HIGHER EDUCATION COORDINATING COMMISSION
3225 25th Street SE, Salem, OR 97302
www.oregon.gov/HigherEd

Docket Item:

Community College Approval: Chemeketa Community College, Certificate of Completion in Automotive Machining within 47.0615 – Engine Machinist.

Summary:

Chemeketa Community College proposes a new Certificate of Completion in Automotive Machining. Higher Education Coordinating Commission (HECC) staff completed a review of the proposed program. After analysis, HECC staff recommends approval of the degree as proposed.

Staff Recommendation:

The HECC recommends the adoption of the following resolution:
RESOLVED, that the Higher Education Coordinating Commission approve the following degree: CCo in Automotive Machining.

Chemeketa Community College seeks the Oregon Higher Education Coordinating Commission's approval to offer an instructional program leading to a Certificate of Completion in Automotive Machining.

Program Summary

This certificate emphasizes machining and rebuilding automotive engines. A significant portion of the training is done on the job as well as through specific lab coursework on campus.

1. ***Describe the need for this program by providing clear evidence.***

   This is a certificate program renewed from the prior (suspended) college certificate. According to qualityinfo.org, the number of jobs should grow by 2.5% through 2029 with 99 annual jobs per year. Starting wages are approximately $28,400/year with average wages of approximately $46,900/year. The Advisory Committee strongly supports this reconfiguration of this certificate that reduces the number of credits for students as a way to reduce costs.

2. ***Does the community college utilize systemic methods for meaningful and ongoing involvement of the appropriate constituencies?***

   The college uses a range of sources to establish ongoing partnerships with its community constituencies. Some of these partnerships include: Northwest Commission on Colleges and Universities, the State Board of Education, Community College Workforce Development, employment advisory boards, student placement organizations, and licensing boards for appropriate occupations.

   The Automotive Machining Certificate of Completion was approved in April 27, 2021 by the Chemeketa Community College's Curriculum Committee and then approved by Chemeketa Community College's Board of Education in June 23, 2021.

   Chemeketa Community College has partnerships with local high schools to offer courses in their schools for college credit. These courses will prepare students for entry into the program soon after graduating. Other required and general education courses will be valuable in preparation for entrance into the program and the workforce.

   Collaboration with workforce and economic development partners assists the college to build a skilled and trained workforce ready to enter their fields immediately upon completion of the program. The Applied Technologies department that will be offering this Automotive Body Repair Certificate of Completion has an advisory committee composed of professionals from across the Willamette Valley:

Role on Committee	Last Name	First Name	Organization
Chair	Pastre	Chris	Capitol Auto Group, Salem OR
Member	Bowyer-Gottfried, Amy		Oregon State Police, Salem OR
Member	DeLess	Steven	Capitol Toyota, Salem OR
Member	Gutierrez	Jose	Capital Transmission, Salem OR
Member	Jensen	Craig	Davison Auto Parts, Mammoth OR
Member	Lucas	Shawn	Capitol Chevrolet Cadillac, Salem OR
Member	Peterson	Robert	Brooks Automotive, Salem OR
Member	Ragan	Margaret	Northwest Automotive Trades Association, Portland OR
Member	Buchheit	Mathew	Howell Automotive, Silverton OR
Member	Lehman	Evan	Roberson Motors, Salem OR
Member	Rife	Robert	AJ's Automotive, Salem OR

3. ***Is the community college program aligned with appropriate education, workforce development, and economic development programs?***

The courses for this program have been approved by the advisory committee so that students are fully prepared for the workforce. The program courses are:

Automotive Machining core requirements (44 credit hours):

Course Title Credit Hours

- AUM151 Basic Automotive Engines..... 5
- AUM184 Automotive Materials and Resources..... 2
- AUM185A Automotive Machining Fundamentals..... 3
- AUM186A Automotive Lathe Fundamentals..... 3
- AUM187A Automotive Milling Machine Processes..... 3
- AUM188 Auto Machine Shop-Upper Engine..... 3
- AUM189 Auto Machine Shop-Lower Engine..... 3
- AUM190 Auto Machine Shop-Engine Assembly..... 3
- AUM253 Automotive Engines 2..... 4
- AUM280E Cooperative Work Experience..... 5
- AUM280F Cooperative Work Experience..... 6
- WLD177 Welding Processes..... 4

These courses were approved by the advisory committee on March 1, 2021.

Chemeketa's AUTOMOTIVE MACHINING CERTIFICATE program will lead to employable skills at the end of the program. Individuals in this field earn an annual wage of $46,948 per year and starting wages at

$28,412/year (qualityinfo.org), therefore it will allow these students to enter the workforce in a family-wage career.

