EXECUTIVE COMMITTEE*

UTAH SYSTEM OF TECHNICAL COLLEGES
BOARD OF TRUSTEES – EXECUTIVE COMMITTEE*
SPECIAL MEETING AGENDA
February 2, 2018 – 8:00 am – 8:30 am
Via Conference Call
Anchor Location: Utah System of Technical Colleges
310 South Main #1250, Salt Lake City, UT 84101
801-341-6000

I. **Introduction**
   A. Call to Order – Chair Evans
II. **Action Items**
   A. Search Committee for Dixie Technical College President. Kelle Stephens was terminated effective, January 3, 2018. Policy requires the Board of Trustees Chair to appoint a Dixie President Search Committee with the approval of the Board of Trustees. Executive Committee will consider approval of the Search Committee on behalf of the Board of Trustees. PROPOSTED TIMELINE/COMMITTEE (../assets/docs/proposed%20timeline and committee.pdf)
   B. Strategic Workforce Investment (SWI) Proposals. Seven SWI proposals involving technical colleges have been submitted to the State. Statute requires evidence of Board support for the proposals to be considered. Executive Committee will consider supporting the proposals on behalf of the Board of Trustees ITEM IIC (../assets/docs/ITEM%20IIC.pdf)
      - Bridgerland, Davis, and Ogden-Weber – with WSU and SLCC: Automotive ($20K + $290K) ITEM C1 (../assets/docs/ITEM%20C1.pdf)
      - Bridgerland – with USU, and Cache County & Grand School Districts: Outdoor Products ($55K + $250K) ITEM C2 (assets/docs/ITEM C2.pdf)
      - Bridgerland – with USU; and Cache County, Logan, & Rich School Districts: Learning Experience Design ($0 + $250K) ITEM C3 (../assets/docs/ITEM%20C3.pdf)

- Davis – with WSU and Davis School District: IT Web Development ($0 + $289) ITEM C4 (../assets/docs/ITEM%20C4.pdf)
- Mountainland – with UVU and region school districts: Software Development/IT ($0 + $260K) ITEM C5 (../assets/docs/ITEM%20C5.pdf)
- Southwest – with SUU and Iron County School District: Aerospace and Manufacturing ($123K + $153) ITEM C6 (../assets/docs/ITEM%20C6.pdf)
- Uintah Basin – with USU: Geoscience Technology ($93K + $154) ITEM C7 (../assets/docs/ITEM%20C7.pdf)

C. Closed Session - The Executive Committee may elect to go into closed session, which will not be open to the public, pursuant to Utah Code Annotated (U.C.A. 52-4-204 and 52-4-205).

III. **Adjourn**

PUBLIC NOTICE OF ELECTRONIC MEETING ACCESS (UCA 52-4-207(3)): THIS MEETING WILL BE PROVIDED WITH ELECTRONIC MEETING ACCESS VIA CONFERENCE/SPEAKER TELEPHONE FOR BOARD OF TRUSTEES MEMBERS ONLY BY PRIOR ARRANGEMENT WITH THE BOARD SECRETARY. UTAH SYSTEM OF TECHNICAL COLLEGES SHALL BE THE ANCHOR LOCATION FOR PUBLIC ATTENDANCE.

Automotive Strategic Workforce Initiative Proposal

Partnership—Weber State University, through the College of Engineering, Applied Science & Technology (EAST) and the Department of Automotive Technology, a departmental unit within EAST, is applying for Strategic Workforce Initiative funding for a new cooperative project in vehicle maintenance and repair industry needs between the following partners:

- Weber State University (WSU)—David Ferro, Dean, College of Engineering, Applied Science & Technology; Allyson Saunders, Associate Dean, College of Engineering, Applied Science & Technology; Scott Hadzik, Department Chair, Automotive Technology
- Bridgerland Technical College (BTECH), Chad Campbell, President; John Davidson, Vice President for Instruction, Contracts, and Grants; Mike Nield, Department Head and Instructor for Automotive
- Davis Technical College (Davis Tech), Mike Bouwhuis, President; Kim Ziebarth, Vice President of Instruction; Marcie Valdez, Foundation Director and Grant Writer/Administrator; Mark Hadley, Director of Technical and Apprenticeship Program; John Riley, Automotive Faculty
- Ogden-Weber Technical College (OWTC), James Taggart, President; Roger Snow, Vice President for Instructional Services; Monica Schwenk, Development Director; Eric Rassi, Automotive Instructor
- Salt Lake Community College (SLCC), Eric Heiser, Dean, School of Applied Technology and Technical Specialties; Norm Brown, Program Coordinator, Automotive Technician

Stackable Sequence of Credentials—This career pathway consists of stackable credentials (see Figure 1) beginning with high school and adult students at technical colleges or Salt Lake Community College students. Specifically designed to streamline student progress toward a STEM-oriented career goal, this pathway offers multiple entry and exit points culminating in an associate degree or higher in automotive technology. The degrees directly support economic growth in the high-demand industry cluster of automotive technology. Students with basic

skills are highly sought after by employers and frequently secure employment as automotive service technicians while continuing their education in advanced vehicle diagnostics. Finding skilled and experienced automotive service technicians capable of advanced vehicle diagnostics is critical to the automotive industry in Utah.

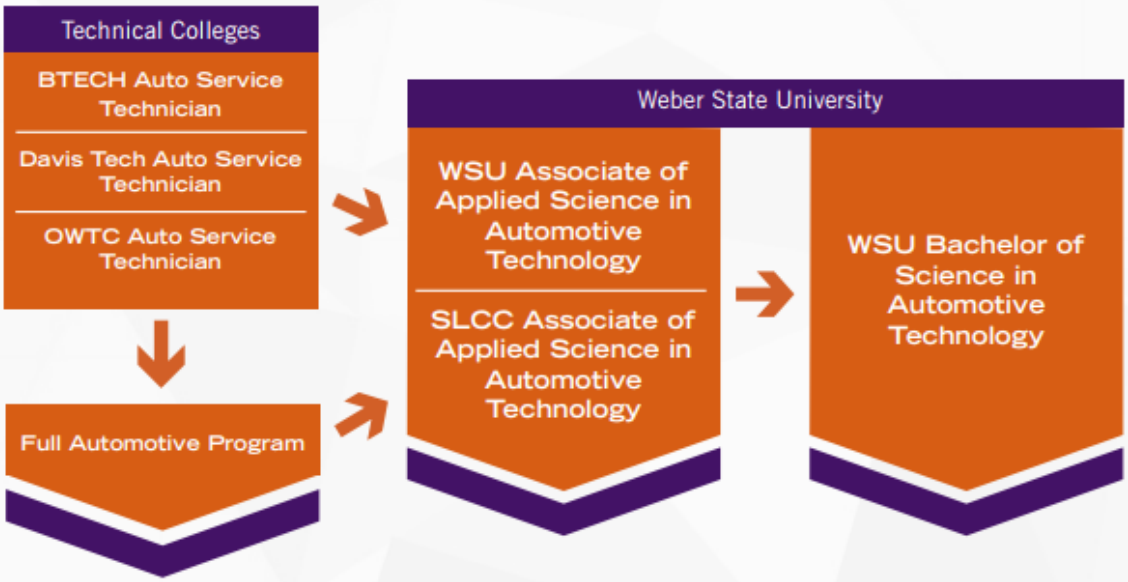
WSU students enroll in automotive technology programs at technical colleges and/or SLCC to complete a portion (approximately one semester) of WSU AAS degree in Automotive Technology. The intent of WSU is to continue articulating coursework for the technical college's certificates of proficiency. The AAS degree at SLCC has also been articulated with the Automotive Technology BS degree at WSU; consequently, students can transfer directly from SLCC to the BS degree at WSU. Although international students are a small component of the WSU students, SLCC provides an opportunity for both domestic students and international students to take these courses and transfer to WSU. The articulations allow WSU to gives all students an opportunity to complete a bachelor's degree in automotive technology.

