Annual Report to the LCCC Board of Trustees

Pathway and Program Review 2021-2022

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Vice President, Performance and Planning
Dr. Dustin Eicke

Academic Pathway/Program Review Committee Chair
Dr. Erin Nitschke

Executive Administrative Assistant (P&P & ITS)
Mrs. Amanda Newell

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Executive Summary

The Trades & Technical Studies Pathway review conducted in the 2021 – 2022 cycle is the first occurrence since the implementation of the Guided Pathways 2.0 model at LCCC. This process builds on the first iteration of a systematic pathway review (STEM Pathway) at LCCC in 2020 – 2021. There are both successes to be celebrated and challenges to attack from the lessons learned during this process. LCCC continues to be a leader among her community college peers by demonstrating a data driven self-study process that aims to ensure students from all economic and demographic backgrounds are able to achieve efficient paths to marketable college credentials as they pursue fulfilling careers.

The Trades & Technical Studies Pathway self-study examined eight programs within the pathway. The Academic Pathway Review (APR) subcommittee recommends the acceptance of all eight program reviews. Specifically, APR recommends acceptance of five program reviews without contingencies, and three with contingencies. These recommendations were accepted by the Academic Standards Committee in November of 2022. This is detailed in the table below:

Acceptance of Program Review with no Contingencies	Acceptance of Program Review with Contingencies for Follow-up Reporting
Trades and Technical Studies Pathway Program	Diesel Technology Program
Electrical Technology Program	Welding Program
Automotive Technology Program	Industrial Systems Technology Program
Wind Energy Program	
Industrial Maintenance Program	

Detailed actions plans have been developed to ensure the continual improvement of both the pathway and its constituent programs. These are summarized below:

- **Trades and Technical Studies -** Develop and implement a post-completion tracking system.
- **Automotive Technology -** Modernize the Automotive Program by updating tools, equipment, vehicles, and trainers.
- **Diesel Technology -** Stabilize and increase enrollment in the diesel technology program by 15%.
- **Electrical Technology -** Hire a full-time instructor and adjunct instructor to facilitate the growing Industrial Systems Technology and the Electrical Technology credit diplomas.
- **Industrial Maintenance -** Hire a full-time instructor to facilitate the Industrial Maintenance CD.
- **Industrial Systems Technology – IST -** Hire a full-time instructor to facilitate the IST CD.
- **Welding Technology -** Increase enrollment by 3-5% by 2024 to a capacity of three cohorts of 15 students (45 total), at which point the program closes and applications are taken for acceptance.
- **Wind Energy -** Create a Wind Energy Technology Credit Diploma to replace the current AAS degree.

Trades & Technical Studies Pathway Review

2020-2021

This analysis of the Trades & Technical Studies Pathway Review integrates the highlights articulated in the review's self-study, which was developed from September 2021 through February 2022. It includes content related to the Trades & Technical Studies Pathway's eight programs: Trades & Technical Studies (AAS); Automotive Technology (CD); Diesel Technology (CD); Electrical Technology (CD); Industrial Maintenance (CD); Industrial Systems Technology-IST (CD); Welding Technology (CD); and Wind Energy (AAS). The Pathway Review Self-Study was peer-reviewed by the Academic Standards Committee (ASC) and the Academic Pathway/Program Review (APR) Subcommittee during spring 2022. The ASC voted in November 2022 to accept the APR subcommittee's recommendations. The APR recommendations are to approve all eight program reviews with contingencies for follow-up reporting of Diesel Technology (CD), Industrial Systems Technology (CD), and the Welding Technology (CD) programs.

This summary consists of self-study narratives and data tables drawn directly from the self-study. The sections are ordered as they appear in the self-study template; the Pathway self-study template may be found in Appendix A while the discrete Program self-study template may be found in Appendix B. This summary begins with a presentation of the Pathway self-study template to assist the reader in obtaining an impression of how the whole review is structured around the Pathway pillars while highlighting the order of topics and standards. It includes program summaries and achievements, data descriptions using the Voluntary Framework of Accountability (VFA) format, and descriptions of student learning assessment planning. The summary concludes with the action plan goals installed for future improvement of the Trades & Technical Studies Pathway and a SWOT summary resulting from the APR process.

I. – General Pathway Overview

The overarching context behind the Trades & Technical Studies pathway at LCCC is to provide a path to a quality post-secondary education to students who may have a variety of academic aspirations and to sufficiently prepare them for entry level positions in "hands-on" oriented careers in the areas of trades or other technical careers. The Trades & Technical Studies

Pathway offers a flexible and "flipped" option for students in that enrollment can be in either a credit diploma (one or two semesters) or the full two-year AAS degree.

The Trades & Technical Studies Pathway first provides students a clear path to graduation and employment in high wage/high demand jobs through the completion of a variety of available credit diplomas (Automotive, Diesel, Industrial Maintenance, Electrical, Welding, and Wind Energy) that can be achieved through the completion of coursework that is entirely program and industry relevant or technical in nature. By offering an educational path in a technical program of study without the requirements of traditional general education, the college is able to serve a population of students who may have otherwise never engaged in critical technical career training. Additionally, the Pathway provides an educational solution for those students who are interested in the technical skills of a given program while at the same time have a desire to achieve an associate's degree. The Trades & Technical Studies Pathway degree is an AAS that allows students to combine their technical course credits with other technical course electives as well as college general education requirements to obtain the AAS degree. The AAS degree is then transferable to the LCCC Bachelors of Applied Science (BAS) degree for those wanting to pursue management roles within the trades.

The primary purpose of the Trades & Technical Studies Pathway is to prepare students to enter the workforce in entry-level technical positions in one of the eight associated programs. This is accomplished by the offering of credit-diplomas that provide students the foundational skills to be employable by industry. In addition, students are able to continue their education if desired by applying credits earned from program specific technical courses toward an AAS should the student be willing to complete the required general education and additional courses outside the original program of study. Whether a student earns a credit-diploma or an AAS, the primary goal for graduates is preparation for the workplace. While students are more likely to enter the workforce after completing their education at LCCC in the Trades & Technical Pathway, the AAS is a transferrable degree that allows them to continue their education either through the LCCC BAS program or at another institution. This stackable credential concept is imperative to the programs' success as it allows for a variety of students to be successful at LCCC while earning a post-secondary credential. The primary focus on all Trades & Technical Pathway programming is to produce skilled graduates with opportunities in high demand/high wage jobs with a secondary focus on providing continuing education for all members of the

industry including. Additionally, the pathway provides the opportunity to earn an AAS and/or the BAS degree, support teachers and military professionals through specialized training such as safety and the Weldworks program, and to partner in space and resources with the LCCC Workforce Division.

The Trades & Technical Studies Pathway is relatively new launching during the fall 2020 semester. The implementation of the Trades & Technical Studies Pathway Degree coincided with the fall 2020 school year allowing students the opportunity to complete a credit diploma in their respective program and then enter into the degree path or begin in the AAS. Initially, the trades programs included in this Pathway were Welding, Auto, Autobody, Diesel, HVAC, Wind Energy, IST, Industrial Maintenance, and Computer Information Systems (CIS). The CIS programs have since become their own Pathway (Information Technology Pathway), while Autobody and Wind Energy have been reformatted for efficiency, and new offerings including Electrical Technology have been added to the Pathway. Across the Pathway, all but one program shares a common safety course and that course has grown into providing industry-recognized credentials including OSHA-10, 3M Climb Safety, and CPR/First Aid. This safety course replaced individual program classes and guarantees high enrollment and more efficient use of skilled faculty. In the spirit of continuous improvement, program and course modifications have occurred each year to meet the needs of students and industry.

The Trades & Technical Studies Pathway operates within the School of Business, Agriculture and Technical Studies (BATS). The organizational chart for BATS may be viewed in Appendix C. There are four essential roles within BATS:

1. **Dean**: The Dean of BATS oversees the entirety of the operation of the Trades & Technical Studies Pathway which includes but is not limited to: budget allocation, faculty performance, student satisfaction, community and industry relations, academic scheduling and efficiency, and collaboration with the rest of the college.

2. **BATS Administrative Assistant**: Their role includes scheduling and schedule adjustments, completing faculty workload documentation, administrative paperwork for hires within BATS, supporting travel documentation, and other duties as assigned by the Dean of BATS.

3. **Pathway Coordinator (PC)**: The PC is responsible for working with students and faculty within the pathway as well as industry stakeholders to seek support for the program. The PC works with Admissions to consult with prospective students as they choose a program based on their interests. The PC also works with students struggling

either academically or personally within the Pathway to help them connect with the resources they need to be successful. Additionally, the PC works with faculty and industry to arrange for industry input through the organization and running of program advisory committees, employer visits and presentations, and, as directed by the Dean of BATS, to assist the LCCC Foundation in attracting donations to the program.

4. **Faculty**: The Faculty are responsible as the subject matter experts in the areas in which they are assigned and instruct and to deliver the curriculum within their respective programs.

Full-time faculty in the Trades & Technical Studies pathway instruct courses in which they have the appropriate work and educational experience combined with industry credentials/certifications (when necessary). Faculty are directed to seek out additional training and professional development in their respective industry and to maintain records of current credentialing and training which is kept on file in the Dean's office.

LCCC also contracts with adjunct faculty to teach specific courses within the pathway as student enrollment levels and faculty loads dictate. Traditionally, adjunct faculty are practitioners of the trade or subject matter in which they are assigned to teach, or otherwise have the educational and technical background to teach a given course. Due to the fact that adjunct faculty are current workers in the industry, they are able to bring immediate and relevant insight to the training and instruction within their assigned courses.

Students in the Trades & Technical Studies Pathway primarily use the resources of their given program of instruction and the associated classrooms and lab facilities in the Flex Tech Building, Career and Technical Education Building, and the Auto Tech Building. The size and scope of the lab facilities of the training buildings are such that the entirety of the technical resources for a given program are housed within the labs with all tooling, consumables and safety equipment provide or otherwise accounted for. The self-containment of the technical programs allows students a seamless approach to their education with an academic schedule that typically mimics workforce requirements of attendance at an on-site facility. Specific technical equipment provided is discussed in the review of the individual programs in the Discrete Program Review. Internet and online resources that are needed for technical information (e.g., service procedures and other service manuals) are provided to students either through physical labs or mobile devices in the lab environment. Where possible, students are given access to

certain critical technical information accessible through their own personal devices with an authorized login provided through the program.

Once students have completed the technical portion of their training as required by the credit diploma programs, they may begin to utilize other campus resources and facilities during the completion of their general education course requirements. The required STRT 1000 course specifically exposes the students to the resources in the Ludden Library, Advising, and other resources on campus or online as needed.

LCCC's Mission, Vision, Values

While the Trades & Technical Studies Pathway does not actively advertise a specific mission statement that differs from the LCCC mission statement, a proposed mission statement for the pathway would tie into the LCCC mission statement. The proposed mission statement specific to the pathway is:

> *We facilitate inspired learning through robust hands-on training and lives are transformed through career preparation and readiness.*

The pathway personnel and its stakeholders feel strongly that any pathway specific mission statement should not deviate from the standard mission statement of the institution and the values it sets forth. The LCCC Mission, Vision & Values Statement may be reviewed on the LCCC website.

The Trades & Technical Studies Pathway strives for two specific core and aspirational values:

1. *Emphasize Safety in the Work-place*
    a. The required safety class IST 1520, Intro to Industrial Safety, must be completed by all students in a credit diploma program within the pathway with the exception of the automotive credit diplomas which embed safety training in their curriculum. All hands-on training is performed under the supervision of qualified faculty observing the proper safety practices and personal protective equipment (PPE) corresponding to the specific nature of each task.

2. *Instruction Replicates Work Tasks in Real Workplace Environments*
    a. In all programs within the pathway, students are required to complete specific competency-based tasks that replicate "real-world" scenarios they will encounter once in the workforce. For examples, welding students are required to complete

> welds that will pass certification test, automotive and diesel students complete some of their tasks on vehicles that will be on the public roads, and IST, Wind Energy and Electrical students mimic real world work at their work stations and labs using approved tooling and current industry practices.

While the above listed values are adhered to and followed by the pathway, a formal pathway specific commitment has not been made to them. Further complication or deviation from the LCCC mission statements and core values has not been an objective for the Trades & Technical Studies Pathway. The primary *internal* stakeholders for the Trades & Technical Studies Pathway include faculty, LCCC administration and students. The primary *external* stakeholders for the pathway consist of industry professionals, employers, other education professionals, and community members looking to LCCC as a destination for trades-oriented students. The Trades & Technical Studies Pathway shares its mission, core, and aspirational values with the internal stakeholders through regular pathway and college meetings conducted by the Dean of BATS as well as individual program meetings both formal and informal. External stakeholders are included though the facilitation of Program Advisory Committee (PAC) meetings and industry visits to the classrooms and labs.

The following is an example of how the Trades & Technical Studies Pathway mission and values are used to guide the pathway's future planning:

> At the most recent Trades and Technical studies Pathway Program Advisory committee meeting (spring 2021) the concern of introducing trades as a viable education path to high school students was raised. This discourse continued after the PAC meeting with Laramie County School District #1 and a plan to bus students to LCCC for dual enrollment classes within the pathway was devised and implemented for the fall 2021 semester. A pilot program of eight students from Cheyenne South High and Triumph High School is underway allowing students to attend two courses per semester in a hands-on trades training environment. High school students began in the Trades Skills Fundamentals class as well as the Mechanical Drives courses which has exposed them to a different learning environment than they had at their high school as well as opening up the consideration of LCCC as a viable post-secondary option.

Student Demographics

Each pathway at LCCC annually tracks student-related data and delivers annual data for the pathway review process. This data may be accessed and viewed on LCCC's Year One Early Momentum Metric Dashboard(s) and may be used to capture demographic information for

students entering LCCC by pathway. The dashboard is available on the IR virtual office or via this link. Please note that some LCCC dashboards (e.g., CCSSE) may require a password, please utilize your LCCC single sign-on access credentials in these cases. The demographics available on the dashboard include: gender, race/ethnicity, age, first-time status, English placement, math placement, load, and Pell grant status. Please note, only percentages are currently available in the dashboards due to data security requirements. If you are interested in or need specific headcounts, please contact **iroffice@lccc.wy.edu**.

The Trades & Technical Studies Pathway student demographic profile can be represented by the following: 78% male, and 90% high school graduates, and ages 18-20. The most recent Perkins Wyoming Department of Education CTE Report for 2020-2021 showed a 22.5% placement of non-traditional students (e.g., women in trades and men in healthcare). That was 7.5% higher than the goal for the college. The Trades & Technical Studies programs set a goal (2017) to grow women representation within the trades by implementing a scholarship known as the Women in Welding Scholarship that has now become the Women in Trades Scholarship. That scholarship has grown in the last five years to pay out $10,000 a year to women interested in studying a trade. A new scholarship in July 2022 will add $15,000 a year to address both the growth of women in trades and their interest in the Trades & Technical Studies Pathway programs overall.