4. ***Does the community college program lead to student achievement of academic and technical knowledge, skills, and related proficiencies?***

The design of the program is a 44 credit hour approved certificate. The primary audience for this program is students who wish to focus on industry standard automotive terminology and skills. The learner outcomes for each course provide a range of skills to allow graduates to pursue employment in this industry:

AUM151: Basic Automotive Engines (5)

- Observe and obey all shop safety requirements and regulations as necessary.
- Describe and demonstrate the correct use of various hand tools used in automotive engine service and repair.
- Demonstrate the correct use of various precision measuring tools used in automotive engine service and repair
- Describe the operation of simple and complex machines related to gasoline internal combustion engines.
- Describe and demonstrate the ability to correctly diagnose engine noises
- Clean both interior and individual components of an engine.
- Disassemble and inspect an assigned engine in the standard sequence.
- Detect failures or abnormal wear patterns within an engine and implement the possible corrections.
- Apply industry standard procedures to assemble individual engine components.
- List the faults, factory specifications, and actual measurements of an assigned engine.

AUM184: Automotive Materials and Resources (2)

- Identify and describe the various types of service information.
- Locate vehicle repair and diagnostic information in printed shop manuals
- Locate vehicle repair and diagnostic information using computerized manual systems.
- Select the correct service manual for estimating the time it will take to perform a task.
- Estimate the time it will take to perform a task using the computerized manual system.

AUM185A: Automotive Machining Fundamentals (3)

- Apply industry-standard proficiency in precision tool usage.
- Employ layout practices and measurement.
- Perform drill press operations.
- Operate hand-held die grinding equipment.
- Identify basic hand tools and practice industry-standard safety in use.
- Perform surface grinding operations.

- Sharpen basic tools to perform machine processes.
- Repair threads.
- Extract broken fasteners.
- Use charts and tables to calculate drill speed and feed.

AUM186A: Automotive Lathe Fundamentals (3)

- Define machine tool types, parts and accessories to operate a lathe.
- Apply automotive industry safety standards to machine tool maintenance, care adjustments, and inspections.
- Practice automotive industry-accepted work habits in carrying out safety, work, quality, productivity and general housekeeping standards.
- Perform automotive machining operations, emphasizing the use of tool and work holding devices.
- Calculate speeds and feeds for safe lathe operation.

AUM187A: Automotive Milling Machine Processes (3)

- Practice industry-approved safety practices while operating a milling machine.
- Identify and distinguish types and related functions of milling machines.
- Apply operational parameters including setup, speed and feed, and depth of cut to milling operations.
- Use milling machine operations to remake automotive components.
- Select work-holding devices, tool holders, and cutters for milling machine operations on automotive applications.
- Use milling machine accessories and attachments for automotive machining operations.

AUM188: Automotive Machine Shop—Upper Engine (3)

- Demonstrate competency in cylinder head disassembly, cleaning, inspection and repair.
- Identify valve train components and cylinder heads.
- Locate and record original factory specifications.
- Demonstrate proper use of precision measuring equipment including, but not limited to:
    - Inside and outside micrometers
    - Dial indicators and dial bore gauges
    - Torque wrenches
    - Surface finish comparison equipment

AUM189: Automotive Machine Shop-Lower Engine (3)

- Explain the duties of an automotive lower engine machinist.
- Use diagnostic procedures to determine component rebuildability.
- Perform component cleaning procedures.
- Identify components and record factory tolerances and specifications of each part.
- Detect normal and abnormal wear patterns of lower engine components.

* Use precision measuring equipment, including, but not limited to:

- Inside and outside micrometers
- Dial indicators and dial bore gauges
- Torque wrenches
- Surface finish comparison equipment
- Apply safe working practices in making lower engine repairs.
- Set-up and operate machining procedures used to recondition lower engine components.

AUM190: Automotive Machine Shop—Engine Assembly (3)

- Explain the duties of automotive engine assembly specialist.
- Use diagnostic procedures to determine component rebuildability.
- Perform component cleaning procedures.
- Identify components and record factory tolerances and specifications of each part.
- Use precision measuring equipment, including, but not limited to:
    - Inside and outside micrometers
    - Dial indicators and dial bore gauges
    - Torque wrenches
    - Surface finish comparison equipment
- Apply safe working practices in automotive machining procedures.
- Perform all engine assembly clearance checks and measurements.
- Assemble an engine and make necessary adjustments.

AUM253: Automotive Engines 2 (4)

- Use industry standard safe working practices in making engine repairs.
- Correctly use automotive hand and power tools.
- Describe the communication required between tool room personnel, parts people, and customers.
- Use service manuals to diagnose and repair automotive engines.
- Calculate shop flat rate on assigned repairs.
- Diagnose and repair or replace internal combustion engines.

WLD177: Welding Processes (4)

- Exercise all safety rules that apply to the shielded metal arc, MIG, and oxyacetylene welding process.
- Demonstrate the proper operation, including set-up and shut-down of arc, MIG, and oxyacetylene welding and cutting equipment.
- Demonstrate proficiency in making various welds and cuts, using arc, MIG, and oxyacetylene equipment.

These courses lead to the following outcomes that students will be prepared to accomplish:

- Perform tasks related to engine repair and engine machining.

- Analyze, diagnose and perform repairs related to engine repair and engine machining in the Automotive Service Excellence areas.
- Identify and use tools, testing and measuring equipment required to perform automotive machining operations.
- Perform personal and environmental safety practices associated with clothing; eye protection; hand tools; power equipment and handling, storage and disposal of chemicals in accordance with local, state, and federal safety and environmental regulations.
- Practice professional and ethical behaviors as applied to the workplace environment.
- Use industry standard automotive terminology and clarifying language to communicate orally and in writing with customers, suppliers, supervisors, and co-workers.

Learning will be ensured through the assessment of these program outcomes with the following methods:

Skills testing; ASE testing and certification

Instruction methods within this program will be remote or face-to-face lecture and face-to-face labs. Students will have general education courses for the degree. Any general education courses may be provided in a face-to-face, a hybrid, or an online environment. Program course lectures provide various hands-on activities.

The college has a unit planning process that includes a program assessment on an annual basis. Student, faculty, advisory committee, and administrative collaboration is incorporated to ensure students are prepared with appropriate skills to enter the workforce and meet the requirements of Automotive Machining.

5. ***Does the community college identify and have the resources to develop, implement, and sustain the program?***
The Northwest Commission on Colleges and Universities (NWCCU) accredits Chemeketa Community College.

The new program will have startup costs of 0.

Year 0: Total Revenue: 0 Total Expenditures: 0 Net Income (Deficit): 0

Year 1: Total Revenue: 0 Total Expenditures: 0 Net Income (Deficit): 0

Year 2: Total Revenue: 0 Total Expenditures: 0 Net Income (Deficit): 0

Year 3: Total Revenue: 0 Total Expenditures: 0 Net Income (Deficit): 0

The Automotive Machining program has 4 full-time faculty positions and 1 classified staff along with numerous adjunct faculty who generally work full-time in the industry. The program has the flexibility to use general fund dollars to expand the adjunct workforce to teach additional courses in the degree and to offset full-time workload as needed.

Chemeketa Community College has begun programs over the last fifty years and has had the institutional support in hiring qualified and trained faculty to teach in all CTE programs.

This new program and its courses have been developed and approved by the employer-based advisory committee, as well as approved by the college's Curriculum Committee and Chemeketa Community College's Board of Education.

Faculty will regularly participate in professional development activities to stay current and up to-date with industry changes and requirements, which will translate into the classroom learning environment.

The program will reside at Salem campus.

The college has strong relationships with industry partners/employers and will continue to foster these relationships. This program has an employer-based advisory committee. The program will continue to work with local industry leaders and educational institutions to recruit students for this program.

Assurances

Chemeketa Community College has met or will meet the four institutional assurances required for program application.

1. *Access.* The college and program will affirmatively provide access, accommodations, flexibility, and additional/supplemental services for special populations and protected classes of students.
2. *Continuous Improvement*. The college has assessment, evaluation, feedback, and continuous improvement processes or systems in place. For the proposed program, there will be opportunities for input from and concerning the instructor(s), students, employers, and other partners/stakeholders. Program need and labor market information will be periodically re-evaluated and changes will be requested as needed.
3. *Adverse impact and detrimental duplication*. The college will follow all current laws, rules, and

procedures and has made good faith efforts to avoid or resolve adverse *inter*segmental and *intra*segmental impact and detrimental duplication problems with other relevant programs or institutions.

4. *Program records maintenance and congruence*. The college acknowledges that the records concerning the program title, curriculum, CIP code, credit hours, etc. maintained by the Office are the official records and it is the college's responsibility to keep their records aligned with those of the Office. The college will not make changes to the program without informing and/or receiving approval from the Office.