Comprehensive Program Review Report

Program Review - Automotive Technology

Program Summary

2020-2021

Prepared by: Donal Howell College of the Sequoias Automotive
What are the strengths of your area?: 1. Student success rates have grown from 65% to 72% 2017-2019
2. Growth of the program has also increased from an average of 59 to 77 students in the program 2017-2019

Automotive Technology continues to be in demand and recognized by both students and industry. The increase in utilizing adjunct faculty saw enhancements of the ability of full-time instructor to focus on program improvements.

All certificates and degree are up to date in assessment and curriculum currency.

Program completers are working in the industry within one year of program completion.

What improvements are needed?: Smog technician training continues to be in high demand, as a benefit to students and community.
More physical classroom space for increased program student enrollment and completion of courses.
Requirement for laboratory technician needed for program accreditation by ASE Education Foundation.
A second full-time instructor to handle more coursework and other necessary duties.
Update shop trainers to allow student instruction and practice in new technology required for the growing trends toward hybrid and electric vehicles.
Upon ASE accreditation our partnerships with automotive industry and dealerships can be expanded and internships created for student employment.
Greatest challenge continues to be supplying the industry with qualified technicians and satisfying the current overwhelming need for certified automotive technicians in industry.
Describe any external opportunities or challenges.: Partnerships with automobile manufacturers are being pursued, and students will gain opportunities from these.
Overall SLO Achievement: Automotive students are excelling at SLO achievements when they take the opportunity to complete the associated activities. At times, the instructors lack time and ability to properly prepare for these activities, but student apathy is the key component in reduced achievement. For approximately half of the outcomes, students must complete online training scenarios, for which ample time is being given. Some do not consistently engage in these scenarios.
Changes Based on SLO Achievement: More physical laboratory exercises directly related to SLOs are being implemented in all courses. Online activities are being monitored more closely, and incentives or deadlines for completion have been showing a positive effect. Due to COVID-19, less face to face lab activities have been available to students, so more focus has been on the online options.
Overall PLO Achievement: Program Learning Outcomes are being met at varying levels throughout the program. Introductory concepts are being well covered, with achievements directly related to time spent on the subject matter. Higher-level abilities are also being learned in accordance with class and lab time spent engaged in those concepts. Proficiency in use of diagnostic equipment has improved for learners engaged in advanced level courses.
Changes Based on PLO Achievement: Streamlining the process of safety training continues to be a focus related to Outcome #3. Writing assignments are being added to test for understanding of automotive components and systems in relationship to Outcome #4.
Outcome cycle evaluation: The current cycle is shown to be effective, but department communication is limited due to mostly

being staffed by adjuncts.

Action: 2020-2021 Increase employability of Automotive students by exposing them to the latest technologies

Maintain industry-based, relevant, up-to-date training instruments to ensure students are receiving industry-demanded skill training.

Leave Blank: Continued Action
Implementation Timeline: 2020 - 2021
Leave Blank: 09/01/2016
Leave Blank:
Identify related course/program outcomes: AUTO 136 - Outcome #2 Students will be able to diagnose, test and repair automotive electrical systems and components.

AUTO 134 - Outcome #3 Students will be able to perform a four-wheel alignment using laser alignment system. (Active)

AUTO 133 - Outcome #2 Students will be able to diagnose and document repair procedures of driveshaft problems. (Active)

PLO #4 - Methodology Use a systematic approach to select the proper method to diagnose, repair and test automotive systems.
Person(s) Responsible (Name and Position): Donal Howell
Rationale (With supporting data): Automotive industry is a highly technological based industry. Changes to all automotive technology are made not annually. but monthly. Maintaining up-to-date, industry relevant training apparatus is crucial to students graduating with relevant knowledge and skills.
Priority: High
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation:

Update on Action

Updates

Update Year: 2020 - 2021 10/14/2020
Status: Continue Action Next Year
This equipment was purchased and is currently being use for training.
Impact on District Objectives/Unit Outcomes (Not Required):