1. Technical College Automotive Programs
    a. BTECH
    b. Davis Tech
    c. OWTC
2. Associate of Applied Science in Automotive Technology
    a. WSU
    b. SLCC
3. Bachelor of Science, Automotive Technology
    a. WSU

The stackable degrees provided by WSU's partnership with SLCC, BTECH, Davis Tech, and OWTC offers a number of entry and exit points. Each successive step provides students access to an advanced degree and associated higher wages, achieving a primary objective of Strategic Workforce Investment. Students taking advantage of the stackable credential track will possess the technical skills necessary to be employed with automotive repair facilities throughout the state.

STRATEGIC WORKFORCE

Educational Pathways



JOBS

Automotive and Watercraft Service Attendants
Tire Repairers and Changers
Outdoor Power Equipment and Other Small Engines
Motorboat Mechanics and Service Technicians
Farm Equipment Mechanics and Service Technicians
Motorcycle Mechanics
Recreational Vehicle Service Technicians
Automotive Service Technicians and Mechanics

JOBS

Automotive Service Technicians and Mechanics
Bus and Truck Mechanics and Diesel Engine Specialists
Automotive Body and Related Repairers
Mobile Heavy Equipment Mechanics
First-Line Supervisors of Mechanics, Installers and Repairers
First Line Supervisors of Transportation and Material Moving Machine and Vehicle Operators

JOBS

After Sales Product Engineer
Field Technical Engineer
Fleet Manager
Dealership Service Manager
Dealership General Manager
Manufacturer District Manager

Figure 1: Strategic Workforce On-Ramps and Off-Ramps

The detailed courses for the Automotive Service Stackable Credentials are shown below. The first section (Step 1) shows the various courses from BTECH, Davis Tech, and OWTC. These courses are equivalent to 14 credits at WSU. Students then complete their AAS at WSU. The goal is to have these courses taught only at the technical colleges or SLCC. Thus, automotive technology in Northern Utah would be truly stackable. (It is intended to add the new process while keeping current articulation agreements.)

Automotive Service Stackable Credentials

Step 1: Complete appropriate courses at Davis Tech, OWTC, or BTech

Ogden Weber Technical College	
Step 1: Complete the Following Courses at OWTC	**Hours**
AUTO 1000 Foundations and Safety	50
AUTO 1005 Automotive Electric/Electronic Systems 1	50
AUTO 1020 Automotive Suspension and Steering 1	100
AUTO 1025 Automotive Suspension and Steering 2	50
AUTO 1030 Automotive Brakes 1	100
AUTO 1035 Automotive Brakes 2	50
AUTO 1040 Automotive Engine Repair 1	50
AUTO 1045 Automotive Engine Repair 2	100
AUTO 1050 Automotive Automatic Transmission/Transaxle 1	25
AUTO 1060 Automotive Manual Drivetrain and Axles 1	25
AUTO 1070 Automotive Heating and Air Conditioning 1	50
AUTO 1075 Automotive Heating and Air Conditioning 2	50
AUTO 1080 Automotive Engine Performance 1	50
AUTO 1090 ASE G1 Preparation	10
AUTO 1300 Automotive Critical Workplace Skills	10
Total	**770**

Bridgerland Technical College	
Step 1: Complete the Following Courses at BTech	**Hours**
ACDM 1400 Job Seek & Work Relations	30
AUTO 1015 Intro Automotive Services	120
AUTO 1010 Introduction & Safety	30
AUTO 1063 Steering & Suspension	135
AUTO 1073 Brakes	135
AUTO 1053 Engine Repair	150
AUTO 1132 Heat, Vent, Air Conditioning	120
Total	**720**

Davis Technical College	
Step 1: Complete the Following Courses at Davis Tech	**Hours**
AUTO 1005 Introduction and Safety	60
AUTO 2042 ASE Brake Systems 1	90
AUTO 2043 ASE Brake Systems 2	90
AUTO 2032 ASE Steering and Suspension 1	90
AUTO 2033 ASE Steering and Suspension 2	120
AUTO 2002 ASE Engine Repair 1	30
AUTO 2003 ASE Engine Repair 2	180
AUTO 2070 ASE Heating Ventilation and Air Conditioning 1	30
AUTO 2070 ASE Heating Ventilation and Air Conditioning 2	60
Total	**750**

Weber State University

Step 2: Associate of Applied Science Degree, Automotive Technology

At Least 600 hours at Davis Tech, OWTC, or BTech (14 Credits) / WSU (51 credits)

Required Automotive Courses	
Step 2: Complete the Following Courses at WSU	Hours
AUSV 1010 Automotive Orientation	1
AUSV 1320 Automotive Electronics 1	2
AUSV 1323 Automotive Electronics 2	2
AUSV 1325 Automotive Electronics 3	3
AUSV 2860 Cooperative Practicum	3
AUSV 1220 Manual Drivetrain Systems	3
AUSV 2120 Automotive Electrical/Body Control	3
AUSV 2520 Automatic Transmissions	4
AUSV 2020 Automotive Engine Control Systems	3
Total	**24**

Required General Education and Support	
Step 2: Complete the Following Courses at WSU	Hours
MATH 1010 Intermediate Algebra	3
ENGL 1010 EN Introduction to College Writing	3
COMM HU2110 Interpersonal & Small Group Comm.	3
Social Science (SS)/Diversity (DV)	3
Humanities (HU) (Except Communication)	3
CHEM 1010 PS Introduction to Chemistry	3
PS 3203 Customer Service Techniques	3
Computer Information Literacy (CIL), A-C*	3
Total	**24**

Salt Lake Community College

Step 2: Associate of Applied Science Degree, Automotive Technician

Required Automotive Courses	
Step 2: Complete the Following Courses at SLCC	Hours
AUTO 1010 - Maint & Lt Repair Fundamentals	6
AUTO 1150 - Auto Electrical & Electronics	6
AUTO 1250 - Automotive Engine Repair	6
AUTO 1350 - Automotive Braking Systems	6
AUTO 1450 - Auto. Suspension & Steering	6
AUTO 2150 - Manual Transmissions & AC	6
AUTO 2250 - Automatic Transmissions	6
AUTO 2350 - Engine & Emission Controls I	6
AUTO 2450 - Engine & Emission Controls II	6
Total	**54**

Required General Education and Support	
Step 2: Complete the Following Courses at SLCC	Hours
ENGL 1010 - Intro to Writing (EN)	3
IND 1120 - Math for Industry (QS)	3
Any approved Communication course	3
Any approved Human Resources course	3
One additional course from a specified list	3
Total	**15**

Weber State University

Step 3: Bachelor of Science Automotive Technology

Automotive AAS Degree

Required Automotive Courses	
Step 3: Complete the Following Courses at WSU	Hours
ATTC 3000 Introduction to Automotive Technology	1
ATTC 3020 Intro to Safety Mgmt. & Hazardous Materials	3
ATTC 3260 Advanced Electrical Systems	3
ATTC 3760 Advanced Automotive Technologies	3
ATTC 3880 Cooperative Practicum	3
ATTC 4560 Advanced Propulsion Systems	3
ATTC 4720 SI Capstone Project	3
ATTC 4760 Alternate Fuel Systems	3
ATTC 4860 Automotive Standards, Laws, and Regulations	3
Total	**25**

