

**Wyoming Community College Commission**  
**Request for**  
**New, Pilot or Revised Degree or Certificate**

**A. College:** Laramie County Community College

**B. Date** submitted to WCCC: \_\_\_\_\_

**C. Program**

1. Request for:

New Program     Pilot Program     Revised Program

2. **Program Title:** Industrial Maintenance

3. Degree or Certificate to be awarded:

Degree:     AA     AS     AAS     Other

Certificate

4. Educational Pathway:

Energy     Construction     Hospitality     Technology     Health Care     other

5. Total number of credit hours: 19

5. Suggested CIP (Classification of Instructional Program) code (6-digit):

47.0303

6. Planned semester/year new program will begin: Fall 2015

8. Will any part of this program be provided by non-accredited vendor(s)?

YES (Provide details)                       NO

Will all or part of this program be available to students via online or other distance education technologies?

At the start of the program?     Within three years of the start of the program?     No

**D. Program description** as it will be included in college catalog:  
(Type description here)

The Industrial Maintenance program is designed for students who want to gain valuable industry knowledge and also want to pursue a basic academic foundation. Students will gain knowledge and skills in fluid dynamics, mechanical and electrical topics—all of which are combined to provide the groundwork for direct industry employment. This program prepares individuals to apply technical knowledge and skills to repair and maintain industrial machinery and equipment such as pumps, motors, conveyor systems, production machinery, refinery, and pipeline-distribution systems.

1. Expected Student learning outcomes from completion of the program: Students will be able to:
  - Use safety rules and regulations that characterize responsible behavior in the workplace.
  - Safely handle and/or operate industrial hand tools, power tools, fasteners and mechanical components.
  - Explore the use of hydraulically operated equipment.
  - Determine electrical characteristics as related to industrial equipment.
  - Predict the various uses of motors and motor control circuits in an industry setting.
  - Investigate energy efficient methods and systems that are incorporated in industry.
  - Predict the operational condition industrial mechanical systems.
  - Perform routine maintenance, such as inspecting drives, motors, or belts, checking fluid levels, or doing other preventive maintenance actions.
  - Assemble, install, or repair wiring, electrical or electronic components, pipe systems, machinery or equipment.
  - Inspect, operate, or test machinery or equipment to diagnose machine malfunctions.

## 2. Program Layout by Semester

IST 1520	Introduction to Industrial Safety	1
IST 1710	DC Electricity	1
IST 1711	DC Electrical Circuits	1
IST 1712	AC Electricity	1
IST 1713	AC Electrical Circuits	1
IST 1780	Electric Motors	2
IST 1781	Electric Motor Circuits	1
IST 1770	Motor Controls	1
IST 1771	Motor Control Circuits	1
IST 1810	Programmable Logic Controllers	1
IST 1811	Programmable Logic Controller Circuits I	1
IST 1660	Mechanical Drives	1
IST 1661	Mechanical Drive Assemblies	1
IST 1610	Fluid Power	1
IST 1611	Fluid Power Circuits	1
HVAC 1600	Mechanical Piping Systems	3
<b>Total Program Semester Hours</b>		<b>19</b>

### **E. New course prefixes:**

1. Recommended Level of Instruction if the community college is using a new course prefix:

\_\_\_\_\_ No new prefixes

3 Suggested level of instruction

2. New Course prefixes, numbers and titles have been coordinated:  
 with UW (transfer)      \_\_\_ Yes    \_\_\_ No    X Not Applicable  
 or WCCC (career technical)    \_\_\_ Yes    \_\_\_ No    X Not Applicable

### **F. New course descriptions:**

The following are course descriptions for each new course in the program (include prefix, course number, title, credit hours and description):

This program utilizes courses currently offered at LCCC.

**G. Can this program be delivered by current faculty?** If not, what are the plans, budget and timeline for bringing on needed instructors?

Yes.

**H. Summary of input from and coordination with citizens, business and industry or k-12 education:**

The LCCC Integrated Systems Technology program has been in existence since 2005 and has been joined by industry from that time to help create a skilled workforce for Southeastern Wyoming. Members of the community include: the Chief Building Inspector for the City of Cheyenne, Cheyenne LEADS, Bureau of Apprenticeship representatives, personnel from FE Warren AFB, LCSD#1 Career and Technical Educational Coordinator as well as several local business owners. The original plan was for the LCCC program to offer one nine month certificate. However, by creating a new approach to offering the training, an Industrial Technology program can now be completed within one-16 week semester.