Job & Transfer Opportunities & Managing Pathway Responsiveness

While the Trades & Technical Studies degree is a transferable degree to other institutions, the pathway recognizes that the majority of students will opt to enter the workforce fulltime after completing their credit diploma at LCCC. Career opportunities are plentiful in the trades market and the demand for workers has significantly increased post-pandemic due to the overall labor shortage in the United States. Typically, each program hosts employers and industry partners to meet with classes and individual students to offer opportunities and industry insight. These employer contacts are often facilitated by the Pathway Coordinator, program faculty, the LCCC Foundation, the LCCC Career Services office, or a combination of all of the above. Employers are also invited to participate in Program Advisory Committees (PACs) and are encouraged to formally list job and employment opportunities on the LCCC Career Services webpage.

While there are plentiful work opportunities in industry for all of the programs offered in the pathway, caution is taken with employers so as to not overpromise the availability of job openings due to the limited number of graduates from each program. Although the number of graduates available does not satisfy the number of job openings in the current market, this is not a problem unique to LCCC, but rather a representation of the overall skilled labor shortage. Though it may be frustrating to industry, it does position our graduates well for accelerated growth once they are on the job. The Pathway Coordinator and faculty also work with students directly if they have a specific job location or company that they would like to pursue. Students are also referred to the Career Services Office for assistance with resumes, interview skills, and other employability skills. In addition, students who take the Success in Work: Soft Skills (HMDV 1510) will work on all of the mentioned skills through their normal coursework.

Additionally, it should be noted that because students in the Trades & Technical Studies Pathway typically start in a credit diploma program, the majority of those students opt to go to work rather than return for a second year at LCCC. Due to the pathway's degrees being new as of 2020, coinciding with the COVID-19 global pandemic, minimal trend data are available that speak to the nature of credit diploma graduates returning for the AAS degree, within the pathway, at LCCC. It is the purpose of the pathway for a student to complete a credit diploma and join the workforce immediately. Therefore, a relatively low number of Pathway AAS degrees awarded is not a negative indictment of the pathway.

Feedback from industry has typically focused on one common theme: *prepare a strong entry-level worker*. In other words, so long as a LCCC graduate has a solid technical foundation which is attained through the coursework, has learned the process of learning to keep up with emerging technology once in the industry, and has developed the soft skills to be a professional, industry may then take over for the long-term training of the workers. This feedback is gathered primarily through the various PACs held for each program as well as the general Trades & Technical Studies PAC held annually. Simple job searches through employment sites reveal the demand for workers associated with each program while the individual programs cater the curriculum to industry standards (e.g., ASE programmatic accreditation).

The pathway does not currently offer any specific transfer agreements or articulation agreements with other institutions. The majority of students within the Trades & Technical

Studies Pathway will enter into one of the credit diploma programs. If the student decides to continue their education at LCCC toward the AAS, those credits can then be applied toward the completion of the AAS. The structure of the Trades & Technical Studies Pathway is such that students select a technical program first. This is done during the admissions process in consultation with advisors, the Pathway Coordinator, and Admissions representatives. Job placement/and opportunities in all of the industries in which the pathway has programs are plentiful. The labor shortage in the trades is well documented and there has historically been more job openings than graduates. Any data that the pathway has about student placement, location, wages, etc. is unfortunately only anecdotal as tracked by individual faculty members who have fostered relationships with students, served as references, and etcetera.

The formal job placement tracking mechanism for graduates employed within industry is an area of opportunity for LCCC as a whole. The pathway does not have robust data that would accurately represent the success of the programs job placement of graduates. There is a mailed survey sent to graduates, but the response rate is high enough to generalize to all graduates from the pathway. The pathway recommends that the college adopt a more pro-active and trackable job placement verification process. A modern form of capture for employment data for LCCC graduates is needed and could serve as a recruiting tool and program validation feature.

Due to the age of the pathway, there are limited data on how to specifically respond to students pursuing the Trades and Technical Studies Pathway degree. The majority of student engagement within the pathway is completed through the hands-on engagement in the specific technical courses in the given programs. A pro-active use of the CCSSE dashboard and SENSE data have not been a regular part of the pathway process since the inception of the pathway and may be an area of opportunity to better measure student engagement outside the normal indicators of student success in completing courses/programs and earning a credential.

II. – Help Students Choose and Enter a Pathway

Although the formal Pathways launch at LCCC occurred during the COVID-19 pandemic, and major formal events have had to be put on hold, it has not limited the Pathway from helping students explore opportunities in their respective industries through industry campus visits, skills competitions, and job placement. Faculty members, along with the Pathway Coordinator, work with industry partners to visit the campus and present employment

opportunities to classes. Some examples include, but are not limited to, Ford Motor Company/Ken Garff Ford, Peabody, Four-Rivers Equipment, Rush Peterbilt, and a host of other employers. These employer visits are critical in building a culture of job opportunity within the student body as the employers reinforce many of the concepts taught in our programs. In addition, industry stakeholders are invited to participate in the Pathway and individual PAC meetings where student participants are also invited to ensure we are telegraphing the expectations of industry to the student. Anecdotally, these students are usually provided multiple business cards, networking opportunities, and soft job offers.

Through the use of the SkillsUSA club, students in the automotive, diesel, and welding programs are also able to compete on a state, national, and even international level to showcase skills and interact with recruiters. Additionally, the Welding Program works with local industry to put on an annual welding competition for high school students that attracts local industry, political influencers, including the Governor of Wyoming, and provides additional opportunity for industry to connect with current and future LCCC welding students for potential employment opportunities. The pathway events surrounding Steel Day welding competition, SkillsUSA, and employer visits have allowed students within the pathway to build community and enrich their college experience beyond the classroom and labs. For example, the SkillsUSA club will also put on extracurricular activities and fundraisers such as BBQ's, on-campus car shows, and out of class social activities. In addition, the programs within the pathway often have students working together in groups on technical projects to enhance their skills and prepare them for the team-oriented tasks they will face once in the workforce. Furthermore, some programs have taken the initiative to hold on-campus training for high school CTE instructors. For example, an annual "Weldworks" seminar is offered as professional development to high school CTE and Ag teachers to improve their knowledge, technical ability, and build a relationship between the high school and LCCC as a viable option for these teachers to recommend to their students as they pursue their post-secondary options.

Since the addition of the Pathway Coordinator position in 2020, there have been significant restrictions due to COVID-19 in terms of marketing and recruiting, specifically at the high schools. However, some high school visits coordinated with the LCCC Admissions department to speak with CTE oriented classes are attended by the Pathway Coordinator as well

as pertinent LCCC faculty. In addition, the Pathway Coordinator attended the National FFA conference as a representative of LCCC.

During the annual Pathways Day, scheduled for February 2022, the Pathway Coordinator will collaborate with admissions, local industry, and the individual program areas within the pathway to host a large number of high school students for an in-depth and interactive tour of each of the areas within the pathway. Furthermore, the Pathway Coordinator will invite local industry. Also, work with LCSD#1 through the initial Trades and Technical Studies Pathway PAC meeting inspired a successful pilot program where dual enrolled students from Cheyenne South and Triumph High School were able to take a Trades/Tech course on campus. This has already produced some applicants from these programs for the Fall 2022 class. Marketing and recruiting for LCCC in general will continually be an area of opportunity for the college. It is the opinion of the current Pathway Coordinator that the programs and facilities themselves are the most underutilized resource the pathway has. Getting students to tour the campus, interact with faculty, and evaluate the value of the educational opportunities at LCCC may increase the likelihood that a student would enroll. The Pathway Coordinator works with admissions and advising to assist on and conduct as many student tours as possible when schedule permits as well as to coordinate the Pathway's Day. In addition, the Pathway Coordinator is typically the first resource inquiring students, parents, and community members interact with when subject matter expertise about the technical nature of the programs and industry is needed. The Pathway Coordinator has been called upon multiple times for video promotion of the pathway including pathway features for the LCCC website, local news stories, and input for marketing materials distributed through the normal channels from both the Admissions and Marketing departments. While the Pathway Coordinator and the faculty happily assist with student tours and field inquiries over the phone and email from prospects, it could be an area of opportunity to have a dedicated admissions specialist to have a targeted recruiting approach for program. The trades education space can be very competitive with private schools with high marketing budgets aggressively recruiting for their trade programs.

Pathway Exploration

The Trades & Technical Studies Pathway is unique in that it is comprised of a variety of programs that offer credit diplomas in the first and second semesters while the courses

comprising the various credit diplomas are specific to the given program (e.g., Welding, Automotive, Diesel, etcetera). There are no required common courses among all programs in the pathway, however certain programs do share courses that are relevant across different industries. For example, *IST 1520 – Intro to Industrial Safety* is required in all but the automotive program credit diplomas. Also, students entering electrical, wind energy, or industrial maintenance systems will have a common first semester where they earn the Industrial Systems Technology Credit Diploma consisting of technical courses that provide a common foundation in trades-oriented content that will prepare students for the advanced content for the subsequent trades credit diploma: Electrical Technology, Industrial Maintenance.

It is critical during enrollment that students thoroughly review the programs with advisors, faculty, the Pathway Coordinator to ensure that the technical credit diploma program they are taking is the right fit for them individually. During the time in which the students complete the IST credit diploma, they will be exposed to different trades concepts, will consult with faculty, and can confirm or change their second semester choice of credit diploma. Automotive, Diesel and Welding students are concentrated in their specific area of study for two semesters. In the case of automotive and welding students, a single credit diploma is offered in the completion of the first semester's coursework. If a student feels that he/she would like to pursue a different career or program path, the short nature of these programs allows for that student to enroll in a different program at the next available start date without a major loss of time or financial investment.

The Trades & Technical Studies pathway is designed so that students complete credit diplomas in a specific program before pursuing the career exploration process that many students in other pathways may do through STRT 1000 and other common foundational courses. However, the career readiness and "hands-on" training simulates the work place for the given industry and allows students a "real-world" perspective of careers in their program. Students typically will not take STRT 1000 unless they enroll in a degree program to pursue the Trades & Technical Studies Pathway Degree which doesn't occur until the student has completed one year of technical courses and 1-2 credit diplomas depending on the program. Therefore, the career exploration phase of their education has been completed and STRT 1000 does not serve to allow students to explore individual programs, rather the course serves as an impetus for students to explore their chosen career and prepare a network for future employment. For example, the

career pathway exploration assignment has students research a problem in their given field of study, completing an interview with a current industry professional that helps give the student perspective on expectations as a newcomer to the given trade and forms a connection for potential job offers. Some students who have completed multiple credit diplomas across different disciplines are also able to use the STRT 1000 course to validate their decision on which industry they would like to launch their new career.

Student Matriculation

There are no common courses in the credit diplomas that contribute to the AAS Pathway Degree. However, since the recent launch of the Trades & Technical Pathway, all students are expected to take the STRT 1000 course in their first semester of their second academic year. There is a relatively small sample size as this course has only ran twice in the review period, however a review of the data suggests that once a student has enrolled in the AAS, the likelihood of successful completion of the degree is high so long as they have completed the requisite credit diploma prior to taking STRT1000. A more generalized evaluation of the pathway and all of the program and course offerings can be done by reviewing the course success and grades data which shows that all courses offered within pathway during the review period have a 90% successful course completion rate. What this data suggests is that once students are in the pathway and working in their programs, they have a high probability of successfully completing the courses and graduating.

It should be noted as a point of emphasis that the Trades & Technical Pathway Studies (AAS) degree is not the primary option for students in the pathway and that in the two years since the inception of the Trades & Technical Pathway Studies AAS, no new incoming student has been registered for the pathway degree and started in the STRT 1000 course as a common first semester course. The choice points happen exclusively when a student enrolls in their first program and at the completion of each credit diploma after one or two semesters. Upon the completion of the credit diploma, a student must then choose if it is time to seek employment within industry, or to further their education with additional credit diplomas or if appropriate by completing the general education requirements for the pathway degree. Again, a relatively low number of students in the pathway degree does not indicate a poor performing program, but rather exemplifies the diversity of offerings that LCCC has available to students.

The Year 1 Trend Early Momentum dashboard provides college-level math and English success data and development placement data. Pathway alignment with developmental education is detailed in each of the discrete program review findings found in sections IV – VI.

Discoveries and Action Items to Help Students Choose and Enter a Pathway

The unique nature of the Trades & Technical Studies Pathway requires that students choose a specific program after selecting the pathway. This is a simultaneous decision and should be made by the student self-identifying as a "hands-on" and trades-oriented learner. This process is usually seamless as typical trades students migrate to trades oriented careers based on personal interest, high school courses, and exposure to the campus through normal tours. In addition, students may use the tools provided by the college through the Find a Program LCCC website. The process of choosing a program prior to or during the application process is critical for student success. Students must select automotive, diesel, welding, or industrial systems technology prior to beginning their first semester. The industrial systems technology (IST) credit diploma does allow for exploratory exercises and exposure to faculty to help guide the student in decision making in what to do after completing the IST credit diploma in terms of pursuing electrical, wind, HVAC, or Industrial Maintenance systems programs.

By way of a SWOT analysis for the pathway, there is a need to identify key areas under each category so that the pathway may continue progress and success in areas of strength and make the necessary adjustments for the future to enhance the student learning experience and to ensure that LCCC remains a viable trades training option for future students. Each of the SWOT analysis areas of concentration are presented in the following sections:

- **Strengths**: The credit diploma programs are a quality and affordable option for students seeking legitimate post-secondary training prior to entering the workforce in their chosen trades. The ability to complete in as little as 1-2 semesters is a strength that attracts and retains students that would otherwise get lost in traditional two-year while also providing a path toward a degree for students seeking the AAS option.
- **Weaknesses**: All of the trade programs, including the AAS, have direct paths to gainful employment with high levels of opportunity and earning potential. Due to the labor crisis, training for trades should be in high demand, despite this, enrollment has not reached full capacity on a regular basis. High school teachers and counselors have little to no

reference regarding the trades and as the primary communicators with the high school students, this impacts students that are considering the trades as a viable option to high wage employment. Furthermore, the concurrent enrollment courses offered through the high schools are specific to programs and are limited in their ability to help students explore multiple trade options.