Resources Description

Equipment - Instructional - Repairs and related equipment. Rank #3 (Active)
Why is this resource required for this action?: Equipment naturally wears over time, particularly with student use, creating the need for routine repair and replacement. This may include engine replacement, tool replacement, test equipment repair, etc.
Outcome#3 Given Lecture and laboratory demonstration, students will be able to Use proper scanning equipment and test equipment to check catalytic converter efficiency. Determine catalytic converter efficiency and proper operation per manufacturers specifications.
AUTO 243 - Outcome#1 Given a lecture and demonstration on automobile evaporative emissions systems, a student shall identify the major components and explain the function of the evaporative emission system on today's automobile.
District objectives 2.1 and 2.4.
Advisory committee members, through tours of auto-shop recommend consistent repair and maintenance on all training equipment and technologies.
The department ranks this instructional resource # 3.
Notes (optional): Estimate includes all taxes and shipping
Cost of Request (Nothing will be funded over the amount listed.): 5000

Equipment - Instructional - Light Duty Hybrid/Electric Vehicle training program. Rank #1 (Active)

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Why is this resource required for this action?: Including equipment purpose-built for this training, resources already part of the COS Automotive Technology program, as well as an online learning element, this program will launch our students into the world of 21st century Automotive Technology. It would create an entirely new advanced-level course, can be set up partially online (hybrid) and prepares the technician for ASE L3 certification.
Program Learning Outcome #5: Demonstrate proficiency in the use of automotive diagnostic equipment to evaluate system performance and determine needed repairs.
AUTO 238 Outcome #1: Given lecture and demonstration, students will be able to Properly use a DVOM to determine automotive engine performance circuit faults. Following a systematic diagnosis chart and an electrical wiring schematic.
The department ranks this instructional resource # 1.
Notes (optional): This training package can be customized utilizing the hybrid vehicle we already own, and any number of training pieces we would be willing to install.
Cost of Request (Nothing will be funded over the amount listed.): 200000

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: 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.

Action: 2020-2021Increase student laboratory experience, enhance industry specified skill development, and improve instructional interaction.

Increase student laboratory experience and enhance industry specified skill development, resulting in higher placement with increased earnings.

Leave Blank: New Action
Implementation Timeline: 2019 - 2020, 2020 - 2021
Leave Blank: 08/01/2017
Leave Blank:
Identify related course/program outcomes: AUTO 136 - Outlook #2 Students will be able to diagnose, test and repair automotive electrical systems and components
AUTO 137 - Outcome #3 Given Demonstration and guidance, students will be able to use proper diagnostic information to evaluate air conditioning systems problems Document findings and tabulate correct repair procedures.
PLO #4 - Methodology Use a systematic approach to select the proper method to diagnose, repair and test automotive systems
Person(s) Responsible (Name and Position): Donal Howell
Rationale (With supporting data): Industry partners and potential employers have specified the skills required for successful employment. Automotive students need more time on various lab configurations and will directly benefit from additional instruction. We have used student workers in the past to fill this need, but safety issues prevent these workers from meeting the full requirements of the position.
Priority: High
Safety Issue: Yes
External Mandate: No
Safety/Mandate Explanation: Lab technicians come with safety certificates and can implement changes in the lab to meet

requirements.