**I. Resources required** to start and sustain the program and the current plan to meet those resource needs through college or other external funds:

This program is funded as a current course of study at LCCC.

**J. Projected demand in Wyoming and Nation** for five years from the proposed implementation date (career technical programs):

Nationally, the trend for continues to show a short fall approximately 9% between now and 2022. The need in Wyoming shows a 12% increase through 2022.

1. State and National Trends

United States	Employment		Percent Change	Job Openings
	2012	2022		
Maintenance and Repair Workers, General	1,325,100	1,450,300	+9%	37,970
Wyoming	Employment		Percent Change	Job Openings
	2012	2022		
Maintenance and Repair Workers, General	3,970	4,440	+12%	120

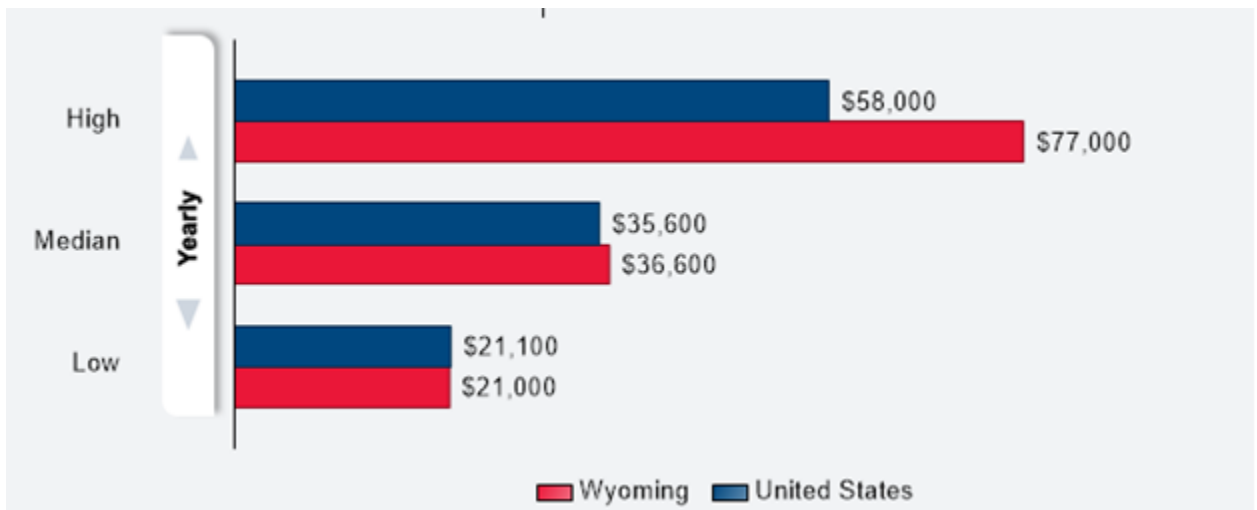
Source:

Source: Occupational Information Network (O\*NET OnLine), [49-9071.00 - Maintenance and Repair Workers, General](#)

Other trend information that would assist the Commission:

2. State and National Wages

Other wage information or comments that would assist the Commission:



**Source:** [Bureau of Labor Statistics, Occupational Employment Statistics Survey](#)

Source: Occupational Information Network (O\*NET OnLine), <http://www.onetonline.org/link/summary/49-9071.00>

3. Primary student audience identified for this program:

For LCCC, we anticipate targeting several different groups within the community, including incumbent workers who are currently in the industrial maintenance field and want to or are required to expand their knowledge; those that are seeking advancement opportunities; displaced workers desiring retraining; poverty-to-self-sufficiency training programs; and high school graduates who are interested in technical fields.

4. Anticipated enrollment in the three academic years after WCCC approval (unduplicated headcount) with the basis for the estimate:

15 Year One

15 Year Two

15 Year Three

**K. Student recruitment and program marketing strategies to attract the broadest range of individuals for this particular program:**

The community college will utilize industry contacts from many different companies and industries to identify and recruit students currently in the workforce who need to update their skills. Industry partners are very supportive and have committed to referring students to the college. We plan to market to Department of Workforce Services, high school counselors and students, veterans and transitioning military personnel, poverty to self-sufficiency programs and other displaced workers.

In addition, a full marketing campaign if needed, will be designed for this program that would include: Website, Facebook, and other social media venues, college marketing venues such as television stations, press releases, radio interviews and other areas as identified by the respective public relations departments.

**L. Identification of similar programs at Wyoming Community Colleges and an overview of results of discussions with faculty and administrators at the relevant colleges regarding curriculum and possible joint projects:**

<b>Wyoming Community College Programs (Identify title, degree/certificate and number of credit hours)</b>						
<b>Casper College</b>	<b>Central Wyoming College</b>	<b>Eastern Wyoming College</b>	<b>Laramie County Community College</b>	<b>Northwest College</b>	<b>Northern Wyoming Community College District</b>	<b>Western Wyoming Community College</b>
N/A	Facilities Maintenance Certificate, 34 hours	N/A	N/A	N/A	N/A	Industrial Maintenance Technology Mechanics, Hydraulics Option Certificate, 42 hours

**M. Note available program and course articulations with other likely transfer institutions in the region, particularly for transfer AA and AS programs. (Note regional Bachelor of Applied Science transfer options in addition to UW.)**

This program is not designed for transfer

**N. When appropriate, note partnerships with business, industry, associations or agencies that have contributed to the design of the proposed program and/or who will contribute to the delivery of the program.**

The LCCC program has been working to align the program's competencies with national competency standards to meet local needs. Local advisory board members, specifically HVAC contractors and maintenance personnel, are providing input on technical needs for this particular region of the country. By using National and local input for the program, we will provide the best curriculum and learning environment for our students.

**O. Assessment of student learning and complete follow-up per performance indicators.** How will the assessment outcomes be used to assure student learning and improve the program?

Students will be able to:

The assessment of student learning consists of knowledge assessments given 3-4 times during the semester with a final knowledge assessment at the end of the semester. Weekly and daily assignments will provide guidance towards the assessment outcomes and areas of improvement. Along with the knowledge assessments, lab skill projects will be given and assessed for specific outcomes to backup knowledge skills. Many opportunities to practice lab skills will be provided to enhance the students learning success.

**P. Other program information or comments** that would assist the commission in making a decision using the Guidelines for Use of this Evaluation Tool found in Appendix A of the 2010 WCCC Statewide Strategic Plan.

This program addresses Wyoming and regional interests in the following ways:

**EDUCATED CITIZENRY** – Through this accelerated program students may earn an Industrial Maintenance credit diploma, thus increasing the number of post-secondary education certificates in Wyoming. In addition, the program supports high demand and high pay occupations, which improves the quality of life for our students and the clients who will be served by their skills.

**DIVERSIFIED ECONOMY** – This program helps build the technical knowledge required to support the changing skills for industrial maintenance technicians. Many of the fundamental skills developed through the electrical, mechanical and safety courses are relevant across industry.

**WORKFORCE DEVELOPMENT** – We developed the Industrial Maintenance program curriculum from recognized industry standards and input from local industries. We selected courses that respond to current and emerging technologies in the industry.

**EFFICIENT SYSTEMS** – Career pathways coordinators will be working closely with the Industrial Maintenance instructors to align the skill sets of secondary school students with our program. The alignment



will provide a seamless pathway for students from secondary to post-secondary education and on into the industrial maintenance industry.

**ACCOUNTABILITY and IMPROVEMENT** – Course assessment data and course evaluations will be compiled by the program instructor. This data will be evaluated and analyzed by the advisory committee to help ensure continuous improvement. In addition, the college will utilize our Institutional Research Office to develop and deliver a post-job placement survey to both employers and students to identify skill gaps needed that may not have been included in the program. This information will help ensure the program is kept up to date and is meeting industry needs.

## SIGNATURE PAGE

Submitted by V. P. for  
Academic Affairs\*

\_\_\_\_\_  
Signature Date

\_\_\_\_\_  
Printed Name Title

Approved by the WCC Academic  
Affairs Council

\_\_\_\_\_  
Signature Date

\_\_\_\_\_  
Printed Name Title

Approved by Program  
Review Committee

\_\_\_\_\_  
Signature Date

\_\_\_\_\_  
Printed Name Title

\*Signature by the Community College Vice President for Academic Affairs verifies that institutional curriculum approval processes have been completed and that the Community College Board of Trustees has approved this program request as per institutional policy.