

# Comprehensive Program Review Report



## Program Review - Automotive Technology

### Program Summary

#### 2023-2024

**Prepared by:** Donal Howell, Melvin Roman

**What are the strengths of your area?:** Overall, the AUTO program at COS saw significant improvement in all areas of academic success with increases in enrollment, pass rates, equity pass rates and efficiency.

1. Student success rates improved over last year; 81.4% AUTO course success rates in 2022-2023; improved from 75.1% in 2021-2022.

2. Equity analysis shows the overall courses success rate for the last 5 years in the ATUO courses is 70.9% with the following ethnicity/racial + gender breakdowns:

African Americans - 57.1%

Asian - 57.9%

Hispanic - 69.5%

Multi-ethnic - 78.3%

White - 78.3%

Female-71.2%

Male 70.9%.

Although there is a significance between the pass rate of white students as compared to other ethnic groups - the discrepancy for the past year did improve in Fall 2022 over Fall 2021.

Fall 2021- 68.3% overall pass rate; Hispanic 68.8%; White 86.2%

Fall 2022 - 77.6% overall pass rate; Hispanic 76.1%; White 78.3%

Therefore in the last year, the difference between white and Hispanic students was only 2% difference, which is trend we hope to see continue.

3. Automotive Technology continues to be in demand and recognized by both students and industry. The addition of full-time faculty saw enhancements of the ability to focus on program improvements. The number of FTES continues to increase over the last few years. FTES/enrollment increased to 83.43 in 2022-2023; while it was 73.41 in 2021-2022.

4. All AUTO courses are up to date for CTE courses in CourseLeaf.

5. Program completers from 2022-2023 are 34 Certificates of various sizes including 10 AS degree wards. The 43 various awards were provided to 16 different students.

6. Program completers are working in the industry within one year of program (need some type of data to support this statement- how is this determined?)

7. Hybrid & Electric Vehicle training have been added to catalog.

**What improvements are needed?:** 1. Greatest challenge continues to be supplying the industry with qualified technicians and satisfying the current overwhelming need for certified automotive technicians in industry. More work with industry partners and regular advisory committee meetings need to be established.

2. Hire a laboratory technician to satisfy needs for student success through lab efficiency and for ASE accreditation.
3. Wheel, tire, and chassis inspection equipment updates to provide associated training as a benefit to students and industry.
4. Explore ASE accreditation to strengthen our partnerships with automotive industry and dealerships, and to create internships for student employment.
5. Develop work experience opportunities for students in the Automotive Program.
6. FTES/FTEF Ratio is lower than the district standard at 12.41, but it increases each year. This due to smaller class/lab sizes which are required for safety reasons. With future expansions to facility, an increased number of students should bring this to the program goal of 14-15.
7. There is a need for a full time lab technician to help set up labs and maintain expensive inventory of various tools, etc. Now with two full time AUTO instructors the labs have to be prepared and cleaned up quickly - and requires more expertise than a student worker can provide.

**Describe any external opportunities or challenges.:** Partnerships with automobile manufacturers are being pursued, and students will gain opportunities from these.

**Overall SLO Achievement:** Most SLO have not been assessed since 2019-2020. Several SLO Assessment plans need updating.

**Changes Based on SLO Achievement:** Slight changes to assessment are being implemented, some due to equipment unavailability and others due to changes in digital resources. One class needs to be deleted from system, so red flags are not showing.

**Overall PLO Achievement:** PLO assessments need to be updated. The AUTO program has several CTE certificates and this creates a significant amount of work. Recommend putting the certificate assessments on an updated schedule, so that each one does not have to be done each year.

**Changes Based on PLO Achievement:** None

**Outcome cycle evaluation:** Will continue to assess and assign SLOs from individual courses to their associated full-time instructors. The Assessment plan for AUTO needs to be updated so the workload can be completed in a timely manner. One day per semester per full time instructor (Dialogue Days) should be enough time to get this done. Will work with Dean to schedule these work days.

