and counselors to improve success rates in this area. We also keep track of native Hawaiian students with the intent of improving success rates.

Previous Program Actions

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From the Academic Master Plan (AMP), list the Program Actions for this program. Give a progress report for each Program Action, describe the degree of achievement. Indicate "Delete" if this Program Action will no longer be a priority Program Action

Program Actions	Progress Evaluation
10.1 We will continue to promote Caterpillar/Hawthorne student scholarship awards at the high schools and new and returning students to the diesel program.	We will continue to have a strong relationship with these companies.
10.2 Develop a recruitment flier to promote the diesel mechanics program.	Nearing completion
10.3 Donation of diesel engines and other training and related materials.	We will continue to have a strong working relationship with this local Caterpillar company to support the program. The program has received two engines and other training materials that is currently being used in the curriculum.
10.4 Industry training	We have been having industry training from some of the local companies for the students. Here are some of the companies that contribute to these events. Caterpillar-Hawthorne Pacific Corp, Cummins Pacific, Cummins West, Power Generation, and Bendix Brakes.
10.5 Relationship with manufacturers	Matson Navigation company and Caterpillar-Hawthorne Machinery company has helped ship training materials from the mainland to Hilo. The training materials are currently being used in the curriculum.
10.6 & 10.7 Updated student learning outcomes and develop assessment for the course.	We have modified all of the diesel mechanic courses from 28 different modules to 6 course modules. Student learning outcomes, course objectives, course topics, and assessments has been modified to meet the new course modifications.

Significant Program Actions for 2012-2013. (include curriculum changes, new certificates, stopout, gain/loss of positions)

1. We are currently in a process of implementing a new diesel mechanics course modification. In fall of 2014 semester will start the new course curriculum, currently we have 28 modules and the change will have 6 different courses which will help streamline and modernize the DIMC curriculum.
2.
3.

Analysis of Strengths and Weaknesses

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Briefly describe this program's top 3 strengths and 3 weaknesses. Provide an explanation and supporting evidence for each strength and weakness (e.g. assessment results, data elements from ARPD, surveys, etc.)

Strengths	Using supporting evidence, describe why this is a strength
S1. DIMC program class size has continued to be at a full capacity rate.	The diesel mechanics field has grown in the industry and students are showing more interest toward this trade.
S2. The number of native Hawaiians enrolled in this program is higher than the past two years.	Results from instructional annual report of program data line 3a.
S3. The student completion rate.	Results from instructional annual report of program data line 17 shows 94%.

Weaknesses	Using supporting evidence, describe why this is a Weakness
W1. Updating current diesel engines to electronically controlled diesel engine for the DIMC 20 courses.	Advisory council members recommend that electronically controlled diesel engine be part of the curriculum, more of the engines in the industry are electronically controlled engines.
W2. Lacks sufficient lab work area.	Without sufficient lab work area, students are limited when performing practical projects and complete rubric assignments. Safety may also be compromised by such limitations.
W3. Lacks environmentally safe, parts washing system.	Parts cleaning is one of the first steps required in reassembling precision components and affects the success of the repair. A good system also reduces hazmat concerns and safety issues for the students.

Trends and Other Factors

Describe trends including comparisons to any applicable standards, such as college, program, or national standards from accrediting associations, etc. Include, if relevant, a summary of Satisfaction Survey Results, special studies and/or instruments used, e.g., CCSSE, etc. Describe any external factors affecting this program or additional program changes not included elsewhere.

The department of transportation and national trend has been shifted toward certification. The program encourages students to attempt the exam(s) but it is not a requirement of the program. Students will have to pay for exam registration as well for each exam. There are 8 basic areas of examination. Many employers offer incentive bonuses for passing exams. In that sense, it is not lucrative to have passed exams before employment. The program provides practice exams before graduation so that students will be familiar with testing format.

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Part III: Action Plan

Goals and Planning

List additional Program Action(s), not included in the AMP to be implemented for program success. Identify the AMP Priorities, College's ILOs, Strategic Plan Action Strategies, and UH System collaboration (if applicable) to which these Program Action(s) align.

Program Action 1		ILO Alignment (select up to 3)	Strategic Plan Alignment (select best alignment; max 3)		UH System Collaboration
			Performance Measure	Action Strategy	
Environmental parts washer. These are some of the training aide systems used for teaching and demonstration. Bendix brake board, differential assembly, and International electronically control diesel engine.	Green Curricula	ILO 3	B.2	c.	
	Program Development	ILO 2	C.1	a.	
	Workforce	ILO 2	B.2	c.	

[Link to Hawaii Community College Institutional Learning Outcomes](#)

[Link to Hawai'i Community College Strategic Plan](#)

[Link to Hawaii Community College Academic Master Plan](#)

Narrative of New Strategy for Strategic Plan:

1. Environmental parts washer will be an effective cost efficient addition to the program. This will eliminate toxic chemicals that students will be exposed to, and environmentally friendly.
2.
3.

Briefly explain how **Program Action 1** aligns to the College's AMP Priorities, ILOs, Strategic Plan, and UH System collaboration (if applicable):

The program will introduce the new technology parts washer for student lab activities. Environmental concerns and regulations have encouraged the innovation of natural, non-chemically based solvents to clean parts.
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Calendar of planned activities for **Program Action 1** – In chronological order, briefly describe the procedures/activities planned to achieve **Program Action 1**

Activity(ies)	When will the activity take place
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Example: Nursery design development Shade replacement Irrigation design and installation	September 2014 Fall 2014 Spring 2015
Introduce the new technology parts washer to advisory members.	Fall 2014

Program Action 2		ILO Alignment (select up to 3)	Strategic Plan Alignment (select best alignment; max 3)		UH System Collaboration
			Performance Measure	Action Strategy	
Update current diesel engines (mechanical) to electronically controlled diesel engines. Some of these engines have been here for the past 25 years.	Program Development	ILO 2	B.2	c.	
	Graduation	ILO 1	A1.1	New Strategy	
	Graduation	ILO 1	A1.1	New Strategy	

Narrative of New Action Strategy for Strategic Plan:

1. The new electronically controlled diesel engine will be introduced into the program during lecture and lab activities. This will enhance the program and prepare students for industry expectation.
2.
3.

Briefly explain how **Program Action 2** aligns to the College's AMP Priorities, ILOs, Strategic Plan, and UH System collaboration (if applicable):

We will align with ILO 2, strategic plan B.2, and AMP priorities 10.6 & 10.7.

Calendar of planned activities for **Program Action 2** – In chronological order, briefly describe the procedures/activities planned to achieve **Program Action 2**

Activity	When will the activity take place
Need to acquire proper funding for equipment, related components and training.	Spring 2015 - fall 2015

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Program Action 3		ILO Alignment (select up to 3)	Strategic Plan Alignment (select best alignment; max 3)		UH System Collaboration
			Performance Measure	Action Strategy	
Heavy duty truck wireless lifting system, 48 tons, 6 set.	Program Development	ILO 2	B.2	c.	
	Graduation	ILO 1	A1.1	New Strategy	
	Graduation	ILO 1	A1.1	New Strategy	

Narrative of New Strategy for Strategic Plan:

1. The new heavy duty truck wireless lifting system will be introduced into the program during lecture and lab activities. This will enhance the program and prepare students for industry expectation.
2.
3.

Briefly explain how **Program Action 3** aligns to the College's AMP Priorities, ILOs, Strategic Plan, and UH System collaboration (if applicable):

We will align with ILO 2, strategic plan B.2, and AMP priorities.

Calendar of planned activities for **Program Action 3** – In chronological order, briefly describe the procedures/activities planned to achieve **Program Action 3**

Activity	When will the activity take place
Need to acquire proper funding for equipment, related components and training.	Spring 2015-fall 2015

List specific action plans for any Perkin's Core Indicator for which this program did not meet the goal.

Perkin's Indicator	Action Plans	When will the activity take place
1P1	The Hawaii Community College safety coordinator recommended some of the shop areas be reconfigured due to safety issue. Removed and disposed of old out dated tools, training materials, damage and unsafe tools and related components that could affect student safety. Renovate the shop area to increase the safety of the students. Removed all tools and related components	When all modification has taken place. The non-traditional student participation and completion will be continuously.

