



**APPLICATION for a NEW PROGRAM  
CAREER TECHNICAL EDUCATION (CTE)**

Department forms change periodically. It is the college's responsibility to use the most current forms available. Current forms, handouts and other useful resources are located at <http://www.ode.state.or.us/opportunities/grants/perkins/postsecondary/appsandworksheets.aspx>

**Note:** It is essential that the companion document, the Planning Guide & Application Worksheet, is used in representing your new program. The Application Worksheet must be kept on file at the college and made available upon request.

**Section 1. College Contact Information**

**College** Clackamas Community College

<b>College Point Of Contact</b>	Bill Waters
<b>Title</b>	Dean
<b>Department, Division</b>	Curriculum Planning & Research
<b>Mailing Address</b>	19600 Molalla Avenue
<b>City, State Zip Code</b>	Oregon City, OR 97045
<b>Phone</b>	503-594-3390
<b>Fax</b>	503-650-6659
<b>E-Mail</b>	<a href="mailto:billw@clackamas.edu">billw@clackamas.edu</a>

<b>Program Contact Person</b>	Mike Mattson
<b>Title</b>	Department Chairperson
<b>Department, Division</b>	Manufacturing Technology
<b>Mailing Address</b>	19600 Molalla Ave
<b>City, State Zip Code</b>	Oregon City, OR 97045
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**Section 2. Program Award Information**

**Name of Proposed Program** Industrial Maintenance Technology

<input checked="" type="checkbox"/>	Type of Program (Check all that apply if the programs are related)	Total Credits
<input type="checkbox"/>	Associate of Applied Science (AAS) Degree	
<input type="checkbox"/>	Associate of Applied Science Degree, Option (An option is a specialized area within a base AAS. Must maintain 70% of common credits with base AAS)	
<input checked="" type="checkbox"/>	Certificate of Completion	50
<input type="checkbox"/>	Certificate of Completion	

Business and Industry-based Program  
(privately-contracted, closed enrollment)

<input checked="" type="checkbox"/>	Career Area (please check the appropriate area)
<input type="checkbox"/>	Agriculture, Food & Natural Resources Systems
<input type="checkbox"/>	Arts, Information & Communications
<input type="checkbox"/>	Business & Management

<input type="checkbox"/>	Health Services
<input type="checkbox"/>	Human Resources
<input checked="" type="checkbox"/>	Industrial & Engineering Systems

<b>EII Education Specialist</b>	
Name	
Phone	
E-Mail	

<b>Proposed Program Implementation Date</b>	Fall 2017
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<b>CIP Code</b>	47.0303	<b>CIP Title</b>	Industrial Mechanics and Maintenance Technology
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<b>CIP Narrative Description</b>	
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<b>Program Summary</b>
<p>Industrial Maintenance Technology (IMT) certificate is a program that prepares students to succeed as maintenance technicians in industry. IMT graduates perform mechanical and electrical maintenance of manufacturing equipment such as machine tools, automated process equipment and buildings systems to keep production operational. Maintenance technicians study subjects from a wide variety of technical disciplines ranging from welding to industrial electronics to robotics. This is a high-wage, high-demand field that typically attracts talented people who are excellent problem solvers and enjoy challenging work.</p>

<b>Financial Assistance Options Sought for and/or Approved for the Program</b>	
(Check all that apply)	
<input checked="" type="checkbox"/>	<b>Federal Financial Aid Options</b>
<input checked="" type="checkbox"/>	<b>Workforce Investment Act – Individual Training Account</b>
<input checked="" type="checkbox"/>	<b>Veterans Benefits</b>
<input checked="" type="checkbox"/>	<b>State of Oregon Financial Aid</b> Describe: Oregon Opportunity Grant
<input checked="" type="checkbox"/>	<b>College Financial Aid</b> Describe: Scholarships, tuition waivers, internships
<input checked="" type="checkbox"/>	<b>Private Business, Foundation Aid</b> Describe: Scholarships
<input checked="" type="checkbox"/>	<b>Other:</b> Describe: Voc Rehab funds, Social Services funds, Tribal Educational funds

### Section 3. Program Approval Standards

<b>Standard A</b>
<b>Need: The community college provides clear evidence of the need for the program.</b>
<b>Program Highlights</b>
<p>The department has completed a market analysis of this discipline and determined that current and future need is much greater than average. The Department of Employment has also placed Industrial Maintenance on its list for prioritized instruction. Job postings in this field exceed that of Welding and Machining of which we have decades of first-hand knowledge of the actual (and very strong) job market.</p> <p>Interviews with numerous hiring managers have led us to believe that this discipline is severely underserved in our region. An industrial advisory board, formed to explore the program, has given their enthusiastic support to move forward.</p>

**Standard B**

**Collaboration:** *The community college utilizes systemic methods for meaningful and ongoing involvement of the appropriate constituencies.*

**Program Highlights**

An industrial advisory board was commissioned to determine a need for this program and to approve the draft of the program curriculum. They gave their approval and made suggestions for improving the final curriculum. Our advisory boards meet regularly as a matter of practice. The college also sought out industry input for the Tech Hire grant application (earmarked for this field) and received many letters of support.

**Standard C**

**Alignment:** *The program is aligned with appropriate education, workforce development, and economic development activities.*

**Program Highlights**

*Industrial Machinery Mechanic* was ranked state-wide as the number one, non-healthcare, high-wage, high-demand occupation in the *Training Oregonians for the Right Jobs* report of 2015. A leading factor to this ranking is the predicted 2298 openings by 2022.

Graduates of this field can expect excellent employment opportunities as well as the ability to move along a career path. That path can lead to management/supervisory positions, licensure as an industrial electrician, and continued education in a B.A.S program.

**Standard D**

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

**Program Highlights**

The curriculum was planned and designed with the collaboration of numerous industrial practitioners of the trade, plant managers and maintenance/manufacturing engineers. The scope and sequence has been corroborated with multiple sources ranging from other community college programs to work-based programs at prominent, multi-national manufacturers. Many of the selected textbooks are custom editions from a leading technical training company that has allowed us to tailor learning to our regional industry.

This program was developed to incorporate contextual learning as the hallmark of the curriculum. Students are expected to spend approximately half of their class time working hands-on with industrial machinery and the related tools and technologies found in this field. We also have the resources to purchase a variety of industrial equipment and trainers that will enable this experience.

**Standard E**

**Capacity:** *The community college identifies and has the resources to develop, implement, and sustain the program.*

**Program Highlights**

This program will be initially funded through the Tech Hire grant. The three-year grant will allow for the development of six new courses and provide funding for instruction and tooling.

We currently offer 80% of this program as regular, open-to-the-public courses. These courses are used by many programs ranging from Microelectronics to Computer-aided Manufacturing. Instruction is currently provided by full-time and adjunct instructors and is funded through both general fund and fee resources.

We foresee a point, near the end of the grant period, when a faculty position will be desired to maintain this program. If that is not possible, then we will continue on with the PT faculty/fee model as we do with several other programs (i.e. GIS, EET & Microelectronics).



**Section 4. Proposed Curriculum**

<b>PROPOSED CURRICULUM</b> <small>(List in a Defined Sequence of Courses Format, e.g., Quarter-to-quarter mapping)</small>			
<b>Course Number</b>	<b>Course Title</b>	<b>Clock Hours</b>	<b>Credits</b>
<b>Fall Term</b>			
IMT 104	Reading Schematics and Symbols	22	2
MFG 103	Machining/Fab & Maint Trades	66	3
MFG 107	Industrial Safety & First Aid	33	3
MFG 109	Computer Literacy for Technicians	39	3
MFG 130	Basic Electricity I	33	3
MTH 050	Technical Mathematics I	44	3
<b>Winter Term</b>			
EET/IMT 139	Principles of Troubleshooting I	44	2
IMT 120	Industrial Machinery I	66	3
MFG 131	Basic Electricity II	33	3
MFG 140	Fluid Power	66	3
MTH 080	Technical Mathematics II	44	3
COMM 100	Basic Speech Communication	33	3
<b>Spring Term</b>			
IMT 110	Preventative Maintenance		2
MFG 132	Basic Electricity III	33	3
MFG 221	Materials Science	66	3
MFG 280	Cooperative Work Experience	72	2
WR 101	Communication Skills: Occupational Writing	33	3
	Technical Elective		3
<b>TOTAL PROPOSED CREDITS:</b>			<b>50</b>

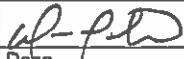
**Section 5. Assurances and Signature**

<b>College Authority Signature</b> <small>(Applications must be signed by the chief academic officer or the president)</small>
<p>I have reviewed this application and supporting documents and attest to the accuracy, clarity, and completeness. The college will comply with the following assurances:</p> <ol style="list-style-type: none"> <li><b>Access.</b> The college and program will affirmatively provide access, accommodations, flexibility, and additional/supplemental services for special populations and protected classes of students.</li> <li><b>Continuous improvement.</b> 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.</li> <li><b>Adverse impact &amp; detrimental duplication.</b> The college will follow all current laws, rules, and procedures and has made good faith efforts to avoid or resolve adverse <i>intersegmental</i> and <i>intra-segmental</i> impact and detrimental duplication problems with other relevant programs or institutions.</li> <li><b>Program records maintenance &amp; congruence.</b> The college acknowledges that the records concerning the program title, curriculum, CIP code, credit hours, and other identifying and descriptive information maintained by the Department are the official records and it is the college's responsibility to keep the college records aligned with those of the Department. The college will not make changes to the program without informing and/or receiving approval from the Department.</li> </ol>