Required General Education and Support	
Step 3: Complete the Following Courses at WSU	Hours
BTNY 1403 LS Environmental Appreciation	3
ENGL 2010 EN Intermediate College Writing	3
ENGL 3100 Professional and Technical Writing	3
LIBS 1704 TD Information Navigator	3
ECON 1740 AI Economic History of the United States	3
Creative Arts (CA)	3
PHIL 1250 HU Critical Thinking	3
PSY 1010 SS Introductory Psychology	3
WEB 2080 Database Applications	3
WEB 3070 Advanced Spreadsheet Applications	3
WEB 3090 Advanced Electronic Presentations	2
PS 3563 Principles of Supervision	3
PS 4203 Ethical Sales and Service	3
PS 3702 Developing Team Leadership Skills	2
MFET 2410 SI Quality Concepts and Statistical Applications	3
NET 3250 Business Communications	3
Total	**46**

Figure 2: Automotive Stackable Credentials

Evidence of Support from Industry

The following companies or entities have indicated a critical need for employees in this career path and have affirmed support for this proposal by providing part-time employment early in a student's educational path. These firms represent a broad cross-section of Utah's transportation repair industry. Support of the project is wide ranging, from relatively small, privately held organizations, to large international firms. Kenneth Rees, UTA, stated "We are excited about the opportunity to work with various institutions in identifying ways in which we can work together to meet critical educational competencies and have trained technicians that possess the necessary skills as we move forward into the future successfully." The companies listed below have made similar comments.

Nathan Thies, Manager, Les Schwab Tire Center, Logan, "Our company plans to hire 150 employees in the state of Utah in 2018. We plan on building up to 5 new stores in Utah in the next few years. We specialize in tires, brakes and suspension. New employees with some basic training in these areas have a huge advantage over employees without. Employees with some training in these areas normally have a higher starting wage."

John Garff, CEO, Ken Garff Automotive Group, "The Ken Garff Automotive Group has a need to hire qualified individuals in our service department at our dealerships throughout the state. We feel that there is currently a shortage of qualified individuals to fill the high-quality positions that we have available in our stores. We recognize that the automotive education institutions in the state are a great pathway for students to enter into this high-demand, high-wage career field."

Blake Murdock, Sr., CEO of Murdock Automotive Group**,** stated "We always need technicians at our dealerships. It is a position that is vital, as we value good service, yet it's one of the most difficult to fill." Murdock Automotive Group is a family-owned business and one of the oldest car dealerships in the state with over 90 years in business. Murdock has 6 dealerships in Utah. A new partnership with Davis Tech provides a pathway for new career potential for students and will provide Murdock with people who are prepared for employment in this high-demand field.

Christopher Kay, Young Mazda**,** stated that there is a shortage of qualified automotive technicians that has led to negative impacts on their abilities to conduct business. As many as 5 ongoing openings remain unfilled at any given time, limiting the ability to service vehicles in a timely manner.

***Kenneth Rees , Maintenance Manager, Utah Transit Authority*, "**I am writing you on behalf of the Utah Transit Authority maintenance departments indicating our support for moving forward with a partnering program with educational institutions to meet the training and hiring requirements we will have in the future.

We are excited about the opportunity to work with various institutions in identifying ways in which we can work together to meet critical educational competencies and have trained technicians that possess the necessary skills as we move forward into the future successfully."

***Ryan Lamb , Service and Parts Area Manager, Fiat Chrysler Automobiles*,** "Automotive Manufacturers are experiencing very rapid growth. We have more vehicles on the roads than ever before. The increase of vehicles brought with it an increased demand for qualified technicians to be able to service and the repair them. With the technological advances being-made in the automotive industry, automotive education programs are vital to ensure enough qualified individuals are entering the job force to meet the current and growing demand."

Steve Hoellein, Chairman of the AAAC , Automotive Aftermarket Advisory Council, "For the last thirty or more years we have seen the need for qualified technicians. Over the years vehicles have become more advanced and the shortage of technicians keeps growing. We recognize that the great automotive education institutions are in place here. It's the only pathway to get these great students to enter into this high-demand, high-wage career field"

Nick Barnes, Owner, Big O Tires South Ogden, "Big O Tires has a need to hire qualified individuals in our mechanical, oil and lube departments. This is very consistent throughout the state as we meet with our Independent business owners. We feel that there is currently a shortage of qualified individuals to fill the high-quality positions, with the cars getting more and more sophisticated, the need for qualified individuals with training becomes more prevalent. We recognize that the automotive education institutions in the state are a great pathway for students to enter into this high-demand, high-wage career field. It has been and will continue to be a resource for us an Independent Tire and Repair shops."

Kelly Faley, Mopar CAP Relationship Manager, Fiat Chrysler Automobiles, "The automotive industry is selling more vehicles than ever, and advancements in automotive technology are creating the need for more qualified individuals to service and repair vehicles. Dealerships are handling this demand in two ways – they're expanding their facilities, and they're hiring more people and the demand isn't expected to decrease anytime soon. Today, there are approximately 650,000 automotive technicians employed in the U. S. That number is expected to explode to 760,000 jobs by 2022. As for FCA's share of that number, our dealerships currently employ 26,000 automotive technicians. To keep up with demand, FCA dealerships are expected to hire another 5,500 technicians over the next two years, and expand the total pool of technicians to more than 30,000 by the end of next year."

Program of Study Workforce Needs—According to the Utah Department of Workforce Services Occupational Projections for 2014-2024, Automotive Service Technicians and Mechanics positions will increase 2.5 % while Bus and Truck Mechanics and Diesel Engine Specialists will increase 3.0%. Table 1 illustrates the number of Utah job openings and wages according to the Division of Workforce Services for job titles at the various levels of education.

Table 1. Employment Information (Source: DWS unless otherwise indicated)				
Stackable Educational Level	**Job Title**	***Statewide Occupational Projections (2014-2024)***		**Median Annual Wage**
		Annual Growth	**Annual Replacement**	
Automotive Technical Training	Automotive and Watercraft Service Attendants	30	40	$21,740
	Tire Repairers and Changers	30	50	$24,780
	Outdoor Power Equipment and Other Small Engines	10	10	$26,980
	Motorboat Mechanics and Service Technicians	10	10	$37,690
	Farm Equipment Mechanics and Service Technicians	10	10	$38,600
	Motorcycle Mechanics	10	0	$40,040
	Recreational Vehicle Service Technicians	0	10	$42,610
	Automotive Service Technicians and Mechanics	190	200	$37,750
Associate of Science in Automotive Technology	Automotive Service Technicians and Mechanics	190	200	$37,750
	Bus and Truck Mechanics and Diesel Engine Specialists	90	50	$42,970
	Automotive Body and Related Repairers	50	40	$44,170
	Mobile Heavy Equipment Mechanics	40	50	$51,850
	First-Line Supervisors of Mechanics, Installers and Repairers	110	90	$62,150
	First-Line Supervisors of Transportation and Material Moving Machine and Vehicle Operators	30	40	$57,790
Bachelor of Science in Automotive Technology *(needed for promotions and job transferability)*	After-Sales Product Engineer Field Technical Engineer Fleet Manager Dealership Service Manager Dealership General Manager District Manager	$55,000-$65,000 $75,000 with experience *Source: WSU Faculty*		

Davis Tech—Davis Technical College students enrolled in the Automotive Technology program will learn to utilize industry standard tools and procedures for entry-level automotive servicing, diagnostics, and maintenance. The program offers a learning environment similar to what students should expect to encounter in the automotive servicing, diagnostics, and maintenance industries. Students are provided a large variety of vehicle makes and models – both foreign and domestic – to work with while completing the program to gain valuable hands-on experience. The Automotive Technology program is a MAST program accredited through the National Automotive Technician's Education Foundation.

Students find employment as automotive service technicians and mechanics capable of diagnosing, maintaining, and repairing automotive vehicles. Students can also work in vehicle safety and emissions testing.