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	stripped walls (old paint) and repainted tool room. Reorganized tools and purchased some new tools using the Caterpillar scholarship funding. Nontraditional students has declined, I will emphasize on recruiting nontraditional students at career fairs or in situations when I am promoting the college or program.	
3P1	Same as above	
4P1	Same as above	
5P1	Same as above	
5P2	Same as above	
1P1		

Part IV: Resource Implications

List Top 3 Cost Items needed for program success. Identify alignment to the AMP Program Actions, Strategic Plan Action Strategies and/or Strengths and/or Weaknesses to address.

Cost Item 1	Type	Cost	Strategic Plan Alignment (select best alignment; max 3)		Academic Master Plan Alignment (select best alignment; max 3)	Strength	Weakness
				Action Strategy	Program Action from AMP (ie 4.3) or write "New Strategy"		
Updated electronically controlled diesel engine.	Equipmen	\$25,000	B.2	b.	10.6	S3	W1
			B.2	c.	10.7	S3	W1
			None	None		None	None

[Link to Hawaii Community College Institutional Learning Outcomes](#)

[Link to Hawai'i Community College Strategic Plan](#)

[Link to Hawaii Community College Academic Master Plan](#)

Briefly explain why **Cost Item 1** is necessary to meet priorities of program and/or to address strengths and/or weaknesses.

Electronically controlled diesel engine will be introduced into the program during lecture and lab activities. Advisory council member recommends that the program methodology should include electronically controlled diesel engines. This will enhance the program and prepare students for industry expectation.

Cost Item 2	Type	Cost	Strategic Plan Alignment	Academic	Strength	Weakness
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			(select best alignment; max 3)		Master Plan Alignment (select best alignment; max 3)		
				Action Strategy	Program Action from AMP (ie 4.3) or write "New Strategy"	From Part II above	From Part II above
Storage racking for DIMC shop.	Equipmen	\$30,000	B.2	b.	10.6	S3	W2
			B.2	c.	10.7	S3	W2
			None	None	None	None	None

Briefly explain why **Cost Item 2** is necessary to meet priorities of program and/or to address strengths and/or weaknesses.

Heavy duty structural racking to help store training materials to allow more space on the shop floor for students to perform practical projects and complete rubric assignments. Due to shop floor limitation and student safety reason the system safety officer recommends that program training materials be stored on pallet rack systems to allow for more safe and efficient floor accessibility.

Cost Item 3	Type	Cost	Strategic Plan Alignment (select best alignment; max 3)		Academic Master Plan Alignment (select best alignment; max 3)	Strength	Weakness
				Action Strategy	Program Action from AMP (ie 4.3) or write "New Strategy"	From Part II above	From Part II above
Environmental parts washer.	Equipmen	\$10,000	B.2	b.	10.6	S1	W3
			B.2	c.	10.7	S1	W3
			None	None	None	None	None

Briefly explain why **Cost Item 3** is necessary to meet priorities of program and/or to address strengths and/or weaknesses.

Environmental parts washer will help reduce the use of harmful solvent and chemicals for safe cleaning of heavy duty equipment parts, student health and the environment.

Part V: Program Student Learning Outcomes

List the Program Learning Outcomes and check mark those assessed for the 2012-2013 program year.

Check mark if Assessed this year	Program Student Learning Outcomes

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1	<input checked="" type="checkbox"/>	Function safely in a heavy equipment shop environment. Note more info on attachment.
2	<input checked="" type="checkbox"/>	Demonstrate ability to communicate effectively to gather and convey information.
3	<input checked="" type="checkbox"/>	Apply theory and principles for proper diagnosis, repair, and maintenance in the heavy duty truck equipment industry.
4	<input checked="" type="checkbox"/>	Practice the minimum essential mental, physical, and behavioral skills necessary to maintain professional proficiency.
5	<input checked="" type="checkbox"/>	Work collaboratively with others as well as independently.
6	<input type="checkbox"/>	
7	<input type="checkbox"/>	
8	<input type="checkbox"/>	
9	<input type="checkbox"/>	
10	<input type="checkbox"/>	

A) Evidence of Industry Validation for CTE Programs – Provide documentation that the program has submitted evidence and achieved certification or accreditation from an organization granting certification in an industry or profession. If the program/degree/certificate does not have a certifying body, the recommendations for, approval of, and/or participation in, assessment by the program’s advisory council can be submitted. – Describe the documentation; i.e. 9/27/2013 Minutes of ACC Advisory Council; Completed Rubrics by Advisory Council Members.