## Action: 2023-2024 Improve student success rates in various groups through faculty development (Perkins)

AUTO faculty will attend various conferences to address equity strategies and faculty development to continue to see improvement in student success rates

**Leave Blank:**

**Implementation Timeline:** 2023 - 2024

**Leave Blank:**

**Leave Blank:**

**Identify related course/program outcomes:** Increase success rates of all disproportionately impacted student groups in AUTO courses

**Person(s) Responsible (Name and Position):** Donal Howell, Melvin Roman, Jonna Schengel

**Rationale (With supporting data):** See improvements needed - student success data

**Priority:** High

**Safety Issue:** No

**External Mandate:** Yes

**Safety/Mandate Explanation:** Chancellor's office requires equity strategies and faculty development in areas of DEI.

### Link Actions to District Objectives

District Objectives: 2021-2025

**District Objective 2.1** - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.

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**District Objective 2.4** - Increase the percentage of CTE students who achieve their employment objectives by five percentage points (job closely related to field of study and attainment of a livable wage) and the number of CTE students who successfully complete 9+ CTE units in a single year by 10% from 2021-2025.

## Action: 2023-2024 Provide optimal use of lab space to serve students with a lab technician

Hire a full time or part time lab technician that can set up labs, inventory and check out tools, prepare lab practical for all AUTO courses. With two full time faculty the AUTO classes have to be flipped quickly and lab set up requires auto expertise.

**Leave Blank:**

**Implementation Timeline:** 2023 - 2024

**Leave Blank:**

**Leave Blank:**

**Identify related course/program outcomes:**

**Person(s) Responsible (Name and Position):** Donal Howell, Melvin Roman

**Rationale (With supporting data):** Volume of AUTO students has increased over the last 5 years; two full time faculty share lab space;

**Priority:** Medium

**Safety Issue:** Yes

**External Mandate:** No

**Safety/Mandate Explanation:** Equipment in auto is very expensive and requires proper storage and use to make sure students are safe in lab

### Resources Description

**Personnel - Classified/Confidential** - Full or part time lab technician (Active)

**Why is this resource required for this action?:** for safety and efficiency of lab; could be shared with AG Mechanics

**Notes (optional):**

**Cost of Request (Nothing will be funded over the amount listed.):** 75000

## Action: 2023-2024; 2022-2023 Strengthen the Auto program pathway connections with the local high schools.

Collaborate with local high schools to provide future students with the correct and proper basic knowledge to be successful in the Auto program.

**Leave Blank:**

**Implementation Timeline:** 2022 - 2023, 2023 - 2024

**Leave Blank:**

**Leave Blank:**

**Identify related course/program outcomes:**

**Person(s) Responsible (Name and Position):** Donal Howell and Melvin Roman

**Rationale (With supporting data):**

**Priority:** High

**Safety Issue:** No

**External Mandate:** No

**Safety/Mandate Explanation:**

### Update on Action

#### Updates

**Update Year:** 2023 - 2024

10/11/2023

**Status:** Continue Action Next Year

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This action was not fully completed. Mission Oak HS is building an AUTO shop and the CTE HS Liaison is scheduling an appointment to align this HS AUTO program with the COS AUTO program. This action needs to be continued.

**Impact on District Objectives/Unit Outcomes (Not Required):**

## Link Actions to District Objectives

District Objectives: 2021-2025

**District Objective 2.1** - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.

## Action: 2023-2024 Increase success rates for AUTO Courses, certificates and AS degrees by providing state of the art AUTO lab facility and equipment

Relocate AUTO classes to the NEW CTE building in COS and provide equipment purchases via several resources such as F3, SW 7,8 and Perkins.

**Leave Blank:**

**Implementation Timeline:** 2023 - 2024

**Leave Blank:**

**Leave Blank:**

**Identify related course/program outcomes:** Program outcomes will be met by offering courses in the new AUTO lab.

**Person(s) Responsible (Name and Position):** Donal Howell, Melvin Roman, Jonna Schengel

**Rationale (With supporting data):** LMI for AUTO technicians is strong.

**Priority:** High

**Safety Issue:** Yes

**External Mandate:** No

**Safety/Mandate Explanation:**

## Resources Description

**Equipment - Instructional** - AUTO equipment/tools/installation and moving current lab equipment. (Active)

**Why is this resource required for this action?:** Original grants funds, F3, have been reduced and other grant and Perkins funds will be used to set up the new AUTO lab.

**Notes (optional):**

**Cost of Request (Nothing will be funded over the amount listed.):** 25000

## Link Actions to District Objectives

District Objectives: 2021-2025

**District Objective 1.1** - The District will increase FTES 2% from 2021 to 2025.

**District Objective 2.1** - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.

**District Objective 2.4** - Increase the percentage of CTE students who achieve their employment objectives by five percentage points (job closely related to field of study and attainment of a livable wage) and the number of CTE students who successfully complete 9+ CTE units in a single year by 10% from 2021-2025.