OWTC—Ogden-Weber Technical College's Automotive Technician program is based on the National Automotive Technical Education Foundation (NATEF) standards and includes instruction to take 4 Automotive Service Excellence (ASE) certification exams and the G1-General Technician for Maintenance and Light Repair Certification exam. The program also prepares students to take the Safety Inspections and Vehicle Emissions Testing exams. Students demonstrate proficiency in diagnosing and repairing engines, brakes, suspensions and electronic systems.

Job placements are made with small body shops such as Old School Body Shop, to large dealerships like Ken Garff Nissan & Honda.

BTECH—Bridgerland Technical College's Automotive Service Certificate has skilled and experienced instructors to provide real-world training in electrical/electronics systems, engine performance/repair, steering/suspension, brakes, drive train/axles, transmissions, heating/ventilation/air conditioning, light duty diesel, and more. Successful technicians are highly motivated and excel in mechanical and electrical aptitude, manual dexterity, reading comprehension, and are in good physical condition.

Job placement rate for students last year was 90% with average wages from $12 to $17 per hour. The complete Automotive Service Certificate is 1,380 hours or approximately 13 months and costs $2,742 to complete.

Students this year have been employed at Murdock Volkswagen, Hyundai and General Motors; Discount Tire; Young Automotive Group, Toyota and Honda; Leo's Auto Service; Master Mechanics; and Autobahn.

SLCC—Salt Lake Community College's four-semester automotive technician program is designed to train students in both domestic and imported vehicle mechanics and repairs. It prepares students to enter into the job market as technicians skilled in all facets of automotive repair.

Prospective auto technicians should be in good physical condition, have above-average mechanical aptitude and hand-eye coordination and have problem-solving and critical thinking skills.

Upon completion of this program, graduates may find employment opportunities as automotive transmission specialists, engine performance experts, automobile air conditioning specialists, front end and brake technicians and emission control specialists. Technicians furnish their own hand tools. Employers furnish specialized test equipment and tools for servicing service units such as automatic transmissions. Skills in automotive diagnosis and repair open the doors to a multitude of jobs throughout the state and nation.

WSU—Weber State University's automotive program partners with Ford, General Motors, Honda, Toyota, and Chrysler to train students with state-of-the-art technology. It is the only program of its kind within 1,000 miles. The first two years of the program trains students to become automotive technicians at dealerships, fleets, and aftermarket repair facilities.

Besides the various associate degree programs, the department offers a baccalaureate degree in Automotive Technology. Upon completion of the associate degree, students can continue on to the baccalaureate degree. This arrangement, frequently referred to as a two-plus-two program, allows students to continue after completing an associate degree with no loss of credit. WSU has this same pathway with community colleges, like Salt Lake Community College, which offers a two-year NATEF Certified automotive service technology degree.

Students who complete a baccalaureate degree will work in a variety of managerial positions throughout the automotive industry. Many students will be recruited by the major automotive manufacturers to work as after-sales product engineers.

Students have recently been placed at Utah Transit Authority (UTA), Young Automotive Group, Ken Garff Automotive Group, Toyota Motor Sales, Cummins, Fiat Chrysler Automobiles, and Tesla.

Pathway Student Data—Table 2 illustrates the 2016-17 student enrollment, attainment, and job placement rates at the various educational levels. An educational pathway with stackable credentials from the TCs to WSU will provide northern Utah manufacturers with a technically skilled workforce.

Table 2. Automotive Technology Educational Pathway Student Data			
Programs, Certificates, and Degrees	Student Enrollment	Attainment Rates (2016-17 graduates)	Job Placement Rates
Automotive Service	BTECH 2017-18—81 high school and 23 full-time 2016-17—125 high school and 24 full-time Davis Tech-132 OWTC-76	BTECH-100 Davis Tech-81% OWTC-31% grad, 71% completers	BTECH-90 Davis Tech-90% OWTC-97%
Associate of Science in Automotive Technology	SLCC-127 WSU-221	SLCC-89% WSU- 79%	SLCC-89% WSU- 96%
Bachelor of Science in Automotive Technology	WSU—2017-18—92 WSU—2016-17--84	WSU- 75%	WSU- 99%

Board of Regents Support—The Board of Regents will send a separate message of support.
USTC Support—Utah System of Technical Colleges will send a separate message of support.

Funding Request Items—The budget requested to support this proposal is listed in Table 3 below:

Table 3. Time Funding Requests	
Davis Technical College – One-Time Funding Request (Two lifts to expand training space for students)	$20,000
SWI On-Going Funding Needs	**Budget**
Total SWI Annual Budget The on-going budget by institution is listed below:	**$290,000**
Weber State University	
Total WSU Budget	$190,000
1.5 faculty positions ($145,000) at WSU **Technical Coordinator – Full-Time Position ($120,000)** • **Description** o The technical coordinator will be a liaison between WSU and the partnering institution. o The coordinator will aid in the development of curriculum, equipment	

advisement, and other technical needs of the partner o The technical coordinator will also provide technical training to students in the automotive program at WSU • **Duties** o Board member on partners advisory board o Coordinates and assists in updates to curriculum o Supports outreach events for the partner o Provides technical support **Pathways Coordinator – Part-Time Position ($25,000)** • **Description** o The pathways coordinator will work with students moving through the different pathways. o The coordinator will work with the partnering institutions on any course changes, transfer articulations, and general advisement • **Duties** o Coordinates and assists course changes o Maintain the transfer articulation agreements o Supports outreach events for the partner o Provides advisement	
Equipment: The following detailed equipment list will enable WSU Automotive Department to build two supporting lab environments for students. **Advance Powertrains Lab** • The first lab will focus on advanced powertrains in the automotive industry. • It will consist of vehicles and components that use electric and hybrid propulsion systems. • It will also support any future technologies associated with advanced powertrains **Autonomous Vehicle Safety and Convenience Systems Lab** • The second lab will focus on advanced automated vehicle systems. • It will consist of vehicles, components, and software that support vehicles with automation and safety systems. • The lab will provide a testing platform for undergraduate research in self-driving technologies **Year 1 – 2018-2019 – ($190,000)** • **CXC Oculus Rift Driving Simulator ($80,000)** o Virtual reality driving simulator with eye and hand tracking. o Utilized for researching self-driving systems and algorithms. • **Tesla Model S with Autopilot 2.0 ($73,000)** o The Tesla Model S has a battery electric vehicle that would be used in the advanced powertrains lab o The Tesla Model S has an advanced autopilot system that has a significant amount of self-driving technologies that would be used in the Autonomous Vehicle Lab • **Third Generation Toyota Prius ($12,000)** o The Toyota Prius is the most common hybrid vehicle on the road in the	

US o This generation of Prius has hybrid technologies that would be used in the Advanced Powertrains Lab o This vehicle will be used as lab equipment. It would not be licensed or driven outside of WSU property • **Salary -- Pathways Coordinator ($25,000)** o The pathways coordinator position would begin the first year o The initial duties would be to help setup and update the transfer articulation agreements between the partners **Year 2 – 2019-2020 – ($190,000)** • **Salary – Technical Coordinator – ($120,000)** o The technical Coordinator position will start the second year, once the programs articulations have been established • **Salary – Pathways Coordinator – ($25,000)** o Continue duties assigned • **Ford Fusion Plug in Hybrid ($36,500)** o This Ford vehicle has a technology package that varies from the other advanced powertrain lab o The vehicle would be used in the Advanced Powertrains Lab o This vehicle will be used as lab equipment. It would not be licensed or driven outside of WSU property • **Second Generation Toyota Prius ($8,500)** o The Toyota Prius is the most common hybrid vehicle on the road in the US o This generation of Prius has hybrid technologies that would be used in the Advanced Powertrains Lab o This vehicle will be used as lab equipment. It would not be licensed or driven outside of WSU property **Year 3 – 2020-2021 -- ($190,000)** • **Salary – Technical Coordinator – ($120,000)** o Continue duties assigned • **Salary – Pathways Coordinator – ($25,000)** o Continue duties assigned • **Torque and HP Evaluation Dynamometer ($45,000)** o The dynamometer is used for various testing of vehicle powertrains. o The dynamometer would be used in the advanced powertrains and Autonomous Vehicle Labs.	
Salt Lake Community College	$25,000
Year 1 – Automotive Vehicle Lift - $7,000 Hunter Tire Balancing Machine - $5,000 Vehicle with Electronic Steering - $13,000 **Year 2 –** Automotive Vehicle Lift - $7,000 Toyota Scan Tool - $3,000 Jeep Vehicle - $15,000	