Resources Description

Classified- New/Replacement - Full-time lab assistant. Rank #1 (Active)

Why is this resource required for this action?: Hundreds of performance labs on dozens of pieces of equipment require a lab technician to assist instructors with set-up, performance, and clean-up of laboratory assignments. Additionally, this person would also be responsible for the organization of tool room, toolboxes and demonstration equipment. It is impractical for instructors, particularly adjuncts, to manage such additional workload.
AUTO 233 Outcome #3: Students will be able to inspect an automobile differential assembly and determine the final drive gear ratio.
AUTO 231 Outcome #1: Student shall disassemble an automobile engine assembly and identify all major engine parts.
In classified requests, the department ranks this resource #1

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 70000

Classified- New/Replacement - Part-time lab assistant . Rank #2 (Active)

Why is this resource required for this action?: Hundreds of performance labs on dozens of pieces of equipment require a lab technician to assist instructors with set-up, performance, and clean-up of laboratory assignments. Additionally, this person would also be responsible for the organization of tool room, toolboxes and demonstration equipment. It is impractical for instructors, particularly adjuncts, to manage such additional workload.
AUTO 233 Outcome #3: Students will be able to inspect an automobile differential assembly and determine the final drive gear ratio.
AUTO 231 Outcome #1: Student shall disassemble an automobile engine assembly and identify all major engine parts.
In classified requests, the department ranks this resource #2

Notes (optional):

Cost of Request (Nothing will be funded over the amount listed.): 40000

Personnel - Faculty - Additional full-time faculty member for the Automotive Technology program. Rank #1 (Active)

Why is this resource required for this action?: An additional full-time instructor allows COS to offer more courses and more sections to students. Automotive Technology is a high demand program, with most courses waitlisted. The Program Review Dashboard identifies Productivity as the main area not consistently trending upward. Advisory committee members agree that program expansion is important. Having this additional instructor strengthens the ability to earn ASE accreditation. It would also allow COS to include higher level courses, such as hybrid and electric vehicle technology.
Program Learning Outcome #4: Demonstrate the ability to describe construction components and apply necessary skills for their respective approach to select the proper method to diagnose, test and repair automotive systems.
AUTO 263 Outcome #3: Given a typical emissions failure on a demonstration vehicle a student shall use a systematic diagnostic approach as outlined by the Bureau of Automotive Repair procedures to find the fault and recommend the correct repairs.
As this is the only personnel request, this resource is ranked #1.

Notes (optional): The Fall 2019 semester has reinforced this need, with the partial loss of an adjunct instructor impacting the department head's ability to provide a higher quality of instruction.

Cost of Request (Nothing will be funded over the amount listed.): 120000

Equipment - Instructional - Used cars which are either purchased by the department or obtained for temporary use through Bureau of Automotive Repairs' Cars for Schools program. Rank #2 (Active)

Why is this resource required for this action?: Specific models of vehicles can be used for specialized training in areas such as diesel emissions and manual transmission removal and reinstallation. Funds would cover transportation of vehicles and/or cost of parts, etc. to make them usable for lab exercises. COS administration has already signed a MOU with Bureau of Automotive Repair to be able to participate in their new program.
AUTO 233 Outcome #1 Given a lecture and demonstration on clutch systems, a student shall identify each component of an automobile clutch assembly and describe the function of each.
AUTO 263 Outcome #1 Conduct a complete automobile visual emissions inspection using the Bureau of Automotive Repair guidelines and the emission control equipment manual.

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The department ranks this instructional resource #2
Notes (optional): Estimate includes all taxes and shipping
Cost of Request (Nothing will be funded over the amount listed.): 4000

Link Actions to District Objectives

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Action: 2020-2021 Provide industry level equipment to students in the interest of meeting SLOs (hybrid and electric vehicles).

Obtain equipment for electric and hybrid vehicle training. Write curriculum to meet this new demand for training.

Leave Blank:
Implementation Timeline: 2020 - 2021
Leave Blank:
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Identify related course/program outcomes: New SLOs will be developed for electric and hybrid vehicle course.
Person(s) Responsible (Name and Position): Donal Howell Automotive Technology Professor
Rationale (With supporting data): California's sales of electric vehicles is growing faster than the rest of the country, and was approximately 4.8% of new car sales in 2017 compared to 1.3% nationally. LA Times said that the number of electric vehicles sales increased last year, while overall new sales decreased.
Priority: Medium
Safety Issue: No
External Mandate: No
Safety/Mandate Explanation: