Assessment: Program Review Update

Program (DIES) - Diesel Technology AS.1175

Program Catalog Summary: Associate
in Science:
SC Program: AS.1175

PROGRAM DESCRIPTION: This curriculum prepares the student for entry into the mechanic trade related to heavy equipment and diesel engines. Award of apprenticeship credit for completion of the program will depend on the employer, local union regulations, aptitude of student, as well as the curriculum completed. The Diesel Technology major requires technical courses to satisfy the minimum requirements for the major. Students are encouraged to take as many technical courses and related electives as their program will permit. When necessary, auto mechanic courses and diesel courses may be interchanged to satisfy major requirements.

This degree is approved through the California Community College Chancellor's Office. Upon satisfactory completion of all degree requirements and filing an application for graduation with Admissions and Records, the student's transcript will reflect completion of this degree.

PROGRAM LEARNING OUTCOMES:

Upon successful completion of this degree, the student should be able to:

1. With an emphasis on general education, explain the basic theory of the subject matter or system for the course of instruction based on industry standards.
2. With an emphasis on general education, analyze a scenario based upon an equipment system failure / problem / complaint.
3. With an emphasis on general education, employ a systematic approach to troubleshooting a system malfunction and prepare a solution.
4. With an emphasis on general education, demonstrate the correct tools/supplies required to diagnose/repair a malfunction.5. With an emphasis on general education, verify if the path of repair was correct by testing and/or completing a work order/report.

DEGREE REQUIREMENTS:

CORE COURSES:

DIES 48 Hydraulics 3.5
DIES 49 Advanced Hydraulics 3
DIES 94 Worksite Learning For Diesel Technology 1
DIES 160 Diesel Engine Electronic Control 4
DIES 161 Diesel Technology Field Training 2
DIES 162 Heavy Duty Power Train 4
DIES 164 Diesel Performance Analysis 4
DIES 166 Diesel Engines 6
DIES 170 Heavy Duty Braking Systems 4
ENGL 1A* College Composition 4
INDE 1 Career Planning for Industrial Tech. 1
MATH 110* Essential Math 3
WELD 70 Beginning Welding 3
WELD 73, 170, 171, 174, 175 or 178 3

*May be used to fulfill General Education requirements. See a counselor.

ASSOCIATE IN SCIENCE DEGREE REQUIREMENTS:

Major	45.5
Additional General Education	15
General Electives	0
Degree Total	60.5*

*Note: Calculation assumes a student will double-count the Multicultural graduation requirement with either a social science or humanities G.E. requirement and that the student will fulfill computer literacy through a test. If students plan well and see a counselor, they may be able to double count the Multicultural and Computer Literacy units. If these graduation requirements are added, the number of units is increased by 6 units.

Fall 2018

PRIOR PROGRAM REVIEW REFLECTION (If applicable)

Term and Year of Previous Review: Fall 2016

Discuss any changes to the program as a result of the previous program review: The program currently has an additional faculty member funded through strong workforce and is in the process of adding the additional space needed with the bond funded building in the industrial yard.

Resources Received or Requested: We have Received the following resources:

New Hydraulic Training Boards

Current diesel engines for advanced electronics and emissions classes

Computer scan tools for advanced diesel classes

Hydrostatic training unit (in process)

CURRENT PROGRAM REVIEW

Who completed this form: Ishmael Rivas

Participation in completing this report: Area Faculty (list in the next box)

Summarize participation comments: Ishmael Rivas and Raymond Nicholas

Discuss some of the program successes and benefits to the students and/or community: The program continues to serve vital training for our local community equipping students with skill sets that will lead to full time employment with a living wage. Students can leave the program with a certificate or degree and expect to make on average throughout California around $47,000 a year.

List each PLO and write a brief narrative summary analysis discussing outcomes for each of them: Industry Standards

Upon successful completion of this degree, with an emphasis on general education, explain the basic theory of the subject matter or system for the course of instruction based on industry standards.

The students have been able to accomplish this PLO but it has not been accurately documented in a way that can be useful for ongoing program review. We are currently rewriting Our PLO,s in a manner that can be accurately tracked allowing us to do more meaningful data analysis.

System Failures

Upon successful completion of this degree, with an emphasis on general education, analyze a scenario based upon an equipment system failure/problem/complaint.

The students have been able to accomplish this PLO but it has not been accurately documented in a way that can be useful for ongoing program review. We are currently rewriting Our PLO,s in a manner that can be accurately tracked allowing us to do more meaningful data analysis.

System Malfunction

Upon successful completion of this degree, with an emphasis on general education, employ a systematic approach to troubleshooting a system malfunction and prepare a solution.

The students have been able to accomplish this PLO but it has not been accurately documented in a way that can be useful for ongoing program review. We are currently rewriting Our PLO,s in a manner that can be accurately tracked allowing us to do more meaningful data analysis.

Tools and supplies

Upon successful completion of this degree, with an emphasis on general education, demonstrate the correct tools/supplies required to diagnose/repair a malfunction. (Active)

The students have been able to accomplish this PLO but it has not been accurately documented in a way that can be useful for ongoing program review. We are currently rewriting Our PLOs in a manner that can be accurately tracked allowing us to do more meaningful data analysis.

Testing

Upon successful completion of this degree, the student should be able to with an emphasis on general education, verify if the path of repair was correct by testing and/or completing a work order/report.

The students have been able to accomplish this PLO but it has not been accurately documented in a way that can be useful for ongoing program review. We are currently rewriting Our PLO,s in a manner that can be accurately tracked allowing us to do more meaningful data analysis

Describe how this program supports a transfer pathway to CSU or UC.: NA

Specify Labor Market Demand (for CTE programs): The current demand for Diesel Service Technicians and Mechanics is very high forecasting up to 9% growth from 2016-2026.

- With heavy equipment, mobile equipment, and diesel equipment combined there are roughly 470,000 service technician jobs in the US.
- It is forecasted that the US will add 40,000 diesel related service technician jobs from 2016-2026.

PROGRAM DATA ANALYSIS

Program Effectiveness: NA

Program Effectiveness (CTE): In the 2017-2018 school year we awarded 10 AS Degrees and 5 Certificates. This is a positive number considering that our cohort of students majoring in diesel is relatively small at this time. Many times the actual cohort of Diesel majors is about 25-30 and we consider this number of 15 awards to be a step in the right direction. We would love to see close to 80% degree or certificate completion as a goal.

One of the issues impacting the program is that the majority of diesel courses are only offered once a year. This can extend the degree completion rate for students and gives them more opportunity to wash out.

Job placement is not an issue for our program. With a huge need for diesel technicians our students (That have good work ethic) are picked up as soon as they show any useful skill sets. This can be an issue for the school because they often leave and may not finish their degree or certificate. This is a good problem to have but an ongoing issue none the less.

Course Success Rates: With an 80.34% average success rate over the last two years we are right at the threshold we are looking for. The diesel courses can be difficult and require the students to retain and learn many concepts. We are always looking to improve this number but at the same time strive to maintain the rigor needed for industry standards.

Course Retention Rates: The 90.55% average over the last 2 years shows that we have the ability to keep the students enrolled but we would like to make success and retention averages as close as possible while still maintaining industry standards.

Course Enrollments: With 158 students enrolled in the 2017-2018 school year being the highest number over the last 5 years we are happy to see the uptick in student interest and enrollment. The program was able to add additional sections in Hydraulics this last year and the improved numbers show the success of having additional section options for our students.

Equity: We have seen the percentage of white students decline over the last 4 years going from 85.59% in 2013-2014 to 69.92% in 2017-2018. This has been a gradual change showing a decline in each year. The inverse of this has been shown in the Hispanic student population going from 2.70% in 2013-2014 to 13.92% in 2017-2018.

The male to female ration has remained at about 9% female to 91% male over the last 4 years.

As far as age of our students goes we have remained pretty steady with a diverse group of students spanning all age groups from 18-50+.

We do not see any huge barriers or areas of concern at this time and are pleased with the diversity of students throughout the program.

CURRICULUM

Review of courses with prerequisites: The course prerequisites have been reviewed and they are still viable at this time.

Challenges to offering key courses: We have had issues offering courses more than once a year due to space constraints. This

issue is in the process of being remedied but it will be an issue until the new building is built in the Industrial area near the 2600 building.
Course changes: We have recently changed the degree and certificate for diesel adding a new course (DIES 169) and changing out one of our electives. We have been updating courses such as DIES 48 to better suit our industry and student needs.

SUMMARY

Changes or improvements needed based on the analysis above: The program has rewritten and updated its degree and certificate along with changing some of its courses to better suite our students and industry. Many new training aids are being purchased and will be utilized throughout the curriculum. We are in the process of changing so much we will continue to need new tooling and supplies as we move into the space made available to us in the 2500 building.
Note any resources you intend to request through the Area Planning process to improve the program: We are requesting a newer model medium duty diesel truck to add to our training aids. We only have one current truck in our program and it would help immensely if we could have more options for the students.
Other information/reflections on the program: The diesel program has been a strong program for years and needs to continue to update and modernize in order to remain a relevant training program in the industry, The need for training is great and the jobs are plentiful as long as we can equip our students with the technology of today.
Conclusion: The Diesel Program is going through many changes at this time, implementing new courses and aligning our curriculum with an outside accrediting body (AED). We have many new training aids that are being integrated now and in the Spring Semester that will help our students meet PLOs. As stated throughout the document we will need to maintain better records on our student's ability to complete SLOs and PLOs throughout the degree and certificate.

BELOW TO BE COMPLETED BY THE PROGRAM REVIEW COMMITTEE

Date: 11/20/2019
Recommended Action: The PRC recommends this program continue without qualification.
Summary of Findings: The program has a five-year average of 7.4 completers (2013/14 to 2017/18). The 5-year average success rate for most degree courses is 76.82%, which is above the Institution-set Standard of 70%. Retention rates are very strong with a five-year average of 91.15%. Enrollments show a 5-year average of 23.73 students per section. However, there is a decline in enrollments from 26.8 students per section in 2013/14 to 19.99 students per section in 2017/18. It should be noted that the Diesel Faculty reported, "With 158 students enrolled in the 2017-2018 school year being the highest number over the last 5 years we are happy to see the uptick in student interest and enrollment." The faculty also report that the students are meeting the PLO outcomes but that they have not been able to accurately document the outcomes. They are working to address this by rewriting their PLO's. The PLO's have been mapped to ISLO's, SLO's to PLO's but SLO's have not been mapped to ISLO's.
The PRC recognizes the faculty for their effort in completing this report. We appreciate their diligence in working to address PLO's that are documented and reported accurately. We applaud their desire to align the program with AED standards to further support student success and achievement. We highly value that the diversity of the program is considered.

The PRC recommends the following:

- The Diesel Faculty review statistics concerning enrollment data and reach out to research department for clarification.
- SLO's be mapped to ISLO's.
- Work with appropriate campus resources to make an effort to attract more females into the program.
- Continue with the plans for updating documentable PLO's, curriculum updates and so forth.
- Distinguish a path from certificate to degree program or differentiate the need for both as this program review documentation is largely a mirror image of the certificate documentation.

Date summary sent to program faculty and/or counselors: 11/21/2019
Program faculty response: Dean Zweigle: "Thank you Stacey. I will follow up with Ish to consider distinguishable pathways for the award granted in the program."
Sue Loring, Counselor, "Yes, I agree – continue without qualification."
Date summary sent to College Council: 12/13/2019
Date reviewed by College Council: 12/17/2019
College Council response or additional action: Acknowledged receipt

PROGRAM AWARDS

Award Type	Program Type	2012-13	2013-14	2014-15	2015-16	2016-17
Associate of Arts Degree	Political Science	4	7	11	4	5
Grand Total		4	7	11	4	5

COURSE STATISTICS

		Academic Year				
Course Name		2012-13	2013-14	2014-15	2015-16	2016-17
DIES-48	# of Sections	4	3	3	4	4
	Enrollment	98	84	82	104	102
	FTES	14.0	11.4	12.0	14.4	14.6
	FTEF	1.10	0.83	0.83	1.10	1.10
	WSCH	421	343	360	432	438
	Avg Enrl/Section	25	28	27	26	26
	Avg FTES FTEF	12.70	13.87	14.55	13.09	13.28
	Avg WSCH FTEF	383	416	436	393	398
DIES-49	# of Sections	1	1	1	1	1
	Enrollment	22	23	26	28	20
	FTES	3.8	4.4	5.0	5.2	3.4
	FTEF	0.33	0.33	0.33	0.33	0.33
	WSCH	114	132	150	156	102
	Avg Enrl/Section	22	23	26	28	20
	Avg FTES FTEF	11.40	13.54	15.38	16.00	10.46
	Avg WSCH FTEF	342	406	462	480	314
DIES-94	# of Sections	9	7	8	8	6
	Enrollment	27	17	21	18	15
	FTES	1.5	1.3	1.1	1.0	0.8
	FTEF	0.00	0.00	0.00	0.00	0.00
	WSCH	198	168	146	129	104
	Avg Enrl/Section	3	2	3	2	3
	Avg FTES FTEF					
	Avg WSCH FTEF					
DIES-160	# of Sections	1	1	1	1	1
	Enrollment	38	31	25	31	17
	FTES	6.8	5.8	4.8	5.8	3.2
	FTEF	0.35	0.35	0.35	0.35	0.35
	WSCH	204	174	144	174	96
	Avg Enrl/Section	38	31	25	31	17
	Avg FTES FTEF	19.43	16.57	13.71	16.57	9.14
	Avg WSCH FTEF	583	497	411	497	274
DIES-161	# of Sections	1	1	1	1	1
	Enrollment	23	24	22	20	18
	FTES	1.6	1.6	1.3	1.3	1.2
	FTEF	0.13	0.13	0.13	0.13	0.13
	WSCH	47	49	39	39	35
	Avg Enrl/Section	23	24	22	20	18
	Avg FTES FTEF	11.48	12.00	9.53	9.53	8.48
	Avg WSCH FTEF	353	368	293	293	263
DIES-162	# of Sections	1	1	1	1	1
	Enrollment	33	29	30	29	23
	FTES	5.8	5.4	6.0	5.6	4.4

	FTEF	0.35	0.35	0.35	0.35	0.35
	WSCH	174	162	180	168	132
	Avg Enrl/Section	33	29	30	29	23
	Avg FTES FTEF	16.57	15.43	17.14	16.00	12.57
	Avg WSCH FTEF	497	463	514	480	377
DIES-164	# of Sections	1	1	1	1	1
	Enrollment	40	31	29	30	25
	FTES	7.2	5.8	5.6	5.6	4.8
	FTEF	0.35	0.35	0.35	0.35	0.35
	WSCH	216	174	168	168	144
	Avg Enrl/Section	40	31	29	30	25
	Avg FTES FTEF	20.57	16.57	16.00	16.00	13.71
	Avg WSCH FTEF	617	497	480	480	411
DIES-166	# of Sections	1	1	1	1	1
	Enrollment	23	25	21	21	18
	FTES	9.2	10.0	8.4	8.4	6.8
	FTEF	0.65	0.65	0.65	0.65	0.65
	WSCH	276	300	252	252	204
	Avg Enrl/Section	23	25	21	21	18
	Avg FTES FTEF	14.15	15.38	12.92	12.92	10.46
	Avg WSCH FTEF	425	462	388	388	314
DIES-170	# of Sections	1	1	1	1	1
	Enrollment	31	32	25	25	24
	FTES	6.0	6.2	5.0	5.0	4.8
	FTEF	0.35	0.35	0.35	0.35	0.35
	WSCH	180	186	150	150	144
	Avg Enrl/Section	31	32	25	25	24
	Avg FTES FTEF	17.14	17.71	14.29	14.29	13.71
	Avg WSCH FTEF	514	531	429	429	411
ENGL-1A	# of Sections	96	91	87	88	96
	Enrollment	2,394	2,272	2,226	2,254	2,242
	FTES	299.0	289.2	294.2	283.6	296.6
	FTEF	24.30	23.70	22.80	23.26	23.63
	WSCH	9,033	8,724	8,814	8,529	8,945
	Avg Enrl/Section	25	25	26	26	23
	Avg FTES FTEF	11.85	11.84	12.28	11.68	11.59
	Avg WSCH FTEF	359	358	372	354	352
INDE-1	# of Sections	2	2	2	3	3
	Enrollment	68	66	74	91	81
	FTES	2.0	2.1	2.4	5.1	4.9
	FTEF	0.13	0.13	0.13	0.32	0.32
	WSCH	61	63	72	152	146
	Avg Enrl/Section	34	33	37	30	27
	Avg FTES FTEF	15.29	15.74	17.99	15.57	14.99
	Avg WSCH FTEF	457	472	540	468	449
MATH-110	# of Sections	9	5	9	5	6
	Enrollment	145	131	130	138	131

	FTES	13.5	12.9	12.4	12.6	12.6
	FTEF	0.60	0.57	0.76	0.56	0.60
	WSCH	405	387	373	378	378
	Avg Enrl/Section	16	26	14	28	22
	Avg FTES FTEF	6.83	14.17	9.50	13.67	13.17
	Avg WSCH FTEF	205	425	285	410	395
WELD-70	# of Sections	7	8	9	11	12
	Enrollment	201	223	218	201	200
	FTES	37.0	40.5	39.8	35.9	38.5
	FTEF	1.99	2.05	1.88	1.74	1.95
	WSCH	1,110	1,214	1,186	973	1,115
	Avg Enrl/Section	29	28	24	18	17
	Avg FTES FTEF	15.82	16.52	16.26	15.49	15.49
	Avg WSCH FTEF	476	497	489	465	465
WELD-73	# of Sections	3	5	4	4	4
	Enrollment	71	99	75	71	72
	FTES	14.4	19.2	14.2	13.5	14.2
	FTEF	0.88	1.07	0.50	0.69	0.91
	WSCH	432	576	426	404	426
	Avg Enrl/Section	24	20	19	18	18
	Avg FTES FTEF	14.40	11.70	10.92	10.31	10.92
	Avg WSCH FTEF	432	353	328	311	328
WELD-170	# of Sections	3	2	2	3	3
	Enrollment	69	56	65	72	78
	FTES	12.4	11.0	12.6	13.7	15.1
	FTEF	0.66	0.50	0.31	0.64	0.66
	WSCH	372	330	378	411	454
	Avg Enrl/Section	23	28	33	24	26
	Avg FTES FTEF	12.40	16.92	19.38	13.95	15.38
	Avg WSCH FTEF	372	508	582	422	466
WELD-171	# of Sections	2	2	2	2	2
	Enrollment	51	55	54	49	55
	FTES	10.0	10.2	10.2	9.6	11.0
	FTEF	0.46	0.56	0.41	0.44	0.42
	WSCH	300	306	306	288	330
	Avg Enrl/Section	26	28	27	25	28
	Avg FTES FTEF	15.00	15.69	15.69	14.77	16.92
	Avg WSCH FTEF	450	471	471	443	508
WELD-174	# of Sections	2	3	3	3	4
	Enrollment	49	70	67	73	90
	FTES	9.4	13.7	13.1	13.7	17.3
	FTEF	0.35	0.78	0.72	0.77	1.12
	WSCH	282	411	392	412	520
	Avg Enrl/Section	25	23	22	24	23
	Avg FTES FTEF	13.95	13.87	13.33	13.95	13.23
	Avg WSCH FTEF	423	419	402	423	400
WELD-175	# of Sections	2	3	3	3	2

	Enrollment	51	75	69	63	42
	FTES	9.4	13.6	13.2	12.0	8.2
	FTEF	0.38	0.83	0.51	0.65	0.65
	WSCH	282	408	396	360	246
	Avg Enrl/Section	26	25	23	21	21
	Avg FTES FTEF	14.10	13.95	13.54	12.31	12.62
	Avg WSCH FTEF	423	418	406	369	378
WELD-178	# of Sections	2	2	2	2	2
	Enrollment	50	48	47	49	44
	FTES	9.4	8.8	9.0	8.6	8.6
	FTEF	0.55	0.60	0.37	0.44	0.65
	WSCH	282	264	270	258	258
	Avg Enrl/Section	25	24	24	25	22
	Avg FTES FTEF	14.10	13.54	13.85	13.23	13.23
	Avg WSCH FTEF	423	406	415	397	397
Grand Total	# of Sections	148	140	141	143	151
	Enrollment	2,838	2,726	2,658	2,731	2,719
	FTES	472.5	473.2	470.3	460.5	471.0
	FTEF	33.93	34.12	31.72	33.11	34.53
	WSCH	14,389	14,371	14,202	13,833	14,217
	Avg Enrl/Section	19	19	19	19	18
	Avg FTES FTEF	12.53	12.78	12.92	12.40	12.21
	Avg WSCH FTEF	378	385	390	375	369