Our staff has worked closely with CCWD-EII staff in the development of the proposed program and completion of this application. The proposed program:

1. Has been designed to meet the State Board of Education approval standards for Need,
2. Collaboration, Alignment, Design and Capacity, as well as the elements identified that that are essential to a quality program;
3. Our college board has approved the proposed program described in this application;
4. All local campus procedures have been completed; and
5. This program is ready to be reviewed by CCWD-EII staff on behalf of the State Board of Education.

It is understood that documentation or evidence may be requested by CCWD-EII staff if additional information is needed.

<b>Signature</b>	
<b>Title</b>	Dean Curriculum, Planning & Research
<b>Name (Printed or typed)</b>	Bill Waters
<b>Date</b>	12-01-16





## Curriculum Committee

New Certificate of Completion (One Year)

**Certificates of Completion between 45-60 credits have a defined job entry point and are completed in one year.**

**This form provides additional information required by the NWCCU for accreditation. Signed copies must be submitted two weeks prior to Curriculum Committee meetings.**

<b>Program Presenter</b>	Mike Mattson
<b>Program Department/Division</b>	Manufacturing Technology
<b>Program Type</b>	Certificate of Completion (One Year)
<b>Complete Program Title</b>	Industrial Maintenance Technology
<b>Credit Total (45-60)</b>	50

### **Catalog description of new program**

***Must match description from CCWD state application***

Industrial Maintenance Technology (IMT) certificate is a program that prepares students to succeed as maintenance technicians in industry. IMT graduates perform mechanical and electrical maintenance of manufacturing equipment such as machine tools, automated process equipment and buildings systems to keep production operational. Maintenance technicians study subjects from a wide variety of technical disciplines ranging from welding to industrial electronics to robotics. This is a high-wage, high-demand field that typically attracts talented people who are excellent problem solvers and enjoy challenging work.

### **Similar to an existing program?**

No

### **Program-Level Student Learning Outcomes**

***Upon successful completion of this program, students should be able to:***

- Work safely in an industrial environment around machinery, power equipment, heat, chemicals and electricity.
- Troubleshoot, install and repair basic electromechanical systems by using knowledge of electrical and mechanical fundamentals, diagnostic instruments, and hand and power tools.
- Use knowledge of manufacturing and welding processes to execute the repair and replacement of machine elements.
- Communicate effectively through graphical means including schematics, diagrams, engineering drawing and sketches to determine system functions to effect repairs and improve performance.

### **Program-Level Assessment Plan**

In Progress

### **Courses in the Program**

**Use CCC Course Catalog format**

For questions and assistance, contact Curriculum Office at [curriculum@clackamas.edu](mailto:curriculum@clackamas.edu)





Attach document or click to enter text.

**Related Instruction Courses in the Program**

**Approved Course List**

Communication – WR-101

Computation – MTH-050 & MTH-080

Human Relations – COMM-100 or COMM-100A, B C

Physical Education/Health/Safety/First Aid – MFG-107



**Will there be revenues associated with the new program?**

(i.e. bonds, grants, reallocation)

Yes                       No

Revenue Source	Amount (\$)	Year/Term
TechHire Grant		1 year prior to program
--	250,000	1 <sup>st</sup> year of program
--	250,000	2 <sup>nd</sup> year of program
--	250,000	3 <sup>rd</sup> year of program

**New Courses needed?**

Yes                       No

Course Title	Credit Hours	Term
Schematic Reading	22	Fall/16
Industrial Machinery I	66	Winter/17
Preventative Maintenance	44	Spring/17
Rigging & Lifting	44	Fall/17
Industrial Machinery II	66	Fall/17
PLCs II	66	Summer/17

**New Sections needed?**

Yes                       No

**Additional faculty needed?**

Yes                       No

	Number	Term
Full-time	0	
Part-time	2	Winter/17

**New physical facilities and equipment needed?**

Yes                       No

Facility/Equipment Description	Cost	1 <sup>st</sup> Term/Year
Tooling	35,000	W/17

**New Student Services needed?**

For questions and assistance, contact Curriculum Office at curriculum@clackamas.edu



Link to student services listed in the current catalog

Yes

No

**Please explain how the current Student Services will accommodate the needs of the new program**

No extraordinary help required. Business as usual for students.

**Other expenses?**

Yes

No

11/15/14



Cynthia Ruesch

Dean Signature/Date

11/15/14



Department Chair Signature/Date

Faculty/Program Lead Signature/Date

(optional)

