

Docket Item:

Community College Approval: Mt. Hood Community College, Associate of Applied Science in Engineering Technology, within 15.0000- Engineering Technology, General.

Summary:

Mt. Hood Community College proposes a new AAS degree in Engineering Technology. 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: AAS in Engineering Technology.



Mt. Hood Community College seeks the Oregon Higher Education Coordinating Commission's approval to offer an instructional program leading to a degree in Engineering Technology.

Program Summary

The Applied Technology department at MHCC is proposing the development of a new AAS degree in Engineering Technology. This new degree will replace the four existing Engineering Technology degrees: Mechanical, Civil, Civil-Environmental, and Architectural Technology. Engineering is a technical profession that applies science and mathematics to design, manufacturing, construction, environmental management and sustainability. Engineering technicians provide a critical link between professional engineers and the craftspeople doing the work. The development of this course of study has been done in cooperation with area industry. Our advisory board consists of representatives from government and industry including small and large employers. Advisory Committee members include representatives from the City of Gresham, McKinstry, Tri-Met, the Federal Department of Transportation, USDA Forest Service and others representing Civil Engineering; MicroChip Semiconductor, KCR Manufacturing and others representing Mechanical Engineering, as well as Portland State demonstrating the broad base of support we have from area employers.

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

Using the Labor Insights Burning Glass tool as well as the Oregon Employment Department Qualityinfo.org, we found that the demand is 'much higher' (Burning Glass) than average or average (Qualityinfo.org) for graduates in the engineering technician fields. This new degree will replace four existing degrees at the college, Civil Engineering Technology, Civil-Environmental Engineering Technology, Architectural Engineering Technology, and Mechanical Engineering Technology. The Advisory Board signed a statement that the new program will prepare students for employment as Engineering Technicians. Students will be able to select options within the program, but having one degree instead of four will reduce the number of low enrolled courses the college has to offer.

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

Internally this degree option has required the collaboration of the Engineering Faculty, Dean of Applied Technologies, the Office of Instruction, the college President, and the Executive Dean of Career and Technical Education. Externally, the development of this course of study has been done in cooperation with area industry. Our advisory board consists of representatives from local, regional and federal government, and design companies representing Civil Engineering and the semiconductor, food process, and manufacturing industries representing Mechanical Engineering, demonstrating the broad base of support we have from area employers.

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

One of the goals of Workforce is to meet the needs of the community partners for workers as well as meet the needs of the students to provide them with the opportunity to acquire the skills and foundational education that they need to obtain entry level jobs that can lead to more advanced positions if the student wants to continue their education. The Oregon Employment Department Qualityinfo.org shows a 14% increase in demand for Mechanical Engineering Technicians and an 8.7% increase in demand for Civil Engineering Technicians by the year 2024. This degree is being offered to provide the student with the opportunity to be job ready as well as meet the needs of the community.

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

The program leads to student achievement of academic and technical knowledge, skills and related proficiencies.

The program will prepare students with the skills needed to work as an Engineering Technician in mechanical engineering and/or civil engineering fields. Skills and abilities that are expected of an engineering technician include knowledge of math and science, engineering methods, computer literacy, problem-solving ability, critical thinking, communication, flexibility and the ability to work in teams. These skills will be developed in our program through both lecture content and hands on lab experiences. The successful student will possess skills in demand by local and regional employers.

Program Outcomes

At the completion of this program, students should be able to:

- Demonstrate technical expertise in a minimum of three subject areas chosen from: engineering materials, applied mechanics, applied fluid sciences and fundamentals of electricity
- Use graphics software to enhance creativity and productivity in engineering design
- Calculate loads and determine stresses and displacements in elementary structural and mechanical systems
- Working in a team, apply technical expertise in creating a product from concept to working prototype
- Conduct standardized field and laboratory testing on concrete and soils
- Use both traditional and modern electronic surveying equipment
- Describe the ethical responsibilities of the engineering profession
- Describe sustainability in engineering and how it impacts products, business and communities

5. ***Does the community college identify and have the resources to develop, implement, and sustain the program?***

This change will have a positive budget impact as a result of reducing the number of low enrolled classes in the four different Engineering Technology degrees by offering one Engineering Technology degree with program options. The college has the resources in the district budget to sustain the new Engineering Technology degree program.

Assurances

Mt. Hood 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 *intersegmental* 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.