



Docket Item:

Community College Approval: Mt. Hood Community College, AAS in Mechatronics, within 47.0105 I0 - Industrial Electronics Technology/Technician.

Summary:

Mt. Hood Community College proposes a new degree program in Mechatronics. Higher Education Coordinating Commission (HECC) staff completed a review of the proposed program. After analysis, HECC staff recommends approval of the program as proposed.

Staff Recommendation:

The HECC recommends the adoption of the following resolution:
RESOLVED, that the Higher Education Coordinating Commission approve the following program: AAS in Mechatronics.



Mt. Hood Community College seeks the Oregon Higher Education Coordinating Commission's approval to offer an instructional program leading to an AAS in Mechatronics.

Program Summary:

The Applied Technology department at MHCC is proposing the development of a new AAS degree. Mechatronics is the study of electromechanical systems that are frequently used in modern manufacturing environments. This degree program will focus on developing trained technicians to troubleshoot and maintain industrial automation systems. The development of this course of study has been done in cooperation with area industry. Our advisory board consists of representatives from the semiconductor, aerospace, food process, and manufacturing industries demonstrating the broad base of support we have from area employers.

The proposed Mechatronics program has been created by reviewing several successful models of mechatronics education both locally and nationally. Mechatronics technicians are the modern day factory maintenance technicians. They need to possess a broad knowledge of electricity, mechanical drives and actuators, hydraulics, pneumatics, and basic computer programming. These skills will be developed in our program through both lecture content and hands on lab experiences.

Program Description:

Mechatronics is the study of electro-mechanical systems used in today's modern manufacturing settings. This degree trains students to effectively troubleshoot, maintain, and repair mechanical, electrical, pneumatic, hydraulic, digital control and motion control systems. Students who complete this program of study will be prepared to work in a wide range of industries that utilize modern equipment including industrial robots, programmable logic controllers and other mechanical systems. In this curriculum students will learn best practices for troubleshooting complex, integrated systems effectively. Additionally, students will be introduced to many areas of modern manufacturing including statistical process control, industrial safety, manufacturing processes, etc. Students will also be trained and evaluated on professionalism in the workplace.

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

Using the Labor Insights Burning Glass tool as well as the Bureau of Labor Statistics Occupational Outlook Handbook, we found that the demand is 'much higher' than average for graduates in the industrial maintenance fields. The Occupational Outlook Handbook anticipates a 16% growth rate in this job sector which is much faster than average. This matches our advisory board and general anecdotal evidence that there

are rarely enough qualified people to fill Mechatronics jobs in the Portland metro area. Many of our advisory board members currently recruit students from out of state to fill openings. No other community college in the Portland metropolitan area offers a two-year Mechatronics program. U.S. Bureau of Labor Statistics. Retrieved from <http://www.bls.gov/ooh/>

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 Applied Technology Faculty, Dean of Applied Technologies, the Office of Instruction, the college President, and the Associate VP of Workforce and Applied Technologies. Externally, the development of this course of study has been done in cooperation with area industry. Our advisory board consists of representatives from the semiconductor, aerospace, food process, and manufacturing industries demonstrating the broad base of support we have from area employers. Early in the program process many site visits as well as industry meetings were held culminating in a diverse advisory board representative of area manufacturers.

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 Bureau of Labor predicts there will be a 16% increase in demand for industrial maintenance 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 will prepare students with the skills needed to work in an advanced manufacturing facility as part of the maintenance team. The successful student will possess skills in high demand by local and national employers.

Program Outcomes

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

- Complete basic maintenance operations
- Maintain and Troubleshoot basic mechanical systems
- Maintain and Troubleshoot basic hydraulic systems
- Maintain and Troubleshoot basic pneumatic systems
- Maintain and Troubleshoot basic electrical systems
- Maintain and Troubleshoot basic control systems
- Demonstrate basic welding and machining skills

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

MHCC has obtained funding through the Oregon Talent Council as well as industry supporters and donors for the development costs of the Mechatronics program. There will be substantial equipment costs in the development of the program but most of these will be covered by the OTC grant in combination with Perkins funds. The remaining funds are being allocated through our normal budgeting process. Ongoing funding will be provided through the college budget and Perkin's requests.

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.