Year 3 – Automotive Vehicle Lift - $7,000 Jeep Scan Tool - $3,000 Electric Hybrid Vehicle - $15,000	
Bridgerland Technical College	$25,000
Year 1 – 2018-2019 - $25,000 MLR/ASE online curriculum subscription Computers for student access Course Online Development Lab Equipment Instructor Training **Year 2** – 2019-2020 - $25,000 MLR/ASE online curriculum subscription Computers for student access Course Online Development Lab Equipment Instructor Training **Year 3 –** 2020-2021 - $25,000 MLR/ASE online curriculum Subscription Computers for student access Course Online Development Lab Equipment Instructor Training	
Davis Technical College	$25,000
Year 1 – Electrical trainer to provide expanded training to students. **Year 2 –** Partial salary for additional instructor who will also work with area high schools to increase pipeline. **Year 3 –** Partial salary for additional instructor who will also work with area high schools to increase pipeline.	
Ogden-Weber Technical College	$25,000
Year 1 – Academic Success Advisor (less than full time) to coordinate with high school automotive programs for pipeline increase, guide students through technical college enrollment process, cultivate employer sites, match students to employers for placement and continued path to WSU's Associate of Applied Science in Automotive Technology. **Year 2** – Academic Success Advisor **Year 3** – Academic Success Advisor	$23,700 $1,550 $24,393 $25,125

2017 Strategic Workforce Initiative

UTAH STATE UNIVERSITY
OUTDOOR PRODUCTS PATHWAY DEVELOPMENT
BRUCE MILLER AND ANDREW DECEUSTER
SCHOOL OF APPLIED SCIENCES, TECHNOLOGY & EDUCATION

Contents

Abstract

Applicant name and type: Utah State University; public post-secondary educational institution

Contact(s): Bruce Miller, bruce.miller@usu.edu , Andrew Deceuster, andrew.deceuster@usu.edu

Project title: Outdoor Product Design & Development Pathways

Strategic industry cluster: Outdoor Products

Targeted industry and occupations: Outdoor recreation; outdoor product designers

Education partners: Utah State University, Bridgerland Technical College, Cache County School District, Grand County School District, and Society of Manufacturing Engineers Education Foundation

Industry partners: Black Diamond, Prana, W.L. Gore & Associates, Smartwool, Patagonia, Simm's Fishing and the Governor's Office of Economic Development Office of Outdoor Recreation

Funding request: $278,900

Summary: In partnership with Cache, Box Elder, and Grand County school districts, Society of Manufacturing Engineers (SME), and Bridgerland Technical College, Utah State University (USU) proposes advancement of Outdoor Product Design & Development Pathways. The primary goal of the OPDD Pathways Program is to connect high school and BTECH students with industry-relevant postsecondary education that will lead to product design and development jobs in the outdoor recreation strategic industry cluster identified by the Governor's Office of Economic Development. Project partners will achieve that goal through: 1) concurrent enrollment and work experience opportunities for high school students who may not otherwise be college bound, 2) non-duplicative education credentials and real-world training opportunities, and 3) commitment from regional employers to provide tours, job shadowing and internship opportunities as well as input and feedback on curriculum and pathway development and improvement.

Education partners worked together to develop a non-duplicative sequence of stackable credentials with multiple entry and exit points leading to various levels of outdoor recreation product design and/or development employment. Proposed pathway options include: Pathway 1) transition from a Utah secondary education program to either USU's Technology Systems Bachelor of Science degree with a Product Development emphasis (approved July 2017) or to USU's Outdoor Product Design and Development Bachelor of Science degree. Pathway 2) transition from a secondary education program to Bridgerland Technical College's Business Technology, Textile Merchandising, Media Design, Drafting, or Manufacturing certificate to USU's General Technology Associate of Applied Science degree with either a Technology Systems or Design and Creative Arts emphasis to either USU's Technology Systems Bachelor of Science degree with a Product Development emphasis or to USU's Outdoor Product Design and Development.

The students entering the pathway have multiple entry and exit points in their education but more importantly the students are able to bring a variety of skill sets to the BS degrees due to the variety of BTECH certificates that can transition meeting the variety of outdoor companies located in the state. This continued pipeline of highly trained students from the high schools, BTECH, and USU will be able to supply the outdoor strategic industry cluster with the next generation of highly skill employees.

Proposal

a) Program of Study

In partnership with Cache, Box Elder, and Grand County school districts, Society of Manufacturing Engineers (SME), Bridgerland Technical College, Utah State University (USU) proposes advancement of Outdoor Product Design & Development Pathways. The primary goal of the OPDD Pathways Program is to connect high school and BTECH students with industry-relevant postsecondary education that will lead to jobs in the outdoor recreation strategic industry cluster identified by the Governor's Office of Economic Development. Project partners will achieve that goal through: 1) concurrent enrollment opportunities for high school students who may not otherwise be college bound, as well as creating a SME Prime schools to link industry with the high schools, 2) non-duplicative education credentials and real-world training opportunities, and 3) commitment from regional employers to provide tours, job shadowing and internship opportunities as well as input and feedback on curriculum and pathway development and improvement.

Education partners worked together to develop a non-duplicative sequence of stackable credentials with multiple entry and exit points leading to various levels of outdoor recreation product design employment. Proposed pathway options include: Pathway 1) transition from a Utah secondary education program to either USU's Technology Systems Bachelor of Science degree with a Product Development emphasis (approved 2017) or to USU's Outdoor Product Design and Development Bachelor of Science degree. Pathway 2) transition from a secondary education program to Bridgerland Technical College's Business Technology, Textile Merchandising, Media Design, Drafting, and Manufacturing certificates to USU's General Technology Associate of Applied Science degree with a Design and Creative Arts emphasis to either USU's approved Technology Systems Bachelor of Science degree with a Product Development emphasis or to USU's Outdoor Product Design and Development.

