



OFFICE OF THE PRESIDENT  
Dr. Joe Schaffer

To: LCCC Board of Trustees  
From: Dr. Joe Schaffer, President  
CC: Members, President's Cabinet  
Caleb Perriton, Interim Dean, School of Business, Agriculture, & Technical Studies  
Steve Hrkach, Instructor, Wind Energy Technology  
Date: 22 August, 2022  
Subject: New Program Proposal, Wind Energy Technology

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The Guided Pathways initiative at the College created a deep examination of our academic offerings and further embedded data-influenced considerations in all conversations pertaining to program sustainability and student demand. This examination has challenged us to ensure our programs adhere to the tenets of the Pathways framework in supporting our students' success. Specifically, the College has committed to offering academic programs that are clear and intentional in design to meet students' goals in employment or further education. It is with respect for these tenets that I seek approval for a new Credit Diploma, Wind Energy.

**PROGRAM OVERVIEW:**

The Wind Energy AAS degree was approved for hiatus status by the Academic Standards Committee in December 2021. As was presented by program faculty Steve Hrkach and BATS Dean Dr. Jill Koslosky, the number of students seeking this degree was declining in the pre-COVID years and continued to drop significantly through the pandemic-impacted academic years, 2020-2021 and 2021-2022. Additionally, and with confirmation of our advisory committee members, regional and national employers in the wind energy industry were no longer requiring AAS-prepared technicians to fill the positions our degree targeted. Specifically, a study of current job postings for entry-level wind technicians was performed in 2021 and the minimum requirement for the majority of job postings required a college certificate from a wind program. In a survey of regional and national industry partners only 7% thought an associate degree for an entry-level technician was a priority.

The *hiatused* Wind Energy AAS was the last remaining program-specific AAS in the Trades & Technical Studies Pathway. The approval of the Wind Energy CD allows students to engage in the Pathway's common first semester to earn the IST CD and subsequently complete the Wind Energy CD. This combination of credentials prepares student for successful entry into the Wind industry, and will also support the continuation of students at LCCC in pursuit of the Trades & Technical Studies AAS. We are confident this 1-year series, resulting in two certificates, will more efficiently meet the needs of our students and our industry partners alike.

**PROGRAM OUTCOMES:**

The program has completed the required development and review process and has received approval of the Academic Standards Committee. The Credit Diploma is comprised of 18 credits and can be completed in a single semester.

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

- Demonstrate compliance with general and specific industry safety laws, standards and procedures.
- Describe how wind turbine system components are integrated to convert energy from the wind into electrical energy.
- Interpret information contained in electrical schematics, technical drawings, manuals, data sheets and service bulletins to determine system operation.
- Demonstrate proper handling and safe usage of industrial tools, electrical meters and diagnostic equipment commonly used in the wind industry.
- Apply sound troubleshooting techniques to quickly find and fix electrical, mechanical and fluid power system faults.
- Perform wind turbine service and preventative maintenance per manufacturer's specifications and common industry practices.
- Demonstrate the technical communication skills required to accurately and concisely document all activities associated with servicing and maintaining wind turbines.

Students will have the opportunity to meet these outcomes through the following series of courses:

Wind Energy   Credit Diploma		
1st Semester (Spring)*		
IST 1610	Fluid Power	1
IST 1611	Fluid Power Controls	1
IST 1770	Motor Controls	3
IST 1810	Programmable Logic Controllers	2
IST 1811	PLC Circuits I	1
WTT 1000	Introduction to Wind Energy	2
WTT 1200	Wind Turbine Mechanical Systems	3
WTT 1300	Theoretical Concepts of Rotating Machines	3
WTT 2300	Wind Turbine Data Acquisition	2
Semester Total:		18

\*In the preceding Fall semester students complete the Industrial Systems Technology CD, a 17-credit credential that serves as the prerequisite for the Wind Energy CD.

**STAFFING IMPACT:**

Current faculty are qualified to teach all courses in the program and have capacity for the instructional responsibilities.

**BUDGET IMPACT:**

No new or outside funding is required to implement the Wind Energy Credit Diploma. Without the need for a new position or increases in courses or faculty workload, we expect the budgetary impact for implementation of this credential to be minimal.

More detailed information about both programs is provided in the attached New Program Request Forms prepared for the Wyoming Community College Commission.

# Wyoming Community College Commission

## NEW PROGRAM REQUEST FORM

<b>College</b>	Laramie County Community College				
<b>Date</b>	July 6, 2022				
<b>Program Title</b>	Wind Energy				
<b>Type of Credential</b>	<input type="checkbox"/> AA	<input type="checkbox"/> AS	<input type="checkbox"/> AFA	<input type="checkbox"/> AAS	<input type="checkbox"/> Certificate
	<input checked="" type="checkbox"/> Other	CREDIT DIPLOMA			
<b>Total Credit Hours</b>	18				
<b>CIP Code</b>	47.0704				
Classification of Instructional Programs/CIP obtained from the National Center for Educational Statistics at <a href="https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55">https://nces.ed.gov/ipeds/cipcode/browse.aspx?y=55</a> . Double check your recommendation with the course coordinator and/or Student Records.					
<b>Title</b>	Wind Energy System Installation and Repair Technology/Technician				

Rationale for request	
<b>Type of Program</b>	<input type="checkbox"/> Transfer preparation <input type="checkbox"/> Short term workforce placement <input checked="" type="checkbox"/> One-year workforce placement <input type="checkbox"/> Special need endorsement
<b>Certificate Questions</b> <i>More than one may apply</i>	<input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> local or state employer or industry specific <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b> nationally recognized <input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> examination or licensure preparation <input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>No</b> practicum <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b> stackable  <u>Title IV</u> Financial Aid Eligible <input checked="" type="checkbox"/> <b>Yes</b> <input type="checkbox"/> <b>No</b> (minimum of 16 semester hours) (Stafford Loans, Perkins Grants, Pell Grants and Federal Campus-based Grants)
<b>New program start</b>	<input type="checkbox"/> NA <b>OR</b> identify the semester the program will start: Click or tap to enter text.
<b>Taught by non-accredited vendors?</b>	<input type="checkbox"/> YES (see below) <input checked="" type="checkbox"/> NO  Click or tap to enter text.
<b>WCCC or State Priority</b>	<input checked="" type="checkbox"/> YES (see below) <input type="checkbox"/> NO <i>(See the <a href="#">WCCC website</a>, there are several programs which have a state priority, such as the Governor's Economically Needed Diversity Options for Wyoming/<a href="#">ENDOW</a></i>  ENDOW initiative, Fueling the Next Generation, references "increase Wind Energy 1-fold to a production level of 15GW." This ENDOW initiative also ties to two wind or solar energy component manufacturers in Wyoming and notes that 70% of energy workers have post-secondary credentials.

Program Curriculum	
<b>Program Description</b>	The Wind Energy program provides students with the critical skills needed to become successful technicians in the rapidly growing wind industry. A balanced combination of classroom instruction and hands-on training allows students to quickly turn concepts into valuable work experience. Throughout the program, students learn basic and advanced electrical, mechanical and fluid power system theory. In turn, this

	knowledge is used to interpret detailed mechanical drawings and schematic diagrams to determine system operation and troubleshoot complex faults. In addition, students perform preventative maintenance tasks on an actual wind turbine nacelle and rotor housed in the College's Wind Energy Lab. Students develop effective climb safety techniques using the program's Fall Protection Lab. After successful completion of this program, students are prepared for direct industry employment as entry-level wind turbine technicians.					
<b>New Curriculum</b>	<input type="checkbox"/> YES (see below) <input checked="" type="checkbox"/> NO					
List the new courses <b>alphabetically</b> . Include prefix, course number, course title, credit hours. Check the <a href="#">Wyoming Transfer Catalog</a> for possible courses and numbers. Additionally, WCCC has a statewide common course numbering system (CCNS). Colleges must ensure all new courses are aligned with the CCNS. Confirm this alignment with the course coordinator and/or Student Records. Note that CCNS alignment and/or new course title and number requests to the WCCC will take at least a week to process.						
<b>College Catalog Considerations</b> (check all that apply)	<b>Prefix</b>	<b>Number</b>	<b>Title</b>	<b>Credits</b>	<b><sup>^</sup>LOI</b>	
<input type="checkbox"/> New course <input type="checkbox"/> New number <input type="checkbox"/> New prefix <input type="checkbox"/> New title <input type="checkbox"/> CCNS alignment	Click or tap here.	Click or tap here.	Click or tap here to enter text.	Click or tap here.	Click or tap here.	
<input type="checkbox"/> New course <input type="checkbox"/> New number <input type="checkbox"/> New prefix <input type="checkbox"/> New title <input type="checkbox"/> CCNS alignment	Click or tap here.	Click or tap here.	Click or tap here to enter text.	Click or tap here.	Click or tap here.	
<input type="checkbox"/> New course <input type="checkbox"/> New number <input type="checkbox"/> New prefix <input type="checkbox"/> New title <input type="checkbox"/> CCNS alignment	Click or tap here.	Click or tap here.	Click or tap here to enter text.	Click or tap here.	Click or tap here.	
<i>Add new rows to this table by clicking the "+" at the end of the row above.</i>						
<b>TOTAL CREDITS</b>				Click or tap here.		

<sup>^</sup>Course Coordinator can provide.

<b>Similar programs in Wyoming?</b> <a href="#">(See WCCC Program List)</a>	<input type="checkbox"/> Yes (list Colleges below) <input checked="" type="checkbox"/> No Click or tap here to enter text.		
<b>Discussions with other Community Colleges</b>	<input type="checkbox"/> Yes (see below) <input checked="" type="checkbox"/> No (see rationale below) There are no Wind Energy or related programs offered at the other Community Colleges.		
<b>Additional Resources (faculty, support services, equipment or supplies)</b>	<input type="checkbox"/> Yes (see below) <input checked="" type="checkbox"/> No  <b>STAFFING IMPACT:</b> Click or tap here to enter text. <b>BUDGET IMPACT:</b> Click or tap here to enter text.		
<b>Primary Student Audience</b>	This program appeals to many different demographics. Typical classes have 10-20% HS graduates, 10-20% veterans and 10% females. The majority of students are those in their 20s and 30s. They have been in the workforce for a number of years and are seeking a second career. Also, the vast majority of students, typically 80%, historically have been from out-of-state.		
<b>Anticipated three-year unduplicated headcount</b>	<b>Year one:</b> 13	<b>Year two:</b> 15	<b>Year three:</b> 18

### Projected Demand Nationally and in Wyoming

(Labor market anticipated demand upon completion of the program and wages for this career field)

Suggested data sources for Occupational Outlook and Wages:

- Career One Stop- [US Department of Labor](#)

- Bureau of Labor Statistics (occupational outlook handbook) <https://www.bls.gov/ooh/>
- Wyoming Labor Market Information (WLMI) <http://doe.state.wy.us/lmi/>

### Projected Demand

Location	Employment			
UNITED STATES	Year 2020	+10 years	Percent Change	Job Openings
	6,900	11,700	68%	1,400
	<b>Data Source:</b> <a href="https://www.careeronestop.org/Toolkit/Careers/Occupations/occupation-profile.aspx?keyword=Wind%20Turbine%20Service%20Technicians&amp;onetcode=49908100&amp;location=UNITED%20STATES">https://www.careeronestop.org/Toolkit/Careers/Occupations/occupation-profile.aspx?keyword=Wind%20Turbine%20Service%20Technicians&amp;onetcode=49908100&amp;location=UNITED%20STATES</a>			

WYOMING	Employment			
	Year 2020	+10 years	Percent Change	Job Openings
	236	543	130.1%	704
	<b>Data Source:</b> <a href="http://doe.state.wy.us/lmi/projections/2022/WY_LT_Projections_2020-2030.pdf#page=74">http://doe.state.wy.us/lmi/projections/2022/WY_LT_Projections_2020-2030.pdf#page=74</a>			

### State and National Wages

Location	Pay Period	Year 2021				
		10%	25%	Median	75%	90%
UNITED STATES	Hourly	\$22.32	\$22.62	\$27.05	\$30.74	\$37.41
	Yearly	\$46,420	\$47,040	\$56,260	\$63,930	\$77,810
	<b>Data Source:</b> <a href="https://www.careeronestop.org/Toolkit/Careers/Occupations/occupation-profile.aspx?keyword=Wind%20Turbine%20Service%20Technicians&amp;onetcode=49908100&amp;location=UNITED%20STATES">https://www.careeronestop.org/Toolkit/Careers/Occupations/occupation-profile.aspx?keyword=Wind%20Turbine%20Service%20Technicians&amp;onetcode=49908100&amp;location=UNITED%20STATES</a>					

Location		Year 2020
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	Pay	10%	25%	Median	75%	90%
WYOMING	Hourly	20.46	22.69	\$25.98	30.14	32.83
	Yearly	42,548	47,198	54,035	62,689	68,291
	<b>Data Source:</b> <a href="https://doe.state.wy.us/lmi/LEWISSept2021ECI/5601000056/49-9081.htm">https://doe.state.wy.us/lmi/LEWISSept2021ECI/5601000056/49-9081.htm</a>					

**APPENDIX A- PROGRAM TERM BY TERM PLAN**

Provide the program's term by term plan below

**LCCC PROPOSED PROGRAM OF STUDY FOR:** Wind Energy, Credit Diploma

RECOMMENDED CURRICULUM SEQUENCE: PROPOSED			
COURSE			
Prefix	Number	Title	Credits
<i>Fall Semester 1<sup>st</sup> Year</i>			
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
<b>Approved Elective options in this semester:</b> <input type="checkbox"/> n/a Click or tap here to enter text.			Click or tap here to enter text.
TOTAL FALL SEMESTER			Click or tap here to enter text.
<i>Spring Semester 1<sup>st</sup> Year</i>			
IST	1610	Fluid Power	1
IST	1611	Fluid Power Controls	1
IST	1770	Motor Controls	3
IST	1810	Programmable Logic Controllers	2
IST	1811	PLC Circuits I	1
WTT	1000	Introduction to Wind Energy	2
WTT	1200	Wind Turbine Mechanical Systems	3
WTT	1300	Theoretical Concepts of Rotating Machines	3
WTT	2300	Wind Turbine Data Acquisition	2
<b>Approved Elective options in this semester:</b> <input checked="" type="checkbox"/> n/a Click or tap here to enter text.			
TOTAL SPRING SEMESTER			18
<b>TOTAL PROPOSED PROGRAM CREDITS</b>			<b>18</b>

## SIGNATURE PAGE

By signing below the 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.

### Submitted by the Vice President for Academic Affairs:

_____ Signature	_____ Date
_____ Printed Name	_____ Title

### Approved by the WCCC Academic Affairs Council:

_____ Signature	_____ Date
_____ Printed Name	_____ Title

### Approved by the Program Review Committee:

_____ Signature	_____ Date
_____ Printed Name	_____ Title