

Proposal to Eliminate Academic Program

Pursuant to UW Regulation 6-43

BS Secondary Education: Technical Education

Statement of the reasons for elimination of the program:

The Technical Education program at UW-C is dependent upon a single faculty member and is delivered in a two-year cohort cycle. The program fails to attract strong student enrollments. The Technical Education program is a rebranding of what was called years ago nationally - Industrial Arts Education. Students acquire a wide variety of vocational skills and knowledge in this program that are transferrable not only to classroom teaching but also technical career and industrial applications. Currently, 17 of the 21 or approximately 81% of graduates in the last five years are teaching in schools.

The Technical Education program aligns well with the University's outreach and service mission. This program is unique because it is offered onsite at the UW-Casper campus. It partners with Casper College that provides lower level specialized course requirements that lead to both an associate and a bachelor's degree. The cost of maintaining a Technical Education program or any Career Technical Education (CTE) centered program away from the facilities of a community college structure is cost prohibitive because of the amount of consumables, equipment, and maintenance required to provide the many diverse lab and hands-on opportunities necessary. As a result, the direct instructional costs of this program are nearly double that of the average degree instructional cost in the College of Education. Of equal concern is the fact that the Technical Education course enrollments frequently fall below course enrollment minimums ($N=10$). It is also a concern that this degree program has not generated sufficient enrollments in the past and will not do so likely into the future to justify a 21-24 credit per year teaching load standard for the single Academic Professional Lecturer.

Taken together, these data argue that a low demand for the technical education program at UWC is likely to continue. Many university teacher education programs have eliminated the industrial arts education degree program. Others have attempted, as we have, to rebrand this degree and modernize it. Still other universities have re-envisioned with the help of the K-12 community to offer an engineering technology education degree in conjunction with colleges of education and engineering.

Furthermore, the state of Wyoming has an alternative route for providing CTE educational courses in Wyoming high schools. Individuals who have taken necessary coursework and have industrial or other career related experience and expertise in CTE fields might be employed to teach under a *Trade and Technical Profession Industry Career permit*. Consequently, after serious deliberation, it is recommended that the Technical Education degree program be eliminated due to

persistent low productivity. As difficult as this decision is, it has been one that has been decided at many of UW's peer and aspirational institutions.

Description of the program and relevant data:

Describe the mission, curriculum, content and format of the program:

The technical specialization area includes study in the areas of welding, manufacturing, construction, woodworking, drafting and computer-aided design, graphic design, electronics, and energy and power technology. In addition, students select from one or more areas of concentration depending upon their interest. These concentrations provide for more focused study in the areas of automotive, multi-media communications, drafting, electronics, machining, welding or woodworking.

Technical education is becoming more important for everyone to understand new technologies because of our increasingly technology-based society. It influences our work, the products that we use, even our recreational activities. It needs to be studied so everyone can understand it, use technological products wisely, and help shape the future direction of our society. As a technical educator, students will gain a broad understanding of technological systems in the areas of communication, manufacturing, construction, transportation, power and energy; develop knowledge and skill in working with technological tools and processes in each of the above activity areas; and learn how to turn knowledge of industrial and technical systems into engaging curriculum for the classroom.

Technical Education is a Bachelor's Degree program only and is offered on a two-year cohort cycle.

UW-Casper Technical Education students enter the program as juniors who have completed an associate's degree from Casper College. The Associate's degree in Technical Education includes specialized areas of concentration in the areas of Automotive, Communication, Drafting, Electronic, Manufacturing, Welding and Woodworking. These areas align with high- need skills throughout our region. Once at UW-Casper, the students complete the following laboratory based courses in a two-year rotation (listed below). Once completed the Technical Education Bachelor's degree leads to certification to teach in the state of Wyoming by the Wyoming Professional Teaching Standards Board.

YEAR ONE: Fall courses in even years:

EDSE 3010 Contemporary Philosophies of Technical Education (3 credits)
EDSE 3030 Construction Technology (3)
EDSE 3610 Manufacturing Technology (4)

YEAR ONE: Spring courses in odd years:

EDSE 3040 Energy and Power Technology (3)
EDSE 3050 Communications Technology (3)

YEAR TWO: Fall courses in odd years:

EDSE 3020 Facilities and Advisory Management
(3) EDSE 3277 Technical Education Methods I
(3) EDSE 4277 Technical Education Methods II
(4)

YEAR TWO: Spring Student Teaching

Residency in even years: EDSE 4500
Residency in Teaching (15)

Changes to the Program: In Fall 2013 the program shifted to create the two- year rotation listed above to implement a cohort model. This shift happened to increase enrollment. In Fall 2016, the program will begin additional curriculum changes that will affect the lower level courses provided in the Associate's Degree delivered at Casper College. In an attempt to keep up with technological changes and to provide the students with the best program while making the credit hours achievable, Casper College instructors, division and academic deans have met to approve a newly formatted Technical Education Associate's Degree for students completing that degree in conjunction with the UW-C Technical Education Bachelor's Degree.