The OPDD pathways program will facilitate outdoor product design and development training and employment opportunities for high school, BTECH, and USU students.

i. Responsive to workforce needs of the CTE region

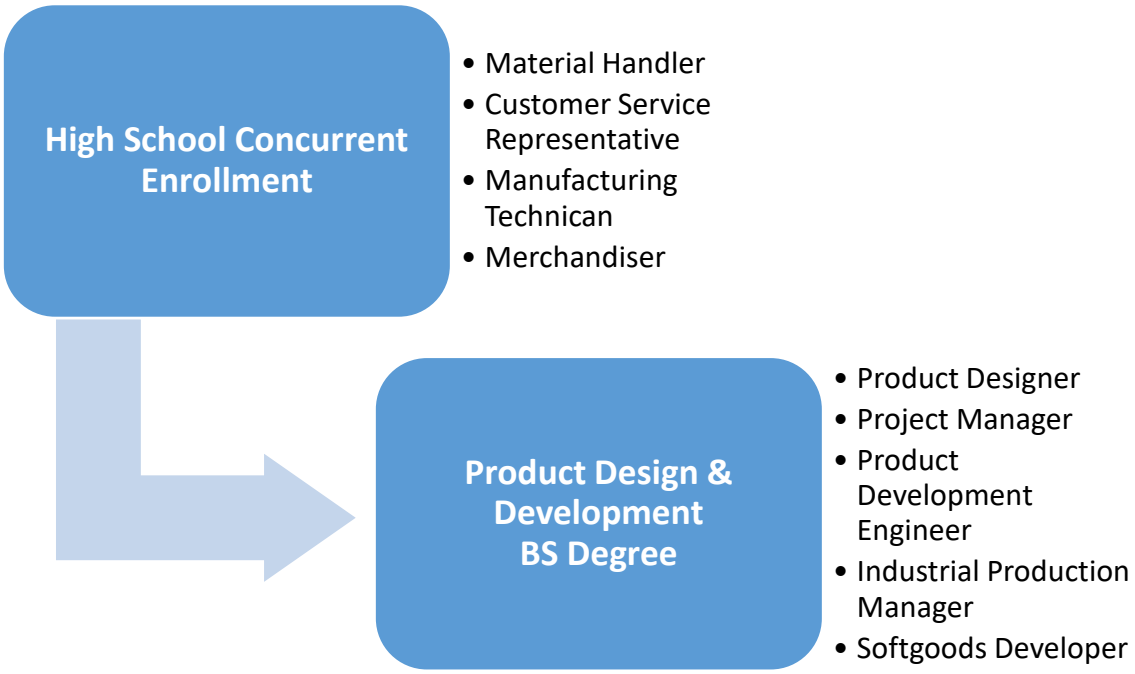
OPDD Pathways program expands capacity to meet regional workforce needs

The OPDD Pathways program is responsive to workforce needs in the outdoor products strategic industry cluster identified by the Governor's Office of Economic Development. USU's OPDD program was developed with the assistance of representatives from the world's largest textile manufacturer, leading technical designers, and heads of outdoor product companies in response to industry demand for a trained regional workforce.

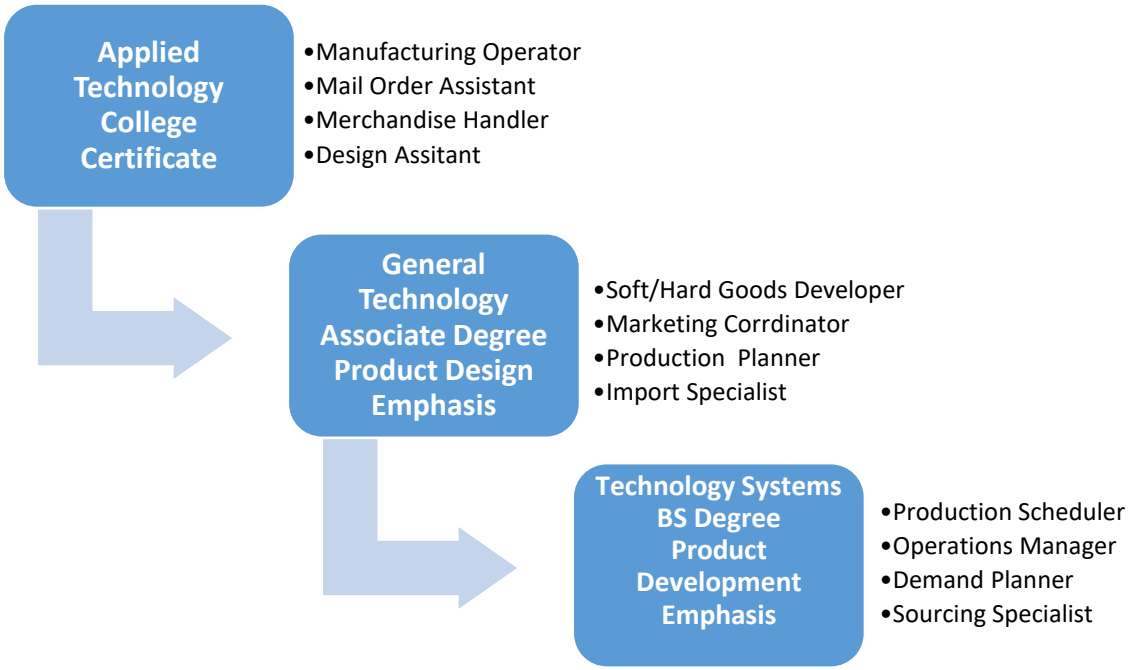
Not only is the industry calling for a trained regional workforce, but demand for new and innovative outdoor products continues to rise. The proposed OPDD pathways will prepare students for various levels of employment in a range of outdoor product development sectors. Specifically, the program will help supply outdoor product design and development professionals to the growing number of outdoor industry companies in Utah that currently have difficulty filling the growing number of open positions.

> "One of the most challenging things in my role has been to attract talent to our region. One hundred percent of our new hires were from out of state. Companies would prefer to hire locally if the talent was here."
>
> Martijn Linden, VP of Apparel & Creative, Armada Skis

Potential Employment Oppertunites for Pathway 1: transition from a Utah secondary education program to either USU's proposed Technology Systems Bachelor of Science degree with a Product Development emphasis or to USU's Outdoor Product Design and Development Bachelor of Science degree.



Potential Employment Oppertunites for Pathway 2) transition from a Utah secondary education program to a Bridgerland Technical College's certificate to USU's General Technology Associate of Applied Science degree with a Design and Creative Arts emphasis to either USU's proposed Technology Systems Bachelor of Science degree with a Product Development emphasis or to USU's Outdoor Product Design and Development Bachelor of Science degree.



High growth industry

Outdoor recreation is a growing and diverse economic super sector and a significant economic driver. According to the Outdoor Industry Association's 2017 report, *The Outdoor Recreation Economy*, economic benefits of outdoor recreation include:

- 7.6 million direct national jobs
- $887 billion in outdoor recreation spending each year
- $65.3 billion in federal tax revenue
- 59.2 billion in state and local tax revenue

Between 2005 and 2010 when many other industry sectors contracted, the outdoor recreation economy grew approximately 5 percent annually.

In Utah, outdoor recreation contributes more than $12.3 billion to the economy, employs more than 110,000 people and is the primary driver behind the tourism industry (https://outdoorindustry.org/wp-content/uploads/2017/07/OIA_RecEcoState_UT.pdf).

Based on a 2017 EDCUTAH outdoor products industry profile:

- Utah is one of the top states in the nation for outdoor recreation employment, with base of more than 7,000 people
- More than 200 leading outdoor products companies call Utah home

- Utah has a robust outdoor products manufacturing industry
- Utah offers a high concentration of outdoor products manufacturing-related occupations, with five times the national employment norm for a market the size of Utah
- Outdoor product manufacturing related occupations have increased more than 25% over the last five years.

> "Utah has a globally unique location and could significantly grow the number of outdoor companies in the region. A relevant and well-supported program like OPDD is critical to building talent to draw these companies in."
>
> Martijn Linden, VP of Apparel & Creative, Armada Skis

As many Utah outdoor product companies are entrepreneurial start-ups (following models of national companies like Patagonia, Cabela's and Black Diamond), it is anticipated that funding for the OPDD Pathways program will further encourage entrepreneurial investment in the state. This has become apparent by the number of in state contests and programs that have been won or participated in by the OPDD students, including Grow Utah's Lift Accelerator, Startup Weber, and Final Pitch Event – Outdoor Rec Startup Contest.

Projected employment opportunities

As a premiere state for outdoor recreation with more than 200 leading outdoor product companies headquartered here, Utah is one of the top states in the nation for outdoor recreation employment. However, because many Utah outdoor product companies are new start-ups, traditional labor data provided in the table below does not accurately reflect current employment opportunities and demand for a trained regional workforce.