The diesel mechanics program has an advisory member council committee team comprised of the program faculty; members of the community employed in the heavy duty equipment and trucking industry and, when possible, graduates of the program. The advisory team meets annually.

B) Expected Level of Achievement – Describe the different levels of achievement for each characteristic of the learning outcome(s) that were assessed. What represented “excellent,” “good,” “fair,” or “poor” performance using a defined rubric and what percentages were set as goals for student success; i.e. 85% of students will achieve good or excellent in the assessed activity.”

The evaluation was assessed using the following information; attendance, punctuality, preparedness, response to supervision, attitude, behavior and cultural sensitivity, safety, attention to task, quality of work, communication, and teamwork. The scale used for the assessment was skilled (4), moderate (3), limited skills (2), and unskilled (1).

C) List Course(s) Assessed – List the courses assessed during the reporting period. Student activities were observed and evaluated for the Fall 2012 and Spring 2013 courses.

Fall 2012:

DiMc 20 Intro to Diesel Engines

DiMc 21 Engine Operating Principles

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DiMc 22 Cylinder Blocks & Heads

DiMc 23 Crankshaft & Bearings

DiMc 24 Camshaft, Gear Train, & Timing

DiMc 25 Piston & Connecting Rod Assemblies

Spring 2013:

DiMc 30 Intro to Electrical Systems

DiMc 31 Starting Systems & Circuits

DiMc 32 Charging Systems & Circuits

DiMc 33 Intro to Fuel Systems

DiMc 34 Caterpillar Fuel Systems

DiMc 35 Detroit Fuel Systems

DiMc 36 Cummins Fuel Systems

DiMc 37 Stanadyne Fuel Systems

DiMc 38 Bosch-CAV

D) Assessment Strategy/Instrument – Describe what, why, where, when, and from whom assessment artifacts were collected.

The students were evaluated using an employability/Safety/Communication skills rubric form, which was performed by the program instructor and discussed with the students and advisory council members. The evaluation was assessed using the following information; attendance, punctuality, preparedness, response to supervision, attitude, behavior and cultural sensitivity, safety, attention to task, quality of work, communication, and teamwork. The scale used for the assessment was skilled (4), moderate (3), limited skills (2), and unskilled (1). The instructor evaluated the students using the rubric form and random observations of student behavior were the artifacts. Evaluations that took place during the semester were tallied during weeks 8 and 16 of each semester.

E) Results of Program Assessment – The % of students who met the outcome(s) and at what level they met the outcome(s).

At the end of the semester, the student scores were entered into a spreadsheet (one each for the Fall and Spring semesters). For each semester, the spreadsheet calculated the student totals, averages and produced graphs that provide a comparison between the evaluation criteria and the semesters.

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It was expected that, as a group, students would achieve an average at least 80% in all the evaluation criteria. This is the evaluation percentage for the assessment performed in fall 2012 - 91.4% score.

This is the evaluation percentage for the assessment performed in spring 2013 - 84.2% score. The two scores represent that overall assessments percentage were above average.

F) Other Comments – Include any information that will clarify the assessment process report. For this year, the faculty decided to compare the differences in scores within and between the semesters to see if they had a bearing on student performance in projects. The program is undergoing major modifications including a redefinition of the program's learning outcomes and a rewrite of all courses and course learning outcomes. For this reason, it was determined that the only consistent data that could be carried into the next assessment period as an evaluation of student employability, safety, and communication skills.

G) Next Steps – Describe what the program will do to improve the results. "Next Steps" can include revision to syllabi, curriculum, teaching methods, student support, and other options. The Diesel Mechanics instructor and other faculty discussed the scores and noted a number of issues. In the fall semester, the scores within each criterion decreased between week 8 and week 16 with the exception of Behavior and Cultural Sensitivity, Safety, Quality of Work and Teamwork. For all criteria, the differences were minimal within the semesters. However, the scores between the Fall and Spring showed some significant differences. Spring percentages were on average 7.2% lower than the Fall. Criteria Attendance, Punctuality, and Quality of Work showed the greatest decrease.

One thought that emerged from the discussion was that the skill performance data could be compared against student performance in a project. Over time, the instructional methods could be modified to address the skill criteria that are in need of attention. Improvements in the scores could then be compared against improvement in project performance.

The evaluation team agreed that the skill performance rubric is returning meaningful information and needs no modification at this time.