## Action: 2022-2023 Provide students updated technology to increase their skill levels and employability (VTEA).

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Provide students updated equipment and technology in order to improve employability as well as increasing passing rates.

**Leave Blank:**

**Implementation Timeline:** 2022 - 2023

**Leave Blank:**

**Leave Blank:**

**Identify related course/program outcomes:** SLO's

Students will be able to inspect and repair front and rear suspension system problems

Students will be able to inspect and repair steering system problems

Students will be able to perform a four wheel alignment using laser alignment system.

The student will be able to identify and practice the specific safety precautions to take when servicing hybrid and alternative fueled vehicles.

Student will be able to describe principles of electricity and electromagnetism and explain their application in hybrid vehicles.

Student will be able to identify components and perform diagnostic procedures on the electric motor/generator systems used in hybrid electric vehicles.

**Person(s) Responsible (Name and Position):** Donal Howell and Melvin Roman

**Rationale (With supporting data):** Alignment machine and rack are outdated. Tire mounting machine and balancer are outdated.

Students will not be able to complete their slo's without proper equipment.

**Priority:** High

**Safety Issue:** Yes

**External Mandate:** No

**Safety/Mandate Explanation:** All equipment needs to meet industry standards to provide a safe learning environment in order for students to demonstrate how to use equipment safely.

## Update on Action

### Updates

**Update Year:** 2023 - 2024

10/11/2023

**Status:** Action Completed

A significant investment was made in AUTO equipment in order to improve access to tools and equipment in lab. This is reflective in both increased enrollment numbers and increase course success rate.

**Impact on District Objectives/Unit Outcomes (Not Required):**

## Resources Description

**Equipment - Instructional** - Wheel alignment console and rack. Wheel & tire balancer. Tire installer (Active)

**Why is this resource required for this action?:** Technologies advance at a rapid pace in the automotive industry, wheel alignment and tire service included. The students benefit when current technology and additional equipment are provided.

**Notes (optional):**

**Cost of Request (Nothing will be funded over the amount listed.):** 130000

**Technology** - Provide students with updated technology. Computer system is on a yearly subscription.

Zspace is our interactive 3D learning tool for our automotive courses (Active)

**Why is this resource required for this action?:** Student engagement in learning about complex assemblies is enhanced with "virtual reality" systems. Fragile parts can be safely disassembled and reassembled virtually, reducing costly "real" repairs. These require annual licensing updates.

**Notes (optional):**

**Cost of Request (Nothing will be funded over the amount listed.):** 30000

## Link Actions to District Objectives

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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: 2021-2025

**District Objective 2.4** - Increase the percentage of CTE students who achieve their employment objectives by five percentage points (job closely related to field of study and attainment of a livable wage) and the number of CTE students who successfully complete 9+ CTE units in a single year by 10% from 2021-2025.

## Action: 2022-2023, 2020-2021 Increase 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:**

**Implementation Timeline:** 2019 - 2020, 2020 - 2021, 2022 - 2023

**Leave Blank:**

**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.

### Update on Action

#### Updates

**Update Year:** 2022 - 2023

10/05/2022

**Status:** Continue Action Next Year

The inability to hire a skilled lab technician that can have lab setup and ready for all activities. prevents the lab from being run as efficiently as it could. The significant investment in new tools and equipment will be better protected by having more oversight on a regular basis.

**Impact on District Objectives/Unit Outcomes (Not Required):**

## Resources Description

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

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**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. The program has spent over \$150,000 worth of tools and equipment in recent years. Regular inventory tracking will protect this investment.  
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):** The addition of a second full-time auto instructor has increased our enrollment, leading to quicker turnover times between lab sessions. Another pair of hands and eyes increases the effectiveness of these labs.

**Cost of Request (Nothing will be funded over the amount listed.):** 50000

## 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.

District Objectives: 2021-2025

**District Objective 2.1** - Increase the number of students who earn an associate degree or certificate (CTE and non-CTE) by 5% from 2021-2025.

**District Objective 2.4** - Increase the percentage of CTE students who achieve their employment objectives by five percentage points (job closely related to field of study and attainment of a livable wage) and the number of CTE students who successfully complete 9+ CTE units in a single year by 10% from 2021-2025.

**District Objective 4.3** - Improve professional development practices District-wide for all District employees to support equity and operational effectiveness from 2021-2025.