Occupation	Annual Openings	Annual Median Salary	Star Rating
Sales Representatives	650	$55,790	5
Wholesale Technical Products	240	$80,810	5
Industrial Production Managers	90	$90,300	5
First-Line Supervisors	222	$55,720	5
Marketing Managers	110	$109,570	5
Purchasing Agent	110	$61,150	5
Graphic Designer	170	$47,640	4
Industrial Designer	10	$52,300	3

Table 1: Department of Workforce Services Utah Occupational Report (11-20-2017)

Because many in Utah make outdoor recreation a priority in their lives, there is high demand for outdoor recreation products. Outdoor recreation gear purchases include camping, fishing, hunting, off-roading, snow sports, trail sports, water, sports, bicycling, and outdoor apparel. Advancements in technical gear and apparel drive innovation and create demand for highly skilled workers in product design, manufacturing, and sustainability.

Widespread support for the proposal within the CTE region

Through the stackable credentials described in detail below, USU and its education partners have a unique opportunity to respond to an industry demand. In addition to assisting with development of specific learning objectives for the OPDD program, industry has shown strong support through campus speaking engagements. During fall 2016, representatives from Coalatree, Modaliti Design, Infuze Hydration, Lubrizol, HydroPath, Armada Skis, and Cabela's advanced student learning with examples of industry vision and direction. Representatives from Simms Fishing, CampSaver, Cottage Skis, Burton Snowboards and Vista Outdoor presented to OPDD students during spring 2017. In April 2017, USU hosted Patagonia Worn Wear's Vice President of Environmental Affairs, Rick Ridgeway, who has dedicated time to mentor OPDD students (http://patagonia.com/worn-wear). See attached ***Worn Wear College Tours 2017*****,** in which Utah State University is listed among Clemson, Yale and the Massachusetts Institute of Technology as part of the tour. The participation has continued into the Fall of 2017 semester with the first meeting of the OPDD programs industrial board with representatives from the major outdoor companies in and out of the state.

As presented in the attached letters, regional outdoor product leaders have expressed strong support for the OPDD Pathways program. The letters contain these consistent themes:

1) The need for and high quality of USU's OPDD program which is tailored to industry needs and prepares students with real life product innovation, development and problem solving skills,
2) Enthusiasm for job shadowing and internship opportunities to provide students with needed experience and reduce costs,
3) The challenges and sunk costs associated with recruiting out-of-state talent and a desire to hire locally, and
4) That Utah is an ideal location for outdoor product development companies.

Several companies committed to provide tours, mentoring, job shadowing and internship opportunities for OPDD Pathways program students and graduates. In addition to industry-based field experiences and internships, OPDD students will have an opportunity to connect with industry leaders through participation in the Outdoor Industry Association's summer and winter markets (trade show exchange) that showcase top outdoor products and companies.

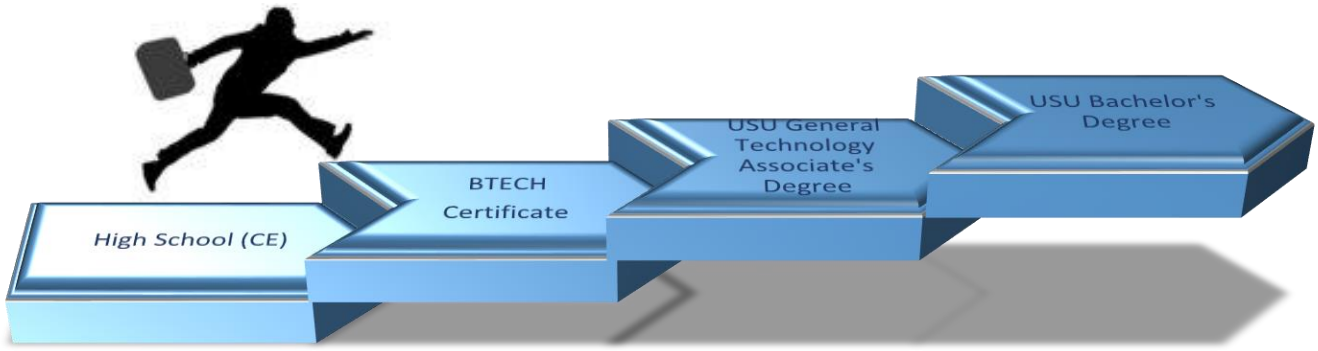
Several companies have already provided internship opportunities to the students over the past summer. The opportunities that were given to the students allowed them to further learn from industry leaders along with the students being able to show off their educational knowledge and strong technical skill sets. These opportunities have led to several students being offered full time positions before and after graduating. Proving the point that industry needs a trained workforce that they currently cannot acquire and are willing to hire students full time before graduating.

ii. Leads to attainment of stackable credentials

OPDD Pathways stackable credential options are illustrated by the diagrams below.

Pathway 1: transition from a Utah secondary education program to either USU's proposed Technology Systems Bachelor of Science degree with a Product Development emphasis or to USU's Outdoor Product Design and Development Bachelor of Science degree.

Pathway 2) transition from a Utah secondary education program to a Bridgerland Technical College's certificate to USU's General Technology Associate of Applied Science degree with a Design and Creative Arts emphasis to either USU's proposed Technology Systems Bachelor of Science degree with a Product Development emphasis or to USU's Outdoor Product Design and Development Bachelor of Science degree.



OPDD Pathways program credentials necessary for entry level and progressive outdoor product employment opportunities include: 1) High school concurrent enrollment courses, 2) BTECH College's Business Technology, Textile Merchandising, Media Design, Drafting, or Manufacturing certificate, 3) USU General Technology Associate of Applied Sciences degree with Design and Creative Arts emphasis, and 3) USU Technology Systems Bachelor of Science degree with a Product Development emphasis (approved July 2017) or USU Outdoor Product Design and Development Bachelor of Science degree.

High School Concurrent Enrollment Courses

Program courses will be offered as concurrent enrollment, with initial offerings occurring at Cache and Grand County School Districts. To ensure alignment of secondary curriculum with concurrent enrollment course expectations, faculty from USU's School of Applied Sciences, Technology and Education will provide summer workshop training for secondary teachers. The School of Applied Sciences, Technology and Education houses pre-service training programs for Technology and Engineering Education and Family and Consumer Sciences Education. Teacher educators in these programs provide expertise in preparing and delivering in-service training opportunities.

With over 700 secondary education teachers certified to teach the related CTE courses in Utah, the proposed pathways provide opportunities for students who take these courses in high school to pursue additional training and prepare for various levels of employment. In addition to program courses, high school students will have access to selected USU general education courses via concurrent enrollment. Additionally, since the secondary education courses articulate with the ATC, students in Cache Valley will be able to complete all or most of the BTECH certificate during high school.

The Society of Manufacturing Engineers Education Foundation has developed their Partnership Response In Manufacturing Education (PRIME) initiative to set up regional high schools with a collaborative network between students, educators, and industry to grow and train the next generation workforce while driving interest in and awareness in manufacturing (http://www.smeef.org/prime/). SME helps to establish the industry connection for internships, curriculum development, and funding for labs. The direct application applies to the product development portion of the BS degrees at USU, where the high school students would be given an infusion of manufacturing into their CTE courses helping them understand concepts such as quality control, lean manufacturing, and supply chain. The program would look to setup PRIME schools in conjunction with USU main and regional campuses helping to provide easy transition of attain skills in the high schools to post-secondary education.