- **Opportunity**: Due to the siloed nature of the individual programs and credit diplomas, an opportunity exists internally to adapt more curriculum and courses to be shared across programs to expose students to other industries, faculty, and students to enhance the career exploration aspect of their individual educational journey. This could be aided by the creation and addition of future courses that could appeal to a wide variety of students within the pathway while at the same time fulfilling the need for continuous improvement in course offerings and content that coincides with emerging trends in technology and industry. There is an opportunity to create a more diverse faculty workforce that can serve multiple programs and disciplines.
- **Threats**: The major threat to the pathway is low enrollment and fluctuations in enrollment which affect funding, student outcomes, industry relations and employment opportunities for all graduates. The low enrollment is affected by student lack of awareness of the programs in general, students opting for other schools or programs, and students opting directly for the workforce by bypassing education. Even though students may need to be well-prepared to be successful on the job due to a major skills gap, jobs may be enticing, even with high turnover, and students may become disenchanted with trades entirely.

The following recommendations from the Pathway Coordinator are provided to enhance awareness of the trade programs with the objective of increasing enrollment for all trades programs:

1. An enhanced presence in regional high schools that target the specific demographic of students traditionally interested in trades programs. This would be through relationship building with CTE instructors and programs at the high schools with LCCC faculty through classroom presentations and high school visits/tours of the LCCC campus.

2. The pathway has done a decent job at staying current in its various programs, but a continual investment in facilities and equipment is critical for students making a decision on which school to attend based on aesthetics, appearance, and availability of technology. The automotive program specifically is in need of modernization and an update of equipment and facility.
3. Enhanced curriculum that is able to be implemented in a timely manner that blends programs and course offerings for operational efficiency as well as student satisfaction, student career readiness, and program growth should.
4. Data; the College is working with Institutional Research (IR) to develop Vital Signs for each program that should allow for more detailed annual program review data that accurately reflects the health of the pathway and programs. In addition, the 2030 Strategic Plan points to a Transition experience that will assist with the graduation application and documentation as well as the graduation survey information, further strengthening the knowledge of where students in each program and Pathway end up post-graduation.

III. Help Students Stay on their Path

A Pathway leadership team consisting of Advisors, the Dean, and the Pathway Coordinator meet weekly to evaluate alerts issued by faculty when concerns arise about students being able to succeed in programs and/or individual courses. This alert system, managed through Navigate, allows for documentation, case tracking, and student intervention as needed to help assist student with their issues whether they are academic or fall outside of the classroom. Navigate is heavily reliant on data entry and this can pose a challenge in consistency based on individuals responsible for that data input process. As with all data, the reports are only as good as the input. The alert system is also reliant on faculty reporting on individual students and does not take into account cohort success or areas of a program that may cause students to falter.

Pathway and incoming student advising for students remains a challenge. The programs have been designed as simply as possible, but continued challenges persist with cohort enrollment in all classes each semester, incorrect or incomplete course enrollment, and miscommunication about how a student may reach their goals depending on the timeline they want to start a program or alternative options.

Once an alert is created in Navigate, the case is assigned to the corresponding advisor for the initial intervention evaluation. Once the advisor is able to contact the student, the student is then routed for proper action whether that is seeking an outside of the classroom resource (e.g., CARES report), or assigning the case to a more specific staff member such as the Pathway Coordinator or an athletic coach (when applicable) to connect directly with the student to mitigate student progress concerns. At times, this may be as simple as assisting students through the drop process, connecting them more directly with campus resources, or reviewing academic concerns with the students and their perceived ability to succeed.

For the Trades & Technical Studies Pathway, there is little decision making for the student when it comes to course selection once they have selected a given program credit-diploma. Most programs are cohort based which pre-selects the majority of the course offerings and sections, which are usually one-section offerings. There are multiple sections offered when it is necessary to satisfy the needs of the students. Courses are scheduled in conjunction with the Dean's office (BATS) based on enrolled students and minimum course population thresholds, and are in a standardized fall/spring semester format in each program. The full-time credit diplomas are best suited for full-time students at the current time, and summer courses are not currently offered.

Student scheduling needs are met by utilizing Navigate as a registration tool and through meetings with the advisors. The scheduling process is fairly simple and routine due to the cohort-based approach of course offerings in a given credit diploma. For example, a student who is enrolled in one of the credit diplomas in automotive, diesel, or welding simply needs to choose a morning or afternoon schedule based on availability and block nature scheduling of all required courses is set. Due to the "hands-on" nature of the programs and the courses in preparation for careers in the industry, all courses are offered in a face-to-face modality. Based on instructor preference, they may opt for certain lecture or online modalities as needed, but all hands-on lab activities must be completed on campus. Some flexibility may be available in certain courses where possible, but this is dictated by the load and preference of the individual instructors.

Monitor Student Progress

The Trades & Technical Studies Pathway does not have choice points during programs, but rather offers choice points for students to determine whether to pursue additional education

after completing a given credit diploma, or to join the workforce. Students can complete a number of credit-diplomas, typically in the first two semesters on campus, and then decide if they want to formally enroll into the AAS after the completion of two semesters of technical courses. Monitoring the student achievements consists of evaluating how many specific credit-diploma programs have been completed in a given time period as well as within the AAS pathway degree. For greater detail on choice points within the pathway, please see the Trades & Technical Studies Choice Points and Milestones report dated September 22, 2021 and produced by the LCCC IR office.

Student milestones are simple and direct to track within the pathway as each student completion of a credit diploma is counted as a success. By having short term, as little as one semester, goals for students, it allows them the freedom to leave at any semester end, assuming they passed all the required courses, enter the workforce. This flexibility benefits not only the student, but also the institution and pathway as faculty and staff may assist the student in entering the trade at a time that is best for the student. Data indicates the number of credit diploma or degree completions with the understanding that often times the same student is completing multiple diplomas/degrees (degree-staking).

Persistence Supports

The primary stakeholders, or community of interest, for the Trades & Technical Studies Pathway students consists of the regional industry and/or employers as well as the local high schools that offer insight to students and their post-secondary educational choices. Each program, as well as the pathway in general, hold a minimum of one program advisory committee (PAC) meeting a year (some will hold two based on programmatic accreditation standards). These committees consist of employers, educators, and key campus faculty, administration, and staff. Additionally, the individual programs regularly invite employers and industry representatives to visit classes to give presentations on their companies and potential career opportunities for graduates. The individual programs within the pathway will present in detail on the specific tactics of support for students who may be struggling from a technical standpoint within the programs, as well as the different teaching methodologies used to prepare students for the workforce (see sections IV. – VI.).

Community building within the individual programs within the pathway happens organically as students spend a significant amount of time together in the same environment and usually across the entirety of their courses. In addition, SkillsUSA offers an opportunity for welding, diesel, and automotive students to meet outside the classroom as well as travel and compete together in an environment that is positive and well oriented for employers and industry to recruit students for jobs after graduation.

Within the individual programs (e.g., Automotive, Diesel, Welding, Wind Energy, IST, Electrical, and etcetera) the support systems are run by the faculty and typically consist of encouraging students to complete projects and lab activities that can only be done within the program. As far as the Trades & Technical Studies AAS and the STRT 1000 course supports there is still little data in this area other than course completion vs degree completion comparisons. The first run of STRT occurred during COVID-19 and was completely online. The second section of STRT is ran in the fall 2021. The competencies and activities within STRT 1000 are common across LCCC programs, but with a trades perspective when students are completing assignments such as the career pathway exploration projects. An example of a successful strategy is offered here:

"While many of the academic supports discussed above occur within confines of the program, the corresponding instructors and their labs, many students in the Pathway take HMDV 1510 – Success in the Workplace: Soft Skills. Students pursuing the IST Credit diploma which is pre-requisite for Industrial Maintenance, Electrician, and eventually Wind Energy and many pursuing the AAS will take the Soft Skills Course. This course has been an excellent way to provide academic support for trades students as it helps them prepare for the professional and allows students to take an individualized approach and cater their experience according to their prospective industry. Because the end goal for the students in the T&T pathway is ultimately finding work in a trades industry, this course allows them to focus on interview skills, resume writing, technical writing, and other pertinent work skills to complement their technical training. It has also served as a great way for students to build community outside their specific area of study as it provides interaction with students from other programs. Instructors who have taught this course have been able to use it to help identify students that perhaps are in need of Navigate Alerts or additional academic support, relay or reiterate campus announcements such as "remember to register for next semester," "complete title IX training," etc. It is worthwhile

mentioning that an investigation into taking some of the strengths of the Soft Skills Course and the STRT 1000 and potentially blending them for the Trades Pathway may be worthwhile so that it may reach more of the Trades student population as a means to adequately prepare for the workplace as well as continually provide academic support" (Trades & Technical Studies Pathway faculty member, 2021).

The Pathway Leadership team uses Navigate to allow faculty and staff to create alerts to assist student with non-academic concerns whether they are financial, personal, or in need of some outside of class resource to allow the students the best opportunity to be successful academically. The Pathway Leadership Team consists of the dean, pathway coordinator, and program advisors. Once an alert is raised that is not academic, the PLT will discuss which resources are needed and then the case is assigned to a specific individual to see to it that the student is contacted and offered the resources necessary to help overcome outside barriers to education. An example of non-academic support is offered here:

"One example that can be provided is a student who was a new incoming freshman from out of state and found himself dealing with typical life issues that freshmen have, financial struggles, transportation problems, etc. An alert was raised for this student and he kept in contact with faculty for a period of a few weeks while he was struggling. He was able to get his issues resolved and continue successful progression and completion of all of his courses. Had he not had any intervention, it is likely that he would have fallen behind and been forced to withdraw from school and the program. This student is still a current student on campus in good academic standing" (Trades & Technical Studies Pathway faculty member, 2021).

The Pathway approach is still relatively new and its launch occurred during the COVID-19. However, the overall metrics for program completion of the individual credit diplomas prove that that there are positive practices in place that not only assist the students to achieve the goal of credential completions, but also the ultimate goal of employment within industry.

By way of a SWOT analysis for the pathway, there is a recognized need to identify key areas under each category so that the pathway can continue progress and success in areas of strength and make the necessary adjustments for the future to enhance the student experience and keep LCCC viable as a trades training option in the future. The SWOT analysis can be reviewed within this document in section II.D.1.

Trades & Technical Studies Discrete Program Review

2020-2021

IV. – Clarify Paths to Student End Goals

Trades and Technical Studies (AAS) - The Trades & Technical Studies degree is designed for students who are undecided of which trade industry they would like to enter but want to gain valuable industry knowledge and pursue a basic academic foundation. Students may choose from a number of industry courses to either help them decide on a specialty area (automotive, auto body, diesel, electrical, HVAC, plumbing, wind energy, welding, etc.) or provide them a broad background of skills to enter the workforce.

The Trades & Technical Studies degree is also intended for individuals who desire to build upon prior learning: a Department of Labor-recognized apprenticeship training program, United States military training and degrees, or the LCCC Trades & Technical Studies Credit Diplomas; all of which bring demonstrated knowledge, skills, and competencies in their field as the technical foundation of the degree. Industry specific qualification training (e.g., Automotive Service Excellence (ASE), COMP-TIA, American Welding Society (AWS), etc.) will also be considered as a foundation for this degree. Students complete course work in the general education core and a selection of management courses to complete the degree program. Student's apprenticeship and training hours will be evaluated for awarding of credit on an individual basis.

Automotive Technology (CD) - The Automotive Technology program is designed to prepare students for employment in the automotive industry. The program also offers courses for those who want to upgrade their skills or meet some personal objective of learning about automotive technology. The nine-month program is designed for full-time students, and the courses are offered in a sequence of blocks. The block varies from three to four weeks in length depending on the number of credits for each course. Classes are held from 8:30 a.m. to 3:40 p.m. Monday through Thursday.

The Automotive Technology courses are designed to prepare students for the ASE certification exam. The Automotive Technology program has consistently had full enrollment, with a wait list each semester over the review period with the exception of the 20-21 Covid year. The reason for the high enrollment is ASE (Automotive Service Excellence) Education

Foundation (formerly NATEF) accreditation. It guides us for all course curriculum content and design. ASE completes an on-site assessment of our Automotive Program every five years. Our advisory committee meets twice each year and helps us tweak our curriculum, and the purchase of tools and equipment to better suit the needs of our community. One recommendation of the advisory committee was to develop and change our certificate program into two diploma programs. Engine management/performance, and Under-car/HVAC. This enables graduates to reach the workforce sooner, with the same high quality of knowledge that they received in the past. If you wish to learn more about our ASE Education Foundation Certification, you can find more information online at: https://www.aseeducationfoundation.org/. The Automotive Program also supports Skills USA, a student club at LCCC, which enables students to compete in 1 of 20 or more different areas that covers more than just vocational fields. The Skills USA club competes at State Conference each year, where our chapter has consistently taken first place in Automotive Technology at the Wyoming State Leadership and Skills Conference. Our students' Positive attitude, and sportsmanship during the state and national conference reflects well upon high school and other college students. This provides another avenue to keep our enrollment full each semester, and reflects greatly upon our college as a whole.

The Automotive Program is currently working on curriculum and space redesign in an attempt to incorporate some of the recently discontinued Auto Body Program curriculum and objectives. Our stake holders voiced their concerns over the decision to eliminate the Auto Body Program which created the opportunity to expand training opportunities in the Automotive Technology Program to best serve our students and the community. Course modifications and program modifications have been submitted and are awaiting approval through the ASC process (November 2021). The plan for program redesign also includes doubling the number of students in the program; therefore, space considerations are a real concern for the instructors. The Lab/ shop design in the space the program currently occupies has exceptional flow and a centralized toolroom which increases student productivity and could accommodate 30 students for the intended goal. Moving the program from its current location into a smaller location without the current flow could have a negative effect on the overall success of the students and the program.

Diesel Technology (CD) - The Diesel Technology credit diploma is designed to prepare students for employment in the diesel industry. This one-year program is the foundation toward

employment in the diesel industry. Semesters are not sequential and may be taken in any order. Safety must be taken in the first semester.

Electrical Technology (CD) - The Electrical Technology program prepares students to construct, install, maintain, troubleshoot, and repair electrical circuits and systems. Basic knowledge, fundamental skills and industry standards will be emphasized as students learn to work in the field of electrical technology. Completion of the Industrial Systems Technology credit diploma is required for enrollment in Electrical Technology credit diploma courses.

Industrial Maintenance (CD) - 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 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 equipment such as pumps, motors, conveyor systems, production machinery, refinery and pipeline systems. Completion of the Industrial Systems Technology credit diploma is required for enrollment in Industrial Maintenance credit diploma courses.

Industrial Systems Technology – IST (CD) - The Industrial Systems Technology (IST) credit diploma is intended to provide the opportunity for students to explore a professional career in industrial systems technology. The credit diploma program teaches skills in several areas of industrial maintenance including electronics, safety and mechanical maintenance fundamentals. The IST credit diploma program is designed for the student who wishes to prepare for a career as a HVAC technician, industrial electrician, maintenance technician, plumbing technician, or electrical controls technician. Completion of the Industrial Systems Technology credit diploma is required for enrollment in Electrical Technology, HVAC/R, Industrial Maintenance, and Plumbing Technology credit diplomas.

Welding Technology (CD) - The Welding Technology - Advanced Pipe Welding credit diploma builds upon the Welding Technology - Combination Welding credit diploma program of study and prepares students for work in the field of welding technology. In addition to gaining an overall understanding of welding machines, weld processes, and hands-on welding proficiency, students develop skills in the areas of print reading, welding symbols, weld inspection, destructive and non-destructive testing, along with precision machine tool operation. Students

gain knowledge and skills necessary to prepare them for welding qualification to code specification(s). Completion of the Welding Technology - Combination Welding credit diploma is required for enrollment in the Welding Technology - Advanced Pipe Welding credit diploma courses.

Wind Energy (AAS) - 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 allow 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 and perform rescues at height 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.

Automotive Technology - The Automotive program passed its re-accreditation from the ASE (Automotive Service Excellence) Education Foundation in 2018.This accreditation is an extensive process which uses evidence- based evaluations performed by the Advisory Committee every 2 1/2 years, and is followed with an on-site evaluation every five years performed by a review team from the ASE Education Foundation. The evaluations rate the program's effectiveness on 12 program standards. The accrediting body is a national automotive source which monitors shops across the nation and has ties to all automotive manufacturers. As the industry changes so does the accreditation standards; by remaining current with the accreditation standards the program changes with the industry, supplying students with the knowledge and skills they need to thrive in the current market while fulfilling the needs of the industry.

The Automotive Technology Program introduced two Credit Diploma Pathways starting in the 2017-2018 academic year which have been very successful. The number of students earning an Automotive Credential increased from ten total the year prior to implementation to 40 total the year of implementation. The two Credit Diploma approach was developed to give students access to different pathways in the Automotive field. This approach allows a career path

for students who can only devote one semester to their education instead of two to four. The Program also experienced a high course success rate with a 91.28% average over the review period.

The program expanded into space vacated by the Diesel Program in their move to Flex Tech; and has added five additional two post lifts. The last program review revealed the ability to expand the program based on consistent course fill rates and extensive amounts of waitlisted students; part of the five-year plan was to expand equipment and space then hire an additional Automotive Instructor to increase class sizes. The discontinuation of the Auto Body Program created the opportunity for an additional Automotive Instructor with the plan to increase class sizes starting Fall 2022.

Diesel Technology - Achievements in quality instruction, training aids and materials, and equipment added to the program in the last 5 years totaling over three million dollars. A complete house cleaning of the training area and revamping of the curriculum to establish measurable projects and students' assessments were developed and implemented. Addition of two (2) trucks to the program both of which were 2015-year model production, these were purchased at an extremely discounted price. All engines that were currently being utilized have been replaced with 2014-year model or newer engines, most of which were donations to the program by our industry partners and expanded the number of possible projects available for the students. Multiple transmissions were donated to the program to replace outdated transmissions with missing pieces, additionally three automated and three heavy-duty automatic transmissions were added to the program. Hydraulics received two industry standard trainers capable of recreating real-world scenarios over a broad range of equipment. These were classroom ready as they were paired with lecture ready materials as well as lab assessments. Electrical got an influx of inhouse built trainers and curriculum as well as purpose-built troubleshooting-based trainers with assessments. HVAC also had progress with new tooling and trainers that are industry specific and include student interactive programing. Lastly, partnerships within the industry lead to an average of 12 or more classroom presentations per cohort. With the addition of the added equipment, High level lab projects and competencies were also added.

With the addition of the added equipment, High level lab projects and competencies were also added. The breakdown of these are as follows: Diesel has added 25 projects in basic

electrical and 40 new training aids both purchased and constructed. Heating ventilation and air conditioning (HVAC) had 15 projects and 9 new training aids. Hydraulics has been a challenge due to the cost of trainers but yet we have over 40 new projects and 3 new training aids along with finding and repairing several that were in storage. Fuels and tuning, and diesel engine rebuild has a combined 17 new projects sharing a total 10 newer engines that were donated to the program. Drivetrain systems now has a possibility of 30 lab sheets, 2 newer chassis along with new tooling and procedures to maximize student understanding. To top it all off I have been able to provide students with training at the professional level that will benefit them for their careers such as, Kenworth Paccar training, JPro certification, Freightliner training, International Navistar training, and am currently working on a partnership for Volvo and John Deere training. These are directly tied to employer needs as described in previous PAC meetings. Completion rates are at or above 90% even with the increased rigor in the program, plus employers are seeking our graduates due to the concentration on electrical systems and current applications on equipment. The electrical lab which is still under improvements will provide students with a hands-on approach not available at any other school both non and for profit in the region.

Electrical Technology - The Electrical Technology Program began in 2019/2020. Eight students enrolled in the initial roll out of the Electrical Technology Credit Diploma. Three students did not complete, two students took partial courses for work credit, but three students completed the credit diploma. Of those three that did complete, two gained employment in the Electrical industry. Fast growth… There seems to be a lot of interest in the Electrical Technology program, largely by word-of-mouth. We had an increase in enrollment in our second year even during COVID with courses on Zoom! There were twelve students enrolled in this second-year offering. Three students took partial courses, and nine students completed! Of the nine, one student transferred to the University of Wyoming to complete an Electrical Engineering Degree, one is continuing his education at LCCC, one went into an IBEW (International Brotherhood of Electrical Workers) Apprenticeship, and one joined an Encore Electrical Apprenticeship. This academic year, our enrollment is sixteen.

From the onset of the Electrical Technology program, we have worked with and relied on industry input from our advisory committee. In fact, one of our industry partners, Encore Electric sought us out and asked us to put together an Electrical program to connect with younger high school and college students as candidates for employment. It is at their request that we put

together the Electrical program. We invited the International Brotherhood of Electrical Workers to join our advisory committee and became industry partners as well. Each of our industry partners guarantee interviews to our graduates and have been very supportive of our program. One of the greatest benefits and achievements of the Electrical Technology Credit Diploma is the Wyoming Department of Fire Protection and Electrical Safety and the United States Department of Labor Apprenticeship Bureau has agreed to award our Electrical Technology graduates' credit toward their first-year related instruction of a four-year Electrical Apprenticeship program!

Industrial Maintenance - The Program Review cycle for a LCCC program is five years, however, the Industrial Maintenance Credit Diploma has encountered significant change since the recent transition to Guided Pathways 2.0 in Academic year 19/20 and 20/21. A review of the LCCC catalog shows that in the 14/15 catalog there is no Industrial Maintenance Credit Diploma offered. The 13/14 LCCC catalog shows an Integrated Systems Technology Certificate available with concentration areas in Electrical, Mechanical and HVAC/R. Therefore, the Integrated Systems Technology Certificate ended with academic year 13/14 and transitioned in academic year 14/15 to the Industrial Maintenance Credit Diploma becoming available in academic year 15/16. With Guided Pathways 2.0, the Industrial Maintenance Credit Diploma was re-designed to be a second semester Credit Diploma building off of the "common first semester" Industrial Systems Technology (IST) Credit Diploma. The first semester IST CD lays the foundational course work for not only students entering Industrial Maintenance, but to those entering Electrical, HVAC, Plumbing and Wind Energy.

The following IST (Integrated Systems Technology) courses are included in the Industrial Maintenance Credit Diploma: IST 1610 Fluid Power, IST 1611 Fluid Power Circuits, IST 1770 Motor Controls, IST 1771 Motor Control Circuits, IST 1780 Electric Motors, IST 1781 Motor Control Circuits, IST 1810 Programmable Logic Controllers and IST 1811 PLC Circuits. These courses service an average of 55 students a year with an enrollee success rate of 88.36% and a retention rate of 91% the two years since Pathways began.

Industrial Systems Technology – IST - Although the IST courses have been around since 2005, the IST Credit Diploma has only been in existence since the Fall 2019 semester when it became our "common first semester" as part of the LCCC Pathway Project. Now, the IST CD serves as a launching point for students looking to enter the Electrical, HVAC, Industrial

Maintenance and Plumbing industries. These courses service an average of 55 students a year with an enrollee success rate of 88.36% and a retention rate of 91% the two years since Pathways began. Although we do not have a tool in-place to capture employment rates, I have attached a document that will better identify IST course completion rates. I have also attached the minutes from an advisory meeting that indicates that we have members from across several trades areas that help guide our programs in IST. The "Unified Advisory Committee" brings together members of the construction, electrical, HVAC, and plumbing career fields to give us assistance in best meeting the needs of local industry. The program needs to develop a graduate survey to better capture employment rate within six months of graduation.

Welding Technology - A large achievement of the program was the building of the new state of the art facility called Flex Tech, which the program successfully moved into in the Fall of 2016. This new facility has enhanced the ability of the program to teach students according to modern standards, as well has made it possible for the Welding program to grow in its enrollment size. This is due to the fact that the new facility has 40 welding booths and could accommodate 40 students at one time. Another major achievement of the Welding Program is the increase in student completions of credentials. In the 2014-2015 calendar year, there were 16 completions of credentials. That number has had increased over the last four years. In the 2018-2019 school year, there were 56 credential completions. The enrollment number of students that have enrolled in the welding program has steadily increased each year. The increase in student enrollment has led to the need for three full time welding instructors, which the Welding Program has had since the fall of 2018.

Another Achievement of the Welding Program is that one instructor gained his certified welding inspector license and the welding department hired one full time instructor with his CWAI. We also hired two adjutant faculty to teach the new fabrication class. The welding department had 8 students compete in Skills USA in Casper Wyoming and three of which competed in the fabrication contest and was able to take second place in the state. David Gordon one of our students took second place and was able to have the chance to compete in the national coemption where he took 4th place out of 50 colleges and now, he is competing for a spot for the Skills World competition which will be held in Shanghai China.

Wind Energy - The end goal for students in the Wind Energy Technology Program is simple: possess the skills and knowledge necessary to become a successful entry-level wind turbine technician. The path is laid out in the program map. Though the actual journey takes place through the program's curriculum. The curriculum includes both classroom instruction and hands-on labs. During this period, the program was redesigned from the ground up. The curriculum had not been updated in over four years. The previous faculty lead did not have any formal training in the field of wind energy. There were no lesson plans, presentations, labs, rubrics, or question banks in the LMS. In addition, the LMS was changed from D2L to Canvas. The MCORs for WTT courses were blank. During the past 4 years the following was accomplished with regards to the program curriculum:

- 119 lecture presentations were developed to include the most current technology in the wind industry
- 61 hands-on labs and lab rubrics were carefully designed to develop the skills required to be a successful entry-level wind technician
- 112 test question banks containing 1780 unique questions were generated to accurately assess student outcomes and program effectiveness. All active course MCORs were reworked to ensure course competencies reflect current industry needs.

In addition, the multi-million-dollar wind turbine trainer electrical system was refurbished and the trainer is now 100% operational. The trainer was left in disarray after the previous program lead decided to have students remove all the original motor controls equipment from the top box. The idea was to install all solid state switching, but that never came to fruition and the trainer was left in an unserviceable state. Three new trainers were added to the program. Wind energy students were involved in the design and construction of each trainer. The first trainer is designed to help student correctly recognize common errors in fall protection. The second and third trainers listed helped to solve a common issue in technical training. In the category of calibrated sensors, it can be difficult to provide a practical hand on lab without spending thousands on an overpriced training aid. Many times, the subject is taught using a textbook and lecture. The new trainers were both cost effective and allowed students get their hands and eyes on their operation. Other Wind Energy Achievements:

- The new mobile connector trainer was patterned after one developed and used by 3M Fall Protection. Students helped improve the design and construct the trainer. The total cost was less than $500. The connector trainer has been used by wind and IST students to identify proper and improper connections of anchors, snap hooks and carabiners used in fall protection. Students perform a hands-on lab with the trainer and are graded on identifying deficiencies on 13 unique connections used in fall protections.
- The hydraulic pressure sensor trainer allows students to physically see the invisible operation of a pressure transmitter and pressure switch. It allows students to perform adjustments typically done in the field. Lights on the trainer demonstrate whether or not the pressure switch has been adjusted properly. Students use a multi-meter and a hydraulic pump to physically see how a pressure transmitter converts pressure to an electrical signal.
- The proximity sensor trainer was drafted during a discussion on finding a practical way to introduce students to capacitive and inductive proximity sensors in a lab environment. The trainer demonstrates the different designs and functions of these very sensitive sensors. The trainer shows the difference between shielded and unshielded proximity sensors and the importance of ensuring the correct sensor is used. Lights provide a visual of when each sensor is activated.
- Seven new pieces of equipment were added to the program (through Perkins and other funding sources) enhancing the fidelity of instruction.

Automotive Technology - The Automotive Program is currently undergoing curriculum and program redesign to best serve stakeholder (Industry and student) needs. All Automotive courses and Credit Diplomas have been modified and are currently awaiting ASC approvals. The modified program is designed for students to start with the courses in the Automotive Fundamentals Credit Diploma and then move on to the Automotive Service Credit Diploma. Each Credit Diploma can be completed in one semester. The classes are intended to be offered in a 3-4-week block sequence; allowing students to concentrate on one course of subject matter before moving onto the next. The program has been successful using this approach in the past experiencing high course success rates. Each course in this plan introduces some new subject

matter while reinforcing and expanding upon previous subject matter. A general overview of the courses is listed below in sequence and the curriculum map may be viewed here:

AUTO 1500 Foundational Skills in Automotive - Introductory knowledge and skills, General overview of the industry, Safety standards, accessing service information, Common tools/ equipment used on a daily basis, basic electrical theory (Ohm's Law).

AUTO 1510 Engine System Fundamentals - Reinforcement of safety standards/ common tools. Introduces new knowledge, skill sets, tools and equipment that will be used in this course and future courses.

AUTO 1765 Automotive Electrical - Reinforcement of safety standards/ common tools, basic electrical theory. Introduces new knowledge, skill set, tools/ equipment, and diagnostic procedures that will be used in all future courses.

AUTO 1600 Engine Performance Systems - Reinforcement engine fundamentals, electrical, accessing service information, tools/ equipment, and diagnostic procedures. Introduces new knowledge area, fuel system and ignition system operations, components, and diagnostic procedures.

CHOICE POINT- Completion of Automotive Fundamentals Credit Diploma (1st Semester).

AUTO 1740 Brake Systems - Reinforcement of automotive electrical, accessing service information, tools/ equipment, safety and diagnostic procedures. Introduces new knowledge area, brake components, Pascals Law, new tools/ equipment, and diagnostic procedures.

AUTO 2550 Automotive Steering, Suspension, and Alignment -Reinforcement of automotive electrical, accessing service information, tools/ equipment, safety, and diagnostic procedures. Introduces new knowledge area (steering and suspension components, and alignments), new tools/ equipment, and diagnostic procedures.

AUTO 1730 Drivetrain Systems - Reinforcement of automotive electrical, accessing service information, tools/ equipment, safety, and diagnostic procedures. This course combines manual and automatic transmissions. Introduces new knowledge area, new tools/ equipment, and diagnostic procedures.

AUBR 1550 Auto Body Repair I -Reinforcement of automotive electrical, accessing service information, tools/ equipment, safety. Introduces new knowledge area (Body components, glass, wind and water leaks), new tools/ equipment, and diagnostic procedures.

AUTO 1760 Automotive Heating and Air Conditioning - Reinforcement of automotive electrical, accessing service information, tools/ equipment, and diagnostic procedures. Introduces new knowledge area (HVAC), new tools/ equipment, and diagnostic procedures.

CHOICE POINT- Completion of Automotive Service Credit Diploma (2nd Semester)

The proposed program redesign is intended to be effective for the Fall 2022 Semester. Program Faculty will utilize course success rates, persistence from fall to spring semesters,

credentials awarded, along with student and employer feedback to annually assess how the program is meeting the needs of the stakeholders. The program Faculty will also review student's completion of ASE tasks for each individual course along with the students results from ASE Entry Level Certification Exams to identify areas of strength and areas which need improvement.

Diesel Technology - The diesel technology credit diploma is designed to prepare students for employment in the diesel industry. This one-year program is the foundation toward employment in the diesel industry. The diesel technology courses are designed to prepare students for the ASE certification exam. Semesters are not sequential and may be taken in any order. Safety must be taken in the first semester. The curriculum map for Diesel Technology may be reviewed here. Below is a typical course sequence for Diesel Technology:

Semester 1 or 2

Gen Ed ID	Course code	Course name	Credits	Milestones and Choice Points
	IST 1520	Introduction to Industrial Safety*	3	**Milestone:** Completed your first semester towards an AAS in Diesel Technology, Safety, and Strategies for Success
	DESL 1540	Diesel Electrical	5	
	DESL 1610	Engine Rebuilding, I	5	
	DESL 1650	Diesel Fuel Systems and Tuning I	5	
		Semester Total	**18**	

Semester 1 or 2

Gen Ed ID	Course code	Course name	Credits	Milestones and Choice Points
	DESL 1700	Diesel Drivetrain	5	**Milestone:** Completed the requirements for the Diesel Technician Credit Diploma. **Choice Point:** Enter the job market or continue working on the Trades and Technical Studies AAS.
	DESL 1755	Heating, Air Conditioning, and Refrigeration	5	
	DESL 2950	Air Brakes, Suspension and Steering	5	
		Semester Total	**15**	

Electrical Technology - Since the Electrical Technology Credit Diploma has only been offered for two years, there has been no curriculum changes to date. However, at the last Advisory Committee meeting in November 2021, an International Brotherhood of Electrical Workers (IBEW) curriculum called Interim Credentials was brought to our attention. Currently, we use the NCCER (National Center for Construction Education and Research) curriculum based on Encore's original request for developing the Electrical Technology program. Electrical Technology is evaluating the Interim Credentials as it is also a national curriculum and guarantees that our students would enter into the second year of instruction in an IBEW electrical

apprenticeship if the Interim Credentials were achieved. The first offering of the Electrical Technology credit diploma was in the spring semester of 2020. Three adjuncts were hired out of the electrical industry to instruct the students face-to-face. However, when COVID hit in the spring of 2020, we switched gears to an online offering only. When school resumed after spring break in 2020, one faculty member took over all of the Electrical Technology courses and converted them to an online offering to finish the semester. The next spring (2021), due to COVID, we were required to provide asynchronous classes via Zoom, but were allowed to have the students come in for face-to-face labs. As described in section V.C.4, the Electrical Technology curriculum will be reviewed each year to see if there needs to be adjustments in the plan. This year we are evaluating the Interim Credentials Curriculum (recommended by one of our industry partners) to see if it is a better fit than the NCCER curriculum. The Electrical Technology curriculum map may be viewed here.

Industrial Maintenance - One of the methods the Industrial Maintenance program uses to analyze data and feedback are the summative assessments at the end of the instructional delivery. Analyzing the data show trends of missed learning outcomes that are consistent across the population of students for gaps in understanding or learning and can be compared over time from year to year. The program faculty analyze the instructional methods used in conjunction with those learning outcomes and incorporate the necessary change to the instructional delivery or methodology to enhance student learning. This data is then utilized to develop the curriculum map for the Industrial Maintenance program. The curriculum map for the Industrial Technology program may be viewed here.

Industrial Systems Technology - One of the methods the Industrial Systems Technology Program uses to analyze data and feedback are the summative assessments at the end of the instructional delivery. Analyzing the data show trends of missed learning outcomes that are consistent across the population of students for gaps in understanding or learning and can be compared over time from year to year. The program faculty analyze the instructional methods used in conjunction with those learning outcomes and incorporate the necessary change to the instructional delivery or methodology to enhance student learning. The curriculum map for the Industrial Systems Technology program may be viewed here.

Welding Technology - The Welding Technology program designs and develops its curriculum through research of industry standards as well as employer needs. The welding instructors at LCCC have worked, and still work, in the industry. They have firsthand experience with current techniques and practices being applied on a day-to-day basis in the welding industries. The instructors have attended a Certified Welding Inspectors seminar, and have taken the exam to become Certified Welding Inspectors. This certification itself requires continuous education courses on keeping current with the industry and American Welding Society expectations. This is helpful in aiding the LCCC welding instructors on staying up to date. The LCCC Welding Program also adheres to AWS and ASME standards, and codes. By adhering to the current codes, the program has an authoritative outside source for what current standards are considered to be. At the end of each academic school year, the welding program brings in an outside AWS CWI to certify its students. This outside CWI ensures that the students have learned, and can become certified welders according to current codes and specifications.

In addition, semi-annually, the Welding Program holds advisory committee meetings with a variety of individuals of different industry affiliations in attendance. This includes industry professionals, current students, past students, welding instructors from secondary education, and representatives of companies from around the community interested in employing LCCC Welding Program graduates. With this team, the program can review current curriculum, as well as get an outside perspective on what is being taught and how that is being taught. The Program also uses these professional's opinions to make adjustments, modify and improve the current curriculum. This is to ensure that the curriculum will prepare graduates of the LCCC Welding Program to meet industry standards, as well as preferred employee criteria's that employers will expect upon hiring an individual to fulfill a welding technicians' role in their company. We are also working on designing a survey that will be sent out to employers across our region to help get better feedback on what more companies are looking for in college graduate. The Welding Technology program curriculum map may be viewed here.

Wind Energy - There have been no curriculum changes in the past 4 years. Currently, the Wind Energy Technology A.A.S. degree is being placed on hiatus so the program can merge with the Trades and Technical Studies Pathway. It will emerge as a certificate program. This change will require a reduction in the core courses without sacrificing the competencies desired by industry. The course map, as is, will require some modification. However, since the program

competencies will remain relatively the same, they will be used as a guide to ensure the new curriculum map will still provide the same skill sets required by industry. Students entering the Wind Energy program are assumed to have little to no knowledge or practical experience in the fields of electricity, mechanical systems or fluid power systems. Therefore, students must first be taught the elemental theory behind each of these areas and then be incrementally introduced into more and more complex and abstract concepts. The curriculum map lays out a sequence of courses that are necessary for the student to obtain the knowledge necessary to successfully meet each competency. In many cases, each step is a requisite of the next, thus preventing students who, for whatever reason, are unable successfully complete one level from moving to the next. The curriculum map for Wind Energy may be viewed here.

V. Ensure that Students are Learning

Automotive Technology - The Automotive Technology Program is currently under redesign; the program level learning competencies listed below are currently awaiting approval. No data available at this time to provide summary of success. The program does not see any employer or alumni survey information on the Institutional Research Program Data Hub page for the automotive program. ASE Certification is often a requirement for job candidates, putting students on a path to certification is a method of ensuring successful graduates. The Automotive Program following ASE Accreditation guidelines also helps students prepare for certification. When the Program- level competencies listed below are approved and go into effect, many can be assessed by the results from ASE Entry Level Certification administered to the students prior to graduation.

Program Level Competencies

- Produce students prepared to successfully complete the ASE G-1 Automotive Maintenance and Light Repair Certification Exam
- Produce students prepared to successfully complete the ASE A-1 Engine Repair Certification Exam
- Produce students prepared to successfully complete the ASE A-6 Electrical/ Electronic Systems Certification Exam
- Produce students prepared to successfully complete the ASE A-8 Engine Performance Repair Certification Exam
- Produce students prepared to successfully complete the ASE A-4 Suspension and Steering Certification Exam

- Produce students prepared to successfully complete the ASE A-5 Brakes Certification Exam
- Produce students prepared to successfully complete the ASE A-7 Heating and Air Conditioning Certification Exam
- Choose the appropriate test procedure(s) for fault diagnosis in an electrically/ electronically controlled vehicle system.
- Properly use a scan tool or diagnostic equipment to identify faults within vehicle operating systems
- Demonstrate removal and replacement procedures for bolt-on body panels
- Demonstrate the safe usage of tools and shop equipment

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

1. Students prepare for ASE student testing as step one of professional level certification.
2. Upon successful completion of this program, students will be able to:
3. Students develop diagnostic troubleshooting techniques using information systems.
4. Students reassemble diesel systems using informational technology and comprehensive failure analysis.
5. Students demonstrate standard shop operations.

Electrical Technology - The Electrical Technology Program identifies the following program learning competences. They run parallel with the competencies identified within the Electrical Technology courses in the Electrical Technology Program. Upon successful completion of this program, students will be able to:

1. Plan layout and installation of electrical wiring, equipment, or fixtures, based on job specifications and local codes.
2. Connect wires to circuit breakers or other components.
3. Repair or replace wiring, equipment, or fixtures, using hand tools or power tools.
4. Install equipment, machines, wiring, or programs to meet specifications.
5. Install ground leads and connect power cables to equipment.

Each of these competencies support student success in further education in an Electrical Apprenticeship. By federal and state law, an individual working in the Electrical Industry must work for a licensed Electrical contractor and must be in a licensed Electrical Apprenticeship. That is why our Electrical Technology program is a path to an Electrical Apprenticeship. Our industry partners have agreed to interview each of our graduates, and it is our contention and that of our industry partners that this Electrical program gives our students a “leg-up” in the interview

process and makes our graduates more attractive candidates for entry into an apprenticeship program because of the knowledge gained and the commitment shown to complete the Electrical Technology program. These competencies address cornerstone knowledge, skills and abilities which permeate the Electrical Industry, workplace preparation, and are common within Electrical programs across the nation.

Due to this being a new program as of fall 2019, the Pathway does not have student and alumni surveys, employer satisfaction data, or data pertaining to employment rates within this program, other than anecdotal. This is a goal of the Electrical program to produce a robust feed-back system for the Electrical Technology program. As the Electrical Technology program matures throughout the next review cycle, this data will be available and will be monitored, analyzed and disseminated by the Electrical faculty and the Pathway Coordinator to better assess the efficacy of these competencies as written along with the learning assessments within the program. Furthermore, the Unified Advisory Committee will have opportunities to look at data once compiled and discuss the program competencies and their relevancy.

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

1. Use safety regulations that characterize responsible behavior.
2. Utilize test equipment to determine proper system operation.
3. Demonstrate proper mechanical component installation.
4. Demonstrate proper electrical component installation.

The Industrial Maintenance Program is proud to partner with Climb Wyoming. As taken from the Climb Wyoming website, "The uniquely comprehensive Climb program model was developed in 1986 to help move single mothers out of poverty. To date, the program has helped more than 2,000 families reach self-sufficiency, the effects of which will be felt for generations to come. To meet Wyoming’s workforce needs, Climb Wyoming trains women to enter a variety of occupations: construction and energy, health care, truck driving, office careers, and more." In collaboration with Climb Wyoming, the Industrial Maintenance Program provided electrical training for the "Intro to Construction Trades Training". The Industrial Maintenance program and Integrated Systems Technology has enjoyed a long history with Climb Wyoming to provide

needed training as Climb Wyoming selects specific training to offer. Please view the Climb Wyoming Cheyenne Program Report in the Strategic Partnership folder in the Document Directory or the Document Directory Sources below.

In the Industry sector, Industrial Maintenance partners with the International Brotherhood of Electrical Workers (IBEW) Local Union 415 as some of our Industrial Maintenance students desire to move into an IBEW Electrical Apprenticeship after completion of the Industrial Maintenance/Integrated Systems courses. The process the Industrial Maintenance program uses to keep collaborations active with internal partners such as GEAR UP are strategic planning meetings for special annual events such as Reality Town, hosting the Boys and Girls Club, high school tours, meetings with community members and Wyoming Legislators, etc. We communicate regularly by phone and email and this internal partnership yields great results for us in the exposure the GEAR UP students have to our program.

We work with Adult Continuing Education (ACES) as guest speakers informing their students about educational and career opportunities in an Industrial Maintenance field. This collaboration is not as formal, as we are neighbors and generally see each other in the hall every day. We have had ACES students in our program and is rewarding to see ACES students continuing their education. Workforce Development is another key partnership and we collaborate on many projects such Industrial Maintenance training with apprenticeship training where applicable; Junior Leadership Cheyenne meetings giving students a chance to go one-on-one with professionals/educators in the industrial maintenance field they want to pursue; and participation in the LCCC exploratory Manufacturing Focus Group. Topics discussed were if the existing curriculum of the Industrial Maintenance Credit Diploma could meet this industry training need or if other new certifications/training is required for Manufacturing Skills. The process used to maintain this collaboration with Workforce Development are emails, phone calls, planning meetings, etc.

Another valuable internal partner is the LCCC Physical Plant Maintenance Department which schedules Professional Development training for their personnel through the Industrial Maintenance program and also has provided training for the Industrial Maintenance students on industrial equipment, in providing tours, insight into real-world scenarios and industrial

maintenance procedures. The process to keep this partnership are emails, phone calls and meetings.

Industrial Systems Technology – IST - Upon successful completion of this program, students will be able to:

1. Demonstrate the importance of safety in the workplace.
2. Describe the safe work requirements for elevated work.
3. Convert units of length, weight, volume, and temperature between the imperial and metric systems of measurement.
4. Decide where and how to connect basic electrical components correctly.
5. Decide if it is safe to use mechanical equipment correctly.
6. Evaluate personal skills, strengths, and attributes.
7. Select interviewing techniques that highlight personal skills.

Welding Technology - Competency Goal 1: Graduates of the LCCC Welding program will possess the necessary skills to complete and pass, according to appropriate welding codes and a guided bend test, a variety of welding tests. Students will use a variety of welding processes, techniques, and positions common in the industry of welding. Students will be able to pass these tests on a consistent basis.

1. Students will demonstrate proper bead placement and profile
2. Students will demonstrate proper fitting techniques.
3. Students understand specific criteria's that must be met according to the welding code to pass the designated test.

Competency Goal 2: Graduates of the LCCC Welding Program will have a basic understanding of base metals, filler metals, joint designs and blueprint reading. Graduates will have the ability to apply these areas of information to the trade of welding in the workplace.

1. Students will be able to identify base metals and filler metals.
2. Students will apply proper fitting techniques to create weld joints.
3. Students will have the ability to read a WPS.

Competency Goal 3: Students will demonstrate an ability to troubleshoot issues with specific welding operations and procedures.

1. Students will be able to analyze welding errors and make the necessary repairs on their weld tests.

2. Students will be familiar with welding machines and be able to analyze the problem and fix the basic operational problems with welding machines.

Competency Goal 4: Graduates of the LCCC Welding Program will demonstrate the ability to use technology and tools common to the welding industry in an effective manner.

1. Students will demonstrate ability to use common metal cutting tools and processes
2. Students will demonstrate the ability to use grinders
3. Students will demonstrate the ability to use common hand tools.

Competency Goal 5: Students will enter the workforce with professionalism skills that will give them a foundation for workplace success.

1. Students will learn the importance of showing up on time and working diligently
2. Students will learn time management skills.
3. Students will behave in a professionally acceptable manner.

Competency Goal 6: Graduates of the LCCC Welding program will have the ability to work safely in the workplace in relation to all welding and cutting equipment.

1. Students will graduate with the knowledge to work safely in the welding industry.
2. Students will have the necessary knowledge to keep themselves and those around them safe in the presence of welding operations.

Wind Energy – Competencies:

1. Describe how wind turbine system components are integrated to convert energy from the wind into electrical energy

2. Interpret information contained in technical drawings, manuals, data sheets and service bulletins to determine system operations

3. Apply Sound troubleshooting techniques to quickly find and fix electrical, mechanical and fluid power system faults

4. Perform wind turbine service and preventative maintenance per manufacturer's specifications and common industry practices

5. Demonstrate the technical communications skills required to accurately and concisely document all activities associated with servicing and maintaining wind turbines

6. Demonstrate proper handling and safe usage of industrial tools, electrical meters and diagnostic equipment commonly used in the wind industry

7. Demonstrate compliance with general and specific industry safety laws, standards and procedures

Industry needs fluctuate with labor conditions. When the labor pool exceeds their needs, industry raises their minimum qualifications for entry-level technicians. They take only the most

qualified applicants. However, when the labor pool shrinks, as is currently the case, industry is forced to reduce worker qualifications to breathes and has a pulse. Today when industry is queried about needs, it comes down to someone who isn't opposed to hard work and who is willing to learn. The fact that most of the survey respondents were wind technicians sheds some light on the results. Wind techs do not want to work with other techs who were hired with no experience or education. This makes their job harder for obvious reasons. Technicians want their co-workers to have a level of knowledge and skills that make them a partner not a project.

All that aside, the program meets and exceeds expectations of industry. Feedback from the field is that most of the technicians are thriving. A student that graduated the program in 2018 is now a site manager, many graduates are lead technicians at their site and others are being groomed to become site managers. A site manager is the highest position at a wind farm. The next step is regional manager. The only emerging need is for Global Wind Organization (GWO) accreditation. Industry is slowly turning to the standards set by the GWO and it appears it will be the future of technical training in wind energy.

VI. Summary of Action Plan Goals

There are some institutional challenges that are more difficult to resolve at the pathway level, particularly the way in which data is gathered and reported for each program versus the pathway. In order to accurately reflect the success of these programs and graduates the following must be addressed:

- **Data Accuracy**
- **A systematic change that documents students with a primary degree or credential selection in order to show true "intent to serve"**
- **Increase focus and a systematic way of ensuring students are reported as graduated**

It is apparent that there is a distinct difference in how the pathway functions with the career/program exploration component of STRT 1000 not occurring typically until students have already completed at least one credit diploma. A blended STRT 1000 and HMDV 1510 – Soft Skills course may be more appropriate in preparing students for career exploration. To attract more students that complete a credit diploma in the first year of study to return for a second year, creation of concurrent second year credit diploma programs to be completed at the same time as

the TTS degree in the areas of Welding, Automotive, Diesel, Renewable Energy, and Skilled Trades could help grow student population in pathway by retaining students for a 2nd year. This will require growth in areas of faculty and classroom equipment and supplies. Individual programs that feed the TTS degree are compartmentalized. A blending of courses to find efficiency within the programs for teaching, facility use, and student exploration of other programs should be actively pursued. Additionally, each program, respectively, will work toward these goals:

Trades and Technical Studies - Develop and/or implement standardized and mechanism within the pathway to track the success of each graduate for each credit diploma or the AAS within the pathway in terms employment within industry or continued education within LCCC or elsewhere.

Automotive Technology - Modernize the Automotive Program by updating tools, equipment, vehicles and trainers.

Diesel Technology - Stabilize and increase enrollment in the diesel technology program by 15% every year (2022 -16 students; 2023 – 19; 2024 – 22: 2025 – 25).

Electrical Technology - Hire a full-time instructor and adjunct instructor to facilitate the growing Industrial Systems Technology and the Electrical Technology credit diplomas.

Industrial Maintenance - The program needs to hire a full-time instructor to facilitate the Industrial Maintenance CD. An adjunct instructor should also be brought onboard to help offset credit overload of the remaining instructors.

Industrial Systems Technology – IST - The program needs to hire a full-time instructor to facilitate the IST CD. An adjunct instructor should also be brought onboard to help offset credit overload of the remaining instructors.

Welding Technology - Increase enrollment by 3-5% by 2024 to a capacity of three cohorts of 15 students (45 total), at which point the program closes and applications are taken for acceptance.

Wind Energy - Create a Wind Energy Technology Credit Diploma to replace the current AAS degree.

Academic Standards Committee Action on Academic Program Reviews for 2021-2022

The central function of the APR Subcommittee is to engage the program review process, provide feedback for program faculty who prepare self-studies, and make recommendations to the ASC regarding the status of said program reviews. The Pathway Review Template, which was developed by the APR Task Force 2020, is comprised of six sections; three common Pathway sections and three program-specific sections. Four of these sections relate directly to the four Pathway pillars: Help Students Choose and Enter a Pathway, Help Students Stay on Their Path, Clarify Paths to Student End Goals, and Ensure That Students Are Learning.

During the AY 2021-2022 program review cycle, there were eight programs that completed program review self-studies as part of the Trades and Technology Pathway. The table below outlines the APR Subcommittee recommendations for these eight programs. Additionally, a summary of the peer review ratings for each program are available in Appendix E. Comprehensive action plans developed through the peer review rating process may be explored in detail in Appendix F.

Acceptance of Program Review with no Contingencies	Acceptance of Program Review with Contingencies for Follow-up Reporting
Trades and Technical Studies Pathway Program	Diesel Technology Program
Electrical Technology Program	Welding Program
Automotive Technology Program	Industrial Systems Technology Program
Wind Energy Program	
Industrial Maintenance Program	

Appendix A

Pathway Review Self-Study Template

I. General Pathway Overview

A. Introduction of the Pathway
I.A.1 - Overarching Context of the Pathway

B. General Pathway Information
I.B.1 - General Purpose, Pathway History, Organizational Structure
I.B.2 - Pathway Level Professional Development
I.B.3 - Use of Educational Resources

C. LCCC's Mission, Vision, Values
I.C.1 - Mission Statement
I.C.2 - Core and Aspirational Value Statements

D. Student Demographics
I.D.1 - Student-Related Data

E. Job and Transfer Opportunities and Managing Pathway Responsiveness
I.E.1 - Job and Transfer Opportunities
I.E.2 - Responsiveness to Job or Transfer Opportunities
I.E.3 - Responsiveness to Student Engagement Feedback

II. Help Students Choose and Enter a Pathway
Redesign traditional developmental education as an "on-ramp" to a program of study to help students explore academic and career options from the beginning of their college experience. Align math and other foundation skills with a student's program of study. Integrate and contextualize instruction to build academic and nonacademic skills throughout the college-level curriculum, particularly in program "gateway" courses. Provide accelerated developmental education to help poorly prepared students succeed in college-level courses as soon as possible.

A. Community Outreach and Engagement
II.A.1 - Relationship Building
II.A.2 - Marketing Strategy and Student Recruitment

B. Pathway Exploration
II.B.1 - Academic Exploration

C. Student Matriculation
II.C.1 - Impact of Courses on Student Matriculation
II.C.2 - Alignment of Developmental Education

D. Discoveries and Action Items for Help Students Choose and Enter a Pathway
II.D.1 - Story-Line Narrative of Pathway Performance

III. Help Students Stay on Their Path
Students are supported through a strong advising process that embeds ongoing advising in the Pathway experience, utilizes appropriate technology to help students make informed, timely choices, informs students of transfer and career opportunities at the end of their chosen college path, ensures students develop an academic plan with predictable schedules, monitors their progress and intervenes when they go off track, and embeds academic and non-academic support to promote student learning and persistence.

A. Embedded and Ongoing Advising
III.A.1 - Engaging Advisors

B. Student-Centered Schedules
III.B.1 - Scheduling Course Offerings

C. Monitor Student Progress
III.C.1 - Student Adherence to Choice Points
III.C.2 - Milestone

D. Persistence Supports
III.D.1.i - Developing Communities of Interest
III.D.1.ii - Academic Supports
III.D.1.iii - Non-Academic Supports

E. Discoveries and Action Items for Help Students Stay on Their Path
III.E.1 - Story-Line Narrative of Pathway Performance

Appendix B
Program Review Self-Study Template

Discrete Program Area

IV. Clarify Paths to Student End Goals
Faculty develop program maps that simplify students' choices and show students a clear pathway to completion, further education, and employment in fields in and out of the region. Learning outcomes in Pathway courses align with transfer institutions to increase the numbers of credits that transfer.

A. Program Description
- IV.A.1 - Broad Summary
- IV.A.2 - Achievements
- IV.A.3 - Curriculum Map
- IV.A.4 - Program Design
- IV.A.5 - Relevancy of the Program's Curriculum

B. Career Alignment Relationships and Student Outcomes
- IV.B.1.i - A.A. and A.S. Transfer Programs
- IV.B.1.ii - A.A. and A.S. Transfer Programs
- IV.B.2.i - A.A.S., Certificate, and Credit Diploma Programs
- IV.B.2.ii - A.A.S., Certificate, and Credit Diploma Programs

C. Discoveries and Action Items for Clarify Paths to Student End Goals
- IV.C.1 - Story-Line Narrative of Pathway Performance

V. Ensure That Students Are Learning
Develop program-level learning competencies that are aligned with the requirements for success in employment and further education. Assess students' learning to determine areas of improvement in instruction across programs. Integrate group projects, internships, and other applied learning experiences to enhance instruction and student success in courses across programs of study. Ensure incorporation of effective teaching practice throughout the Pathways.

A. People of the Program
- V.A.1 - Faculty-to-Student Relationships
- V.A.2 - Effective Educational Practices: Instructional Methods

B. Program-Level Learning Competencies
- V.B.1 - Program-Level Learning Competencies

C. Verifying Student Learning
- V.C.1 - Annual Assessment for Student Learning
- V.C.2 - Student Learning Feedback System (N/A for 2021-22 Cycle)
- V.C.3 - Annual Program Assessment Plans for Student Learning Competencies (N/A for 2021-22 Cycle)
- V.C.4 - Annual Program Assessment Plans for Operational Goals
- V.C.5 - Student Learning Data Items That Reveal Student Academic Persistence

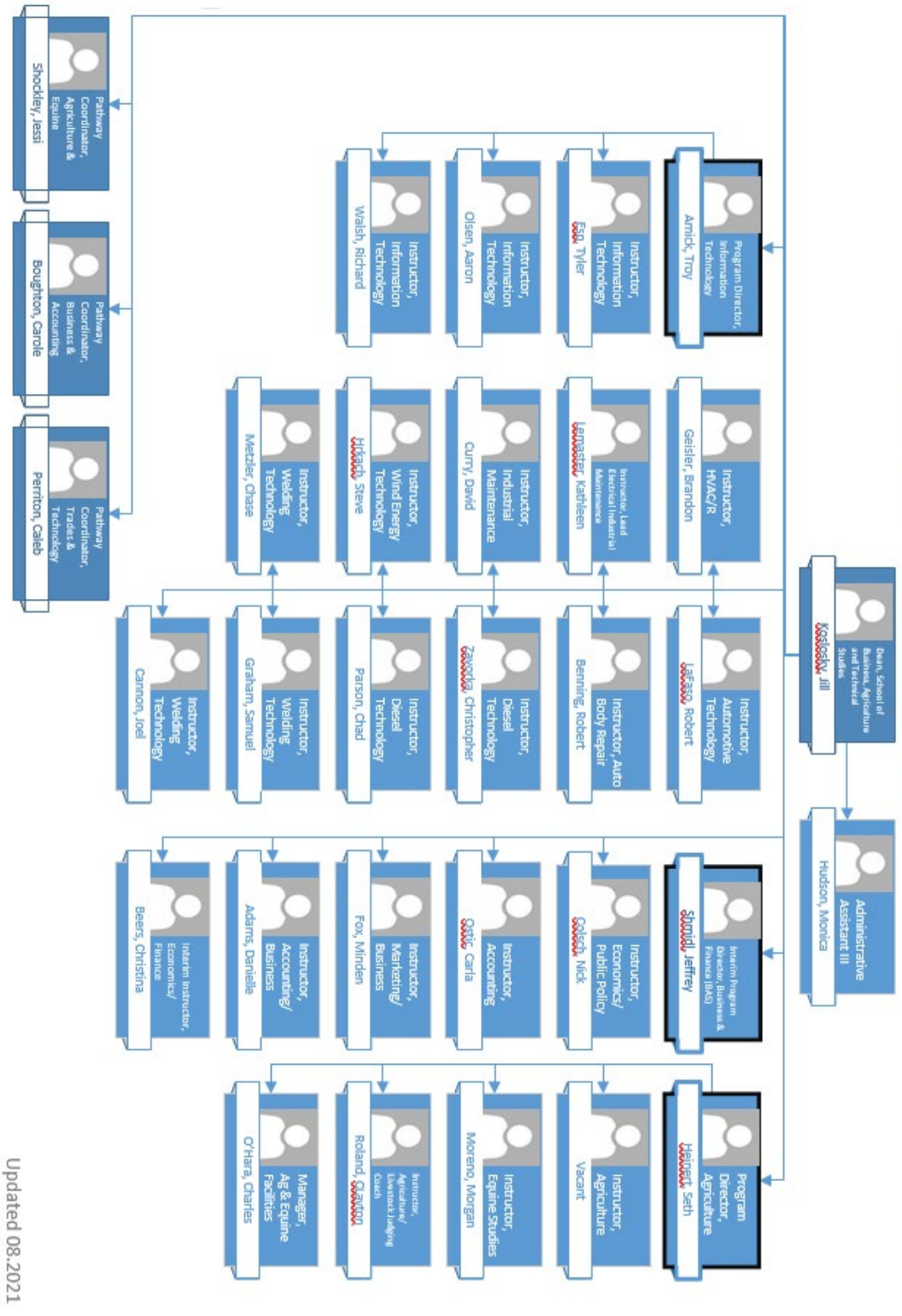
D. Discoveries and Action Items for Ensure Students Are Learning
- V.D.1 - Story-Line Narrative of Program Performance

VI. Conclusion: Pathway Action Plans of the Pathway

A. Pathway Action Plans
- VI.A.1 - Pathway Action Plans

Appendix C

BATS Organizational Chart



Appendix D

Peer Review Ratings

Trades and Technology Pathway Review 2021-2022 Cycle: Institution-Level Peer-Review Ratings

*Peer-review rubric ratings from eight programs were averaged (Trades & Technical Studies, Automotive, Diesel, Electrical, Industrial Maintenance, Industrial Systems Technology, Welding, Wind Energy). All individual ratings of a peer-review committee are averaged to form the section averages.

I.	GENERAL PATHWAY OVERVIEW	Total
A.	**INTRODUCTION OF THE PATHWAY**	
1.a	Describe the overarching context and identify of the Pathway and how each program included in the Pathway interconnects within this context and identity. The Pathway's context should be provided for external review but will not be rated.	
B.	**GENERAL PATHWAY INFORMATION**	
1.a	Identify the Pathway's primary purpose related to the following: student preparation, student transfer, workplace preparation, and community engagement.	3.17
1.b	Provide a history and/or timeline of the Pathway.	3.17
1.c	Provide an organizational chart, using one or two sentences to describe the essential roles of each position. Please include a listing of full-time faculty and their credentials.	3.00
2.a	Describe the professional development experiences of the full-time faculty over the review period and explain how these experiences support students' learning of the program competencies, align with faculty competencies and myPATH goals, and result in best practices in instruction.	2.67
2.b	Describe how each program engages adjunct faculty in professional development that strengthens student learning.	2.83
3.a	Describe the resources the Pathway uses to support student success such as: performance or instructional spaces, equipment, technology, library learning resources, and clinical/internship sites. If resources are better described at the specific program level, provide program specific topic headings with resources narrative for each program.	2.83
C.	**LCCC'S MISSION, VISION, VALUES**	
1.a	State the Pathway's mission statement and explain how it relates to the LCCC Mission, specifically transforming and inspiring students.	3.17
2.a	List the Pathway's core and/or aspirational values and include a brief rationale for each value. Provide at least four examples of alignment between values and Pathway activity by identifying one alignment for each of the four Guided Pathway pillars (sections II-V). Not all value statements need an alignment association.	3.00

2.b	Describe the process the Pathway uses to share its mission and values across internal and external stakeholders.	3.17
2.c	Provide at least one example that demonstrates how mission and values are used to guide the Pathway's future planning.	3.50
D.	**STUDENT DEMOGRAPHICS**	
1.a	Provide the general student characteristics for the Pathway. Pathway Coordinators should monitor this information annually. The Pathway's general student characteristics should be provided for external review but will not be rated.	
1.b	Data-Embedded Area	
E.	**JOB AND/OR TRANSFER OPPORTUNITIES AND MANAGING PATHWAY RESPONSIVENESS**	
1.a	Describe how the Pathway researches, communicates, and sustains its job and/or transfer opportunities.	3.17
2.a	Describe how the Pathway gathers data that informs decision making and improvements to effectively respond to current job and/or transfer opportunities.	3.00
2.b	Describe the resources the Pathway provides to programs, so they can make Pathway level decisions on programming. Resources might include tools such as common job demand software or archival infrastructure that enables programs to manage their transfer institution agreement inventories or maintain updated employer listings that can be shared with students and others.	3.00
2.c	The Pathway reports its annual Pathway-level transfer rates and/or job placement rates and describes how the Pathway analyzes and responds to transfer institution and workforce demand.	2.67
2.d	Data-Embedded Area	
3.a	The Pathway describes how it evaluates student engagement in Pathway and/or discipline activities using resources such as CCSSE/SENSE data etc. Explain how the Pathway has responded overtime to this student feedback.	3.00
3.b	Data-Embedded Area	
	SECTION AVERAGE	**3.02**
II.	**HELP STUDENTS CHOOSE AND ENTER A PATHWAY**	**Total**
A.	**COMMUNITY OUTREACH AND ENGAGEMENT**	
1.a	Describe how the Pathway's events have offered students the opportunity to build relationships with career or transfer partners.	3.33
1.b	Describe how the Pathway's events build a community of learners early in their college experience.	3.17

2.a	Describe how the Pathway Coordinator engages with internal and external stakeholders to promote and market the Pathway.	3.33
2.b	Describe how the Pathway Coordinator engages with stakeholders to recruit students.	3.00
B.	**PATHWAY EXPLORATION**	
1.a	Describe the Pathway's common first semester courses. Explain how the Pathway has organized this semester to encourage students to explore courses that will lead them to select a transfer and/or jobs-based career path. Some technical programs may want to use the third semester to demonstrate academic exploration.	2.67
1.b	Explain how the Pathway-specific STRT 1000 course encourages students to explore various careers.	3.00
C.	**STUDENT MATRICULATION**	
1.a	The Pathway Coordinator (examines first common semester) and Program Faculty Leads (examine later semesters) will analyze the provided IR course data and describe how course performance affects student progress through the program.	3.50
1.b	The Pathway Coordinator and/or Program Faculty Leads describe actions intended to help students succeed through the Pathway or program. For example, program might add a prerequisite or realign curriculum to ensure courses are at the appropriate level (1000 or 2000).	3.33
1.c	Data-Embedded Area	
2.a	Describe how the curriculum in the Pathway aligns with Math and English (or designated general education courses) to ensure students move seamlessly among general education courses and to the Pathway curriculum. Give one example of how curriculum decisions were based on knowledge gained in entry-level Math and/or English curriculum.	3.00
2.b	Data-Embedded Area	
D.	**DISCOVERIES AND ACTION ITEMS FOR HELP STUDENTS CHOOSE AND ENTER A PATHWAY**	
1.a	For the above pillar section (II. Help Students Choose and Enter a Pathway), the Pathway Coordinator identifies achievements made during the review cycle.	3.00
1.b	The Pathway Coordinator describes pillar Strengths, Weaknesses, Opportunities and Threats for this pillar.	3.33
1.c	The Pathway Coordinator provides a list of recommendations that support improvement of this pillar.	3.00
	SECTION AVERAGE	**3.14**
III.	**HELP STUDENTS STAY ON THEIR PATH**	**Total**
A.	**EMBEDDED AND ONGOING ADVISING**	

1.a	Describe how the Pathway Coordinator, academic and faculty advisors, and Pathway faculty create, maintain, and monitor the progress of students in their chosen Pathway.	3.13
1.b	Describe intervention strategies used and provide an example of their success.	3.13
B.	**STUDENT-CENTERED SCHEDULES**	
1.a	Describe how the program faculty collaborate with the dean to schedule classes that meet students' needs. Student needs to consider may include: developmental, accelerated, traditional, non-traditional, year-round, part-time, working, or summer classes.	3.13
1.b	Explain how students' scheduling needs are determined.	2.88
1.c	Describe the program's configuration of face-to-face, hybrid, and remote learning, and explain how this configuration meets students' needs.	3.13
C.	**MONITOR STUDENT PROGRESS**	
1.a	The Pathway employees explain processes for monitoring students' achievements of Choice Points and describe whether students are achieving these goals. Analyze data metrics such as: (a) Students who were in Pathway in fall (full time); (b) of those students, how many at the beginning of spring were in the same Pathway, declared a discrete program within the Pathway, or changed to a new Pathway; (c) repeat (b) for the same cohort for the next fall.	2.63
1.b	Data-Embedded Area	
2.a	Describe how student milestones are tracked. Include how milestones were identified and how achieving these milestones assists students in progressing through and completing their degree. Explain how achievement of milestones are communicated to students.	3.00
2.b	Data-Embedded Area	
D.	**PERSISTENCE SUPPORTS**	
1.i.a	Describe how the communities of interest within this Pathway help students make informed choices and strengthen clarity about transfer and career opportunities. Explain what relationships and strategies contribute to developing communities of interest.	3.13
1.i.b	Outside of the STRT courses, describe how the communities of interest within the Pathway offer students support, promote student learning, and lead to persistence, e.g., provide sharing technologies (Microsoft Teams) to a group for facilitating organizational learning, engagement experiences with employers or workplace visits, group research of a common field-based problem, common/shared usage of field-based technologies, or others.	3.13
1.i.c	Describe how the Pathway faculty and staff intentionally develop communities of interest. Explain what strategies of community building the Pathway is attempting to implement and describe how well they are working to develop common group mindsets that drives persistence behavior.	3.13

1.ii.a	Describe the academic supports that the Pathway has embedded within students' programs. Some examples include STRT sessions on study/test-taking, co-curricular experiences, ePortfolios, and team projects. Provide one example of a successful academic support strategy.	3.25
1.iii.a	Describe the non-academic supports that the Pathway has embedded within students' programs. Some examples include early alert and intervention, letters of milestone recognition, career counseling, and community building. Provide one example of a successful non-academic strategy.	3.13
E.	**DISCOVERIES AND ACTION ITEMS FOR HELP STUDENTS STAY ON THEIR PATH**	
1.a	For the above pillar section (III. Help Students Stay on Their Path), the Pathway Coordinator identifies achievements made during the review cycle.	3.00
1.b	The Pathway Coordinator describes pillar Strengths, Weaknesses, Opportunities and Threats for this pillar.	3.00
1.c	The Pathway Coordinator provides a list of recommendations that support improvement of this pillar.	3.13
	SECTION AVERAGE	**3.06**
IV.	**CLARIFY PATHS TO STUDENT END GOALS**	**Total**
A.	**PROGRAM DESCRIPTION**	
1.a	Program Faculty Lead should provide a link to a broad program summary resource not necessarily restricted to this pillar (not to be rated).	
2.a	If applicable, the Program Faculty Lead will provide a list of measurable and demonstrated achievements over the past five years that are distinct from the Pathway level achievements listed in above discovery sections (II and III).	3.41
3.a	The program uploads its current curriculum map. Summarize how faculty members use it to document curriculum changes over time, describe students' learning development over time, and manage its annual assessment planning activity.	3.03
4.a	Provide the web links to the program's program map and program or discipline-based MCORS for review (not to be rated).	
5.a	Describe how the Program designs and adapts its curriculum and MCORS to professional standards, best practices, and stakeholders' needs (including advisory committee and students).	2.99
B.	**CAREER ALIGNMENT RELATIONSHIPS AND STUDENT OUTCOMES**	
1.i.a	Transfer programs strengthen discipline alignment and develop meaningful relationships through engagement with their Pathway Advisory Committee or their specific Program Advisory Committee (based on the LCCC Advisory Committee Handbook).	

1.i.b	Transfer programs provide evidence of how they support transferring students by specifically providing student experiences that support an intentional plan for transfer. Some examples might be preparing students for online education so they have options to transfer to online programs and/or providing opportunities for students to learn about transfer programs.	
1.ii.a	Transfer programs use transfer metrics to illustrate the effectiveness of program-level articulation agreements and/or relationships in ensuring a seamless transfer Pathway for students.	
1.ii.b	Data-Embedded Area	
2.i.a	A.A.S., certificate, and credit diploma programs describe how they use either the general Pathway Advisory Committee or their own specific Program Advisory Committee (based on the LCCC Advisory Committee Handbook) to develop and sustain meaningful relationships with employers to achieve career alignment outcomes.	3.12
2.i.b	A.A.S., certificate, and credit diploma programs provide evidence of current alignments between course competencies and workplace job competencies. (Pathway coordinators are to develop metrics based on the LCCC Advisory Committee Handbook)	2.96
2.ii.a	A.A.S., certificate, and credit diploma programs use workplace metrics to illustrate the effectiveness of their career alignments with employers.	3.01
2.ii.b	Data-Embedded Area	
C.	**DISCOVERIES AND ACTION ITEMS FOR CLARIFY PATHS TO STUDENT END GOALS**	
1.a	For the above pillar section (IV. Clarify Paths to Student End Goals), the Program Faculty Lead identifies achievements made during the review cycle.	3.04
1.b	The Program Faculty Lead describes pillar Strengths, Weaknesses, Opportunities and Threats for this pillar.	2.88
1.c	The Program Faculty Lead provides a list of recommendations that support improvement of this pillar.	3.06
	SECTION AVERAGE	**3.06**
V.	**ENSURE THAT STUDENTS ARE LEARNING**	**Total**
A.	**PEOPLE OF THE PROGRAM**	
1.a	The program describes how it encourages and sustains positive faculty-to-student relationships that lead to student success and contribute to the Pathway's achievements.	3.28
2.a	The program describes the diversity of instructional practices it uses and explains how they collectively engage students in the field, demonstrate the rigor of the curriculum, and ensure students are learning the program's competencies.	3.08

2.b	The program describes how it develops opportunities for applied student experiences such as internships, clinicals, field-based research projects/papers, hands on fabrication or crafting of artifacts, field or technology immersion projects, labs, and others.	3.16
2.c	The program describes how best practices in instruction are identified (e.g., professional development opportunities or research efforts) and discuss evidence of utilizing best practices in instruction (e.g., course-based artifacts).	3.02
B.	**PROGRAM-LEVEL LEARNING COMPETENCIES**	
1.a	List the program's learning competencies and describe how they support student success in employment or further education in related fields. Programs provide a summary of data/evidence (program artifacts, employer and alumni surveys, minutes from articulation meeting, student perceptions of the value of competencies in the workplace or for transfer success) that support the program's description of student success.	2.78
C.	**VERIFYING STUDENT LEARNING** **<u>Instructions for the below sections (feedback systems and annual assessment):</u>** Because no formal annual assessment process currently exists at the college, the 2021-2022 Pathway review cycle will substitute V.C.1 section in place of V.C.2 and V.C.3 sections for feedback systems and annual assessment planning. Peer reviewers will rate the V.C.1 section, but will not rate the V.C.2 and V.C.3 sections (gray shaded).	
1.a	Please describe how the program currently assesses program-level student learning competencies on an annual basis. Explain how learning assessment aligns with the program's curriculum map (please link to the program's curriculum map). Explain how assessment results are gathered and shared and indicate what the program has learned from their annual assessment of learning. Describe any improvements the program has made based on its assessment findings.	2.90
2.a	The Program describes the processes utilized to assess program-level competencies and the evidence (program artifact collections, rubric ratings, certifications, documented observations of learning, survey administrations, etc.) from these assessments. The program lists the resulting program improvements. (Embed feedback system table)	
2.b	Data-Embedded Area	
3.a	Using the displayed learning assessment plans (imported from the Anthology planning module), programs explain how they annually maintain assessment planning, discuss some of the changes made to planning over the review cycle based on data reporting, and provide one example of an improvement that emerged from planning efforts.	
4.a	Programs explain how they annually maintain assessment planning, discuss some of the changes made to planning over the review cycle based on data reporting, and provide one example of an improvement that emerged from planning efforts.	2.96
5.a	Programs monitor student academic success and provide supporting evidence from the resources listed below.	3.02

5.b	Data-Embedded Area	
D.	**DISCOVERIES AND ACTION ITEMS FOR ENSURE STUDENTS ARE LEARNING**	
1.a	For the above pillar section (V. Ensure that Students Are Learning), the Program Faculty Lead identifies achievements made during the review cycle.	3.11
1.b	The Program Faculty Lead describes pillar Strengths, Weaknesses, Opportunities and Threats for this pillar.	3.12
1.c	The Program Faculty Lead provides a list of recommendations that support improvement of this pillar.	3.02
	SECTION AVERAGE	**3.04**
VI.	**CONCLUSION: PATHWAY ACTION PLANS OF THE PATHWAY**	**Total**
A.	**PATHWAY ACTION PLANS**	
1.a	Describe how the Pathway plans for future success and improvement by developing at least one Pathway action plan(s) based on the above Pathway pillars' (sections II and III) self-study discoveries, data, and stakeholder feedback. Describe the Pathway's rationale for developing this goal(s) and why it represents a top priority for improvement. Also describe how the Pathway will measure progress of this action plan. Explain how the action plan(s) supports future development of annual assessment planning (either learning competencies or operational outcomes) using a timeline description showing short- and long-term objectives.	2.33
1.b	Describe how the specific program plans for future success and improvement by developing at least one program action plan(s) based on the above specific program pillars' (sections IV and V) self-study discoveries, data, and stakeholder feedback. Describe the program's rationale for developing this goal(s) and why it represents a top priority for improvement. Also describe how the program will measure progress of this action plan. Explain how the action plan(s) supports future development of annual assessment planning (either learning competencies or operational outcomes) using a timeline description showing short- and long-term objectives.	2.85
	SECTION AVERAGE	**2.59**

Appendix E

APR Subcommittee Recommendations Memo

APR Subcommittee Recommendations for Program Review Cycle, 2021-2022

Memorandum

To: Academic Standards Committee
From: Dr. Erin Nitschke, Academic Program Review Subcommittee Chair
Date: July 22, 2022
Re: Subcommittee Recommendations for Program Review Cycle 2021- 2022
cc: Dr. Schaffer, President

This memo provides the Academic Standards Committee (ASC) with an overview of the Academic Program Review (APR) Subcommittee's findings during the AY 2021-2022 program review cycle. The findings are separated into two sections: subcommittee recommendations and feedback on the program review process.

Section I – Subcommittee Recommendations

The central function of the APR Subcommittee is to engage the program review process, provide feedback for program faculty who prepare self-studies, and make recommendations to the ASC regarding the status of said program reviews. The Pathway Review Template, which was developed by the APR Task Force 2020, is comprised of six sections; three common Pathway sections and three program-specific sections. Four of these sections relate directly to the four Pathway pillars: Help Students Choose and Enter a Pathway, Help Students Stay on Their Path, Clarify Paths to Student End Goals, and Ensure That Students Are Learning.

During the AY 2021-2022 program review cycle, there were eight programs that completed program review self-studies as part of the Trades and Technology Pathway. The table below outlines the APR Subcommittee recommendations for these eight programs.

Acceptance of Program Review with no Contingencies	Acceptance of Program Review with Contingencies for Follow-up Reporting
Trades and Technical Studies Pathway Program	Diesel Technology Program
Electrical Technology Program	Welding Program
Automotive Technology Program	Industrial Systems Technology Program
Wind Energy Program	
Industrial Maintenance Program	

Programs with contingencies for follow-up reporting may be contacted in fall 2022, or shortly thereafter, by the Office of Performance and Planning (formerly Institutional Effectiveness).

Appendix F

Detailed Action Plans

Automotive Technology (2014-15 Cycle)
1. The primary goal of the automotive program is to maintain ASE/NATEF Accreditation. This accreditation provides a national view of the educational needs of students within the field of automotive technology.

2. When the Diesel Technology Program leaves the building, the Automotive Program will have the full building to themselves. In order to facilitate the needs of the stakeholders and students, the program plans to start a second set of classes in the other half of the shop.

Diesel Technology (2015-16 Cycle)
Faculty developed a single action plan goal during in service as a starting point for developing a planning strategy within Aquila. Action plan goals currently defined within the program:

1. Assessment data
2. Completion rates
3. Graduation rates
4. Dual enrollment agreements with Albany and Laramie County high schools
5. Enhanced learning outcomes through curriculum review
6. Maintain NATEF Certification
7. Improve program training environments.

Faculty will address the need for adjunct faculty once Flexible Technology use of space is defined by administration.

Industrial Maintenance and Technical Studies (2017-18 Cycle)
Action Plan #1
1) *Goals*: Increase the number of students earning an Industrial Maintenance Credit Diploma.

2) *Strategies*: Strategy #1. There is a great opportunity to increase the number of students earning an Industrial Maintenance Credit Diploma. The Industrial Maintenance program will make a course modification to allow WTT 1300 Theoretical Concepts of Rotating Machines to qualify for the IST 1780 Electric Motors and IST 1781 Electric Motor Circuits credit so that every Wind Energy Technology student will obtain an Industrial Maintenance Credit Diploma in addition to their Wind Energy Technology Associate of Applied Science degree.

Strategy #2. The Industrial Maintenance program will collaborate with the Heating, Ventilation and Air Conditioning/Refrigeration program to modify course requirements to include IST 1610 and 1611 Mechanical Drives and Mechanical Drives Assemblies, IST 1660 and 1661 Fluid Power and Fluid Power Circuits, and IST 1810 and 1811 PLC (Programmable Logic Controllers) and PLC Circuits. Again, there is a great opportunity to increase the number of students earning an Industrial Maintenance Credit Diploma by making HVAC/R program modifications so that every Heating, Ventilation and Air Conditioning/Refrigeration student earn an Industrial Maintenance Credit Diploma in addition to their HVAC/R Associate of Applied Science degree.

3) *Time Lines*: The projected time line for goal attainment is Fall 2019.

4) *Evaluation Process*: The feedback method to evaluate attainment of progress over time will be Institutional Research data for Industrial Maintenance Credit Diploma completers, first completers are projected for spring 2020.

5) *Resources*: With the exception of a second Integrated Systems Technology Instructor, no immediate cost is projected and the action plan goal can be accomplished with the current Industrial Maintenance program structure. This action plan is a simple fix to an existing problem of Industrial Maintenance Credit Diploma completers. Both the Wind Energy Technology AAS and the HVAC/R AAS both lacked just a few Integrated Systems Technology courses to earn the Industrial Maintenance Credit Diploma.

6) *Opportunities/Obstacles*: The Industrial Maintenance program will see growth in all of its Institutional Research data and will improve the performance of the program and will expand the credentials our Wind Energy Technology and Heating, Ventilation and Air Conditioning/Refrigeration students can earn. There are no obstacles to attainment of this goal but there are consequences if not achieved as the Industrial Maintenance program may be seen as under-performing.

Action Plan #2

1) *Goals*: Development of Motor Control trainers to expand skills-based (lower cognitive level) laboratory "trainers" and exercises with more challenging, customized and upgraded hands-on, project-based, real-world trainers.

2) *Strategies*:
1. Utilize Perkins funds to purchase equipment for Motor Control trainer expansion.
2. Upgrade equipment and Motor Control trainers.
3. Develop lab exercises with more challenging, hands-on learning and problem-solving objectives that requires critical thinking, incorporates project-based learning and infuses authentic assessment of student learning that addresses multiple levels of cognition, e.g., higher order cognitive skills.

3) *Time Lines*: The projected time line for goal attainment is May 2018.

4) *Evaluation Process*: The feedback method to evaluate attainment progress over time will be learning assessment and student surveys in Fall 2018.

5) *Resources*:)
Perkins funds equipment expenditures approximately $7500.00.
Miscellaneous remaining equipment for trainer approximately $1500.00.
Work study payment approximately five weeks to build. $1000.00
Total: $10,000 for five trainers total ($2000.00 each).

6)*Opportunities/Obstacles*: The equipment has been purchased already with Perkins funds and the work study is in process of building the trainers. One obstacle would be if the trainers aren't

constructed in time for the fall 2018 semester, I don't think that will be a problem however. The only consequence to not having the trainers constructed in time would be to revert back to using the former trainers.

b) The program review process and its feedback information identified strengths and weakness in the Industrial Maintenance program and action plans were formulated to make improvements to the program. As the Industrial Maintenance program analyzed data from the Institutional Research department and synthesized the self-study narratives from the current program review process, it became very apparent that the IST courses/Industrial Maintenance program really provide a support function for the Wind Energy Technology program and the HVAC/R (Heating, Ventilation and Air Conditioning/Refrigeration) programs. Although the Integrated Systems courses support many students in these other programs, Industrial Maintenance has not produced any Industrial Maintenance Credit Diplomas completers. Further analysis of the Industrial Maintenance Credit Diploma, the Wind Energy Technology and HVAC/R Associate of Applied Science degrees revealed that with a minor Industrial Maintenance course modification, every Wind Energy Technology student could achieve an Industrial Maintenance Credit Diploma and an Industrial Maintenance Operational Outcome and action plan became clear in its program review findings to *increase the number of students earning an Industrial Maintenance Credit Diploma*.

***Please note that this is the first assessment plan associated with the Industrial Maintenance program. The Industrial Maintenance program is currently producing its first assessment plan in Aquila due December 31, 2018. Prior to 2018 assessment plans in Aquila were developed in the Industrial Systems Technology Certificate program which ended with academic year 13/14, and transitioned in academic year 14/15 to the Industrial Maintenance Credit Diploma which became available in academic year 15/16. Although the Aquila Continuous Improvement Program Review cycle for a Laramie County Community College Program is five years, the Industrial Maintenance Credit Diploma is entering it's 3rd year; 15/16, 16/17 and 17/18. There was confusion between the similarities of the programs and the Industrial Maintenance assessment plan in Aquila became available for the first time this year (prior plans were developed in the Integrated Systems Technology Certificate Program). Please view the Industrial Maintenance Credit Diploma assessment plan in the Industrial Maintenance Credit Diploma > Aquila folder in the document directory and please note this plan is under development. The Industrial Maintenance program is in its first year of the assessment planning cycle in Aquila.

Welding (2019-20 Cycle)
Action Plan 1

Description of Action Plan Goal:

The goal of the Welding Technology Program is to implement a new certificate diploma that students will have the option to obtain in addition to their Combination Welding Certificate diploma and their Advanced Pipe welding Certificate Diploma and alongside their AAS Degree. This would better equip students who desire to pursue higher end welding jobs. This would make the LCCC Welding Program a stronger and even more comprehensive welding program. This

certificate diploma would be in addition to the degree program and other two certificate diplomas offered. It would not be required for the completion of the AAS degree.

Strategies and Actions to Achieve Goal:

The Welding program will need to develop the curriculum for this certificate. It will mean adding two to three new welding classes. These classes should include a GMAW/FCAW Pipe welding class, a Stainless steel pipe welding class and an aluminum welding class.

Projected Time Line for Goal Attainment:

The timeline goal for this new diploma is to implement it no later than the Fall of 2022.

Feedback Method to Evaluate Attainment Progress Over Time (surveys, IR Data, learning assessments, and others):

In order to gauge the interest level in this new diploma, current students should be given a survey to evaluate if they would desire to pursue an additional diploma such as this. Once the program is in place the students will evaluate the program's effectiveness through student course survey. Program will be receiving feedback from its annual assessment planning, from employer surveys, and through biannual meetings of the Advisory Committee.

Describe Needed Resources with Cost Estimates (personnel, infrastructure, equipment and others):

1. Support of faculty efforts to develop the program
2. Administrative support to process the program through the internal steps as well as reviews at the local and state levels.

Describe Planning Opportunities, Obstacles, and Consequences If Not Achieved:

Planning opportunities include advisory board committee meetings and faculty meetings. Obstacles include lack of interest, possible lack of support, and possible lack of financial resources. Consequences if not achieved include not offering as high of level of training as achievable, and not being a comprehensive program that is inside a college striving to be a comprehensive community college.

<u>Action Plan 2</u>

Description of Action Plan Goal:

The LCCC Welding Program's goal is to become an accredited welding Testing facility. This would allow the welding program to serve the community better by testing welders in the communities welding industries.

Strategies and Actions to Achieve Goal:

The faculty members of the Welding Program will need to obtain additional training and credentials and become either SCWI's or ASNT Level II inspectors.

Projected Time Line for Goal Attainment:

The time line for achieving this goal is by the Spring of 2025.

Feedback Method to Evaluate Attainment Progress Over Time (surveys, IR Data, learning assessments, and others):

The feedback method is receiving the necessary credentialing paperwork.

Describe Needed Resources with Cost Estimates (personnel, infrastructure, equipment and others):

1. Faculty works toward this goal with necessary training.
2. Administrative support with funding.

Describe Planning Opportunities, Obstacles, and Consequences If Not Achieved:

Some obstacles are that the current faculty are not SCWI's or ASNT Level 2 certified inspectors. Another obstacle could be the necessary funding. Consequences of not meeting this goal are that the welding program would not be equipped to serve the community as well as it could.

Wind Energy (2015-16 Cycle)
The wind energy program does have expected costs for its AWEA (American Wind Energy Association) standards, such as annual dues to be a member of AWEA for $500.00 per year to have access to wind news and standards updates. Strategies to train the instructor and work study student to complete the program's assessment goals.

Five-year action goals -
1. Complete the program review process.
2. Continue to meet and exceed the certification requirements for renewable energy corporations for entry level Tech I and Tech II career placement.