Describe the role of the program within the context of the college and the mission of the University:

The Technical Education students are actively involved with local, regional and national association activities. As part of the national Technology Education Engineering Collegiate Association (TEECA), students compete regionally and nationally. Mr. Thompson had national champions in competitions such as Teaching a Lesson, and Technology Challenge (quiz bowl type competition) as well as national student officers representing national TEECA. Locally, UW-C TEECA, is a recognized student organization at Casper College, hosts a Technology Student Association (TSA) Day at the college. Over 150 middle school students attend a one- day professional development and competition day each spring. Students also, as part of a community service expectation, spend time in Title I elementary schools within Natrona County completing STEM activities.

The Technical Education program aligns well with the mission of the University in the respect to UW's commitment to outreach and service. Having a location in

Casper, UW extends its capacity to serve more students in all communities throughout the state and provides a university presence away from Laramie.

The mission states there is an understanding that the greatest service is to provide the state and nation with teachers. This is also recognized as one of the mission's guiding principles when it comes to serving the needs of the state.

The program being housed in Casper does not have an impact on programs across the Laramie campus. The students though are served by other UW College of Education faculty housed in Casper so the Technical Education student numbers do affect the course enrollments in EDST 3000 and EDST 3550, both courses taught onsite at the UW-C campus.

Financial data relevant to the academic program:

Ratio of student credit hours per FTE: **132 student credit hours: 1 faculty**

Direct instructional expenditures:

- i. **Per student credit hour: \$ 514.45** per student credit hour
- ii. **Per total degrees awarded: \$16,977** per degree
(In 2013-14, four degrees were awarded. In 2015-16, four degrees are anticipated to be awarded.)
- iii. **Non-personnel expenditures per total academic FTE: UW, Laramie= \$0
UW, Casper=\$0.** (UW-C receives \$11,700/year from the Natrona County BOCES board to support the Technical Education program for course supplies, instructor ~~and student and student~~ travel, promotional items, etc.)

Course enrollment

- i. Number of classes falling under university minimums.
Fall 2010- Spring 2016: **21 out of 40** courses in Mr. Thompson's teaching load fall below UW's 10 students per course minimum.
- ii. Lower-division courses falling under university minimums: **0**
(There are no 1000 or 2000 lower division undergraduate courses in this program.)

Other instructional cost drivers, such as:

- i. Section fill rates: Only one section of each Technical Education course is offered per semester.
- ii. Course completion rates: 90-100% completion rate depending on the cohort.
- iii. Curricular complexity: All of the courses in the Technical Education program are laboratory based. The courses incorporate knowledge

- and skills to prepare future Technical Education teachers.
- iv. Faculty course load: Only one faculty in program. As an APL, Mr. Thompson teaches on average 17 credit hours per year.

Research expenditures per tenured/tenure-track FTE (and other academic personnel, where appropriate): **\$0**

Admission, enrollment and graduation data relevant to the program, including the number of students currently enrolled and the status of their progress toward graduation:

Below is a list of the graduates from the previous four Technical Education cohort cycles. Some cycles, because of the need to complete lower level content, a student will take a class after residency in order to complete the needed content for program completion.

2016 4 graduates (anticipated)
2014 4 graduates
2012 10 graduates
2010 7 graduates
2008 5 graduates

Majors	2011	2012	2013	2014	2015
Technical Education	10	8	6	7	7

Describe the administration of the program:

The Secondary Education Technical Education option is administered by the Department of Secondary Education in the College of Education, Department Head Kate Muir Welsh.

Describe the faculty and academic professionals who serve in the program, including their academic credentials, academic rank and length of service to the University:

Mr. Rodrick Thompson, M.A. Education, University of Northern Iowa,
Academic Professional Lecturer, Appointed 2005

Describe the program facilities, including classrooms and offices, library and equipment used by or dedicated to the program:

Faculty offices: 116B Gateway Building, UWC

Design Studio, Robotics Lab, and metal fabrication, wood working, auto body and mechanics shops, welding laboratories, CAD design programs, printers, classrooms, other technology facilities located at Casper College / UW-Casper.

Multiple consumables, equipment, and maintenance required to provide the many diverse lab and hands-on opportunities necessary to support this degree program

Evaluations from accrediting bodies or other reviewers of the quality of the program and its faculty and academic professionals:

Program accreditation

1. Wyoming Professional Teaching Standards Board (PTSB) is the agency responsible for licensure and endorsement of the Technical Education graduates.
2. The most recent PTSB accreditation was completed and approved in September 2013.
3. The program will follow the accreditation cycle of the College of Education national accreditation which will occur again in seven years (2023).
4. While completing the most recent program accreditation process in 2013 by the PTSB, there were two concerns raised, addressed and discussed. When final accreditation occurred, there were no outstanding recommendation or conditions. The following were the concerns and the written responses to the PTSB board.

Concern 1). Use maintenance and assessment of products and systems utilized in trade and technical education, including safety. *In response to the first concern, a course titled EDSE 3020 Facilities and Advisory Management was further explained. In this course, students work with an advisory committee as well as classroom teachers from both junior and senior high schools.*

Students complete a safety observation of the classrooms and labs and then visit with the classroom teachers about suggestions and questions they have about the layout. Students also participate in maintenance and minor repairs expected from a classroom teacher. They are provided the opportunity to exchange welding tanks, test the gauges, and replace saw blades and cutter heads. Students have the opportunity to work alongside classroom teachers to perform the tasks required on a daily basis of a full time teacher. Once the PTSB heard more about what was in place, they felt that the concerns they had were actually met in the program course.

Concern 2). Knowledge of various trade and technical systems including but not limited to: (A) medical biotechnologies, (B) agriculture, (C) energy and power, (D) information and communication, (E) transportation, (F) manufacturing, (G) construction, (H) technical and graphic design, animation and (I) technological systems.

In response to the second concern, students are provided many opportunities to be ready for positions within the region. Placing resident students in situations where they are only working in one area such as welding or woods does not provide a well-rounded opportunity. Students need to be aware of as many teaching strategies as possible and need to be well-rounded and capable at a beginning level to teach any area deemed to be Technical Education. Students who have had residency in locations such as Buffalo and Wright as well as those who have been placed in Casper are very comfortable with not only teaching multiple classes but also find comfort in teaching multiple classes within a single block of time. Though they felt the program's rationale was strong enough to satisfy their needs. Mr. Thompson finds it difficult with the credit hour mandates to be able to prepare students for all of the areas PTSB felt were needed.

Grants Awarded: As a part of EDSE 3020 Facilities and Advisory Management course, students write and apply for grants. They do this in conjunction with their residency placement mentor so that the equipment can be housed in the schools and used by the mentors once the resident student has completed and graduated from the Technical Education Program. Grant applications are submitted to the Natrona County Board of Cooperative Educational Services (BOCES) primarily because of its willingness to allow students to appear and discuss the grant face-to-face with their entire board. In the past five years, following are some of the grants that have been awarded:

2016

Mark Forge 3-D printer and 3-D doodle pens \$13,000. (Equipment is at Frontier Middle School.)

2015

CNC Plasma CAM \$17,000 (Equipment is housed and maintained in the Robotics Lab at Casper College.)

2013

Sawstop table saw \$4,000 (Equipment is in the Design Studio at Casper College.) 2011
CNC wood E Z Router with Enroute software \$35,000 (Equipment and software is at Natrona County High School, Casper.)

2011

Pneumatic bend tester for welding tests. \$3,500 (Equipment is housed at Kelly Walsh High School, Casper.)

2011

Laguna re-saw Band saw \$6,000 (Equipment is housed and maintained at Kelly Walsh High School, Casper.)

Grants submitted by Mr. Thompson: Applied for University of Wyoming Math and Science Partnership grant in each of the following years (2011, 2012, 2013). Grants were not funded.

Presentations: Presented every summer at the Wyoming Association for Career and Technical Education in the Technology Education division meetings.

National/International Awards: In 2014, Mr. Thompson was recognized as a Distinguished Technology Educator (DTE) by the International Technology Engineering Educators' Association (ITEEA)

Comparison of the program with related or similar programs:

There are few Technical Education programs nationally, especially in the western United States. There are constant inquiries for the graduates of the program from administrators and human resources personnel desperately searching for qualified Technical Education graduates for the openings within their respective school districts. Locally, Natrona County School District #1 is opening a Pathways Innovation Center, where students from area high schools travel to a separate district complex to attend a high-end pathway capstone courses in a concentrated area of study. Of the three teachers selected to be the capstone instructors in the technical areas of the Architecture, Construction, Manufacturing and Engineering (ACME) Pathway, all are former graduates of the UW-Casper Technical Education Degree.

The UW-C Technical Education program and students are recognized around the nation. Students participate in regional competitions in both Colorado at the Colorado Technology Educators Association annual conference and Missouri at the International STEM Educator's Conference as well as national competitions. Students consistently place in the top three places in regional and national competitions. The competitions that the UW-Casper students compete are the Quiz Bowl which is a Jeopardy-style challenge where schools face off in live competition in teams of four. The questions are technology and engineering-based as well as pedagogy. The UW-Casper team is consistently in the top of the competing teams. Another competition that UW-Casper students excel is in Teaching a Lesson competition. UW-Casper TEECA has had a competitor place first or second for the past three years and third in the past five years. UW-Casper TEECA typically places within the top five in the Problem Solving Challenge. These are competitions that are sponsored and held at both the regional and national completion sites. Only the Teaching a Lesson Challenge has a pre-conference qualification activity. The other challenges are open to each student chapter that is attending the conference.

Describe the anticipated effects of elimination of the program upon the college in which the program is situated, upon other colleges and units of the University, and upon the University as a whole, including:

Effects upon students enrolled in the academic program:

This would close a program that has been poorly enrolled with an average of 2.5 graduates per year for the past five years. Alternative PIC teaching permits allow schools to locate and employ professionals who are employed in industry to teach the classes typically taught by graduates in this program. The APL in this program would be granted a final year of employment to teach out the students currently enrolled in this program.

Effects upon faculty and academic professionals who serve in the program, including termination of any existing positions:

The APL in this program may be terminated – see below section titled “Plans for accommodating faculty and academic professionals who will be terminated or otherwise affected by elimination of the academic program”

Educational and financial effects upon other units of the University:

The university would realize costs savings from the closure of this program that could be targeted strategically to more productive educational programs to meet the emerging needs of the schools in the state of Wyoming.

Effects upon faculty, academic professionals, staff, students and alumni of the University:

The program is unique, and provides a service to the state by providing credentialed technical educators to junior and high schools, 6th-12th grade. Thus, it is important for discussions to continue within UW between colleges, for example Education and Engineering and Applied Sciences, to decide upon future potential programmatic additions that could help to provide this service going forward.

Effects on the State of Wyoming, including loss of benefits conferred outside the University by the academic program:

It should be noted that eliminating this degree program would effectively eliminate in a key vocational education program in the K-12 schools at a time when Wyoming is trying to diversify its economy. On the other hand, the state’s professional licensing board, PTSB, has provided an alternative route for schools to meet the specific teaching needs associated with technology education through the use of PIC Permit.

Implementation plan to be followed in the event the academic program is eliminated, including:

Procedures for handling current and future applications for admission:

Students are admitted every two years into a cohort program. No new students will be admitted. Current students in the cohort would be taught out to complete their degree programs causing minimal disruption to student plans.

Plans for assisting currently enrolled students to complete the course of study:

Current students in the cohort would be taught out to complete their degree programs causing minimal disruption to student plans.

Plans for accommodating faculty and academic professionals who will be terminated or otherwise affected by elimination of the academic program:

Per UW Regulation 6-43, the University shall offer the tenured faculty member or extended term academic professional another appropriate position in the University if the person is qualified and the position is available before the date of the termination of the person's position. In the allocation of appropriate positions, positions shall first be offered to tenured faculty and extended term academic professionals who are being terminated before offers are made to probationary faculty and academic professionals or other persons not currently employed by the University.

If no appropriate University position is available for which the person is qualified, the University shall continue the position of the tenured faculty member or extended term academic professional for at least the next full academic year after the date of the termination of the person's position. The continued position may be assigned appropriate duties consistent with the best interests of the University.

The University shall offer the probationary faculty member or probationary academic professional another appropriate position in the University if the person is qualified and the position is available before the date of the termination of the person's position. In the allocation of appropriate positions in the University positions shall first be offered to probationary faculty and probationary academic professionals before offers are made to persons not currently employed by the University.

If no appropriate University position is available for which the person is qualified, the University shall continue the position of the probationary faculty member or probationary academic professional who is in at least the third year of service on the date of the termination of the person's position for at least the next full academic year after that date. However, for a probationary faculty member or probationary academic professional in

the second year of service, the position shall be continued for at least six months. For a probationary faculty member or probationary academic professional in the first year of service, the position shall be continued for at least six months. The continued position may be assigned appropriate duties consistent with the best interests of the University.

A faculty member or academic professional who receives notice of termination because of elimination of an academic program shall have the right to appeal the termination under UW Regulation 5-35, Appendix B, but not the decision to eliminate the program, unless the decision is based in whole or in part on financial exigency under UW Regulation 6-41.