BTECH Certificate

The Technology Systems and Outdoor Product Design and Development BS degrees were designed to teach 2-D and 3-D computer based design, manufacturing materials and processes for both hard and soft products, textile fibers and construction, plastics and composites, promotion, business, marketing, operations management, merchandising, and sales. Several BTECH certificates provide several of the necessary skill set required for a student to be successful as they earn their next credential, making a variety of BTECH certificates a nature transition certificate to a USU BS degree. The variety of BTECH certificates allows the students to use their skills to specialize within the outdoor industry and provides a natural pipeline for necessary skill sets to be laboratory aids once enrolled at USU. BTECH instructors are industry professionals who emphasize hands-on instruction in an environment that allows students to explore their passions. BTECH certificates related to the outdoor industry are broken down into four major groups; Business/Marketing, Computers/Software, Drafting/Construction, and Manufacturing.

BTECH's certificates are a natural path for students interested in outdoor product development but not ready to commit to a bachelor's degree program. After completing the BTECH certificate, students will be encouraged to move into the workforce while pursuing additional credentials. With a certificate from BTECH, students will qualify for entry level positions as CAD designers/operators, manufacturing technicians, media designers, operations clerks, retail salespersons, visual merchandisers, costumer

technicians, and textile specialists. Most BTECH graduates find employment throughout Cache Valley and the Wasatch Front.

Students who complete a BTECH certificate credential can apply 30 credits toward an associate's degree in General Technology at USU. Students who complete the associate's degree can transition into USU's proposed Bachelor of Science in Technology Systems with an Outdoor Development emphasis. This BS degree was designed and driven, in part, by a strong partnership between BTECH and the USU Brigham City campus

USU General Technology Associate of Applied Science degree (Design and Creative Arts/Technology Systems)

A BTECH certificate will provide foundation training and 30 credits (approximately one-half) needed to complete an associate's degree in General Technology. The additional credits for the associate's degree will likely be a combination of concurrent enrollment courses taken during high school coupled with distance delivered USU courses, as we find many of the General Technology students are employed while seeking additional education credentials. The associate's degree provides career advancement opportunities in several sectors and opens the door to further educational opportunities in the outdoor product development arena.

USU Bachelor of Science in Technology Systems with Product Development Emphasis

The newly approved bachelor's degree in Technology Systems is a culminating effort to address stackable credentials that will assist economic growth in northern Utah and throughout the state. The effort has been guided heavily by direct input from the Bear River Region Committee of the Utah State Board of Education's Career and Technical Education department. Input from the secondary career and technical education directors in the region, coupled with the input from the Bridgerland Technical College, provides the underpinnings of the degree. Regents Policy R473 "Standards for Granting Academic Credit for CTE Course Work Completed in Non-Credit Instructional Formats" was approved in February, 2011. From this mandate, Utah State University created the associate's degree in General Technology. Since creation of the degree program, Utah State University has worked closely with industry in the region to support the AAS degree in General Technology and provide opportunities for development of their workforce, culminating in a bachelor's degree. Through these efforts, regional industry partner advisors have expressed need for further education beyond the associate's degree. Students who have completed the AAS degree have indicated a desire to further their education without redundancy and remediation. The proposed Technology Systems degree will service a pipeline of students interested in product development, information and computer technology, robotics, and technical management. The degree will increase the number of trained, technical professionals to meet workforce demands in northern Utah and throughout the state.

The proposal for the USU Technology Systems bachelor's degree with a Product Development emphasis has passed the review of the University Curriculum Subcommittee. With this SWI proposal to advance outdoor product pathways, it was timely to include a product development emphasis area. The Technology Systems degree affords yet another opportunity for students to complete their education with a bachelor's degree credential. Due to the availability of USU courses in evenings and online, many students can continue their education while working.

USU Bachelor of Science in Outdoor Product Design and Development

Utah State University's Bachelor of Science in Outdoor Product Design and Development prepares students to become professionals in the outdoor product industry. Program graduates will contribute to design and development of a variety of hard (technical gear) and soft goods (apparel and accessories) for the outdoor product industry and may use the BS degree as a foundation to pursue advanced studies in product design, operations, management, and related disciplines. The primary focus of the OPDD degree is on technical product design and development skills required by industry. However, the BS degree is an interdisciplinary program that includes academic, field and industry experiences, and integrates technical gear design skill with engineering, operations management, sustainability, and business knowledge essential to the supply chain of outdoor products. Communication, problem solving, and critical thinking activities are integrated into program courses to ensure graduates are prepared to work in a complex 21st century industry.

USU's OPDD program is relatively new. The program, initiated through the Utah System of Higher Education, was approved as a Bachelor of Science degree offering in the fall of 2015. Although the initial proposal projected an enrollment of 100 students after five years, student response has been overwhelming with approximately 150 majors enrolled in the second year. Another 150 students have actively sought information from the academic advisor. Concurrently, industry interest and support has been strong. Two northern Utah companies have been instrumental in assisting with equipment needs to meet student expectations. Premier Needle Arts (Handi Quilter) worked directly with USU to equip a lab with sewing machines and Altra provided funding for laboratory equipment and upgrades. This program is in its third year of existence. We anticipate graduates entering the workforce at the corporate level as designers and process optimizers.

Industry support has also been overwhelming with providing students with internship opportunities with 43 internships being acquired by students in OPDD in 2017. Several companies such as Black Arch Holsters, Aquamira, and Taft have worked with OPDD faculty to specifically create internships for the OPDD students. The need for industry to have students with this particular training was also express by students being offered full time work at the end of their internship.

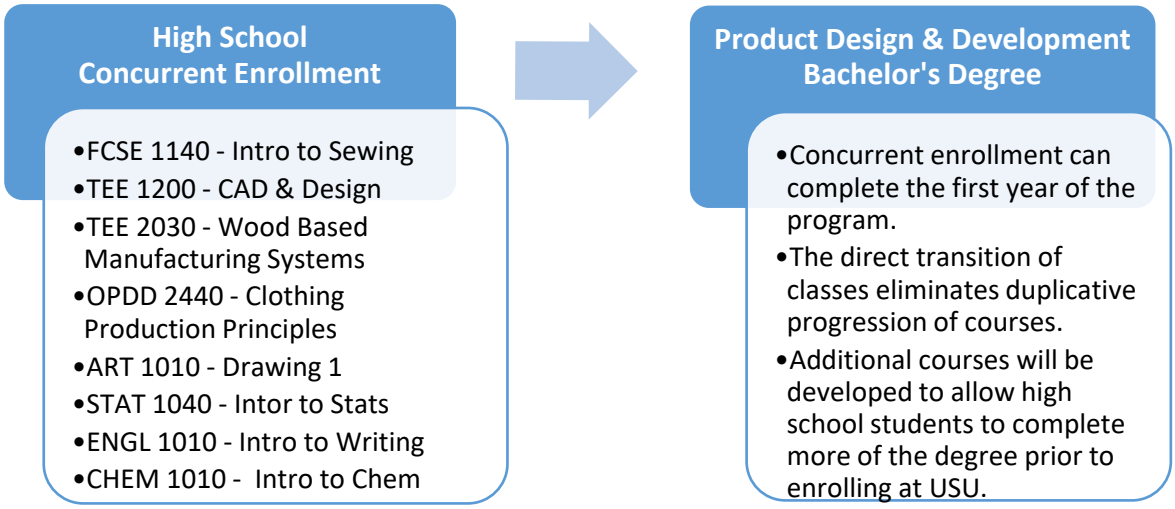
Part of the Outdoor Product Design and Development pathway is to create an advanced digital fabrication lab that would be compact and modular in design to allow for duplication to regional campuses and into the high schools. Many of the pieces of equipment currently exist at high schools, TECH colleges, and USU, but are under-utilized or instructors are unware of how the apply the equipment to their subject matter. Bringing the equipment together or by training instructors, the lab would focus on two major areas: 1) advanced prototyping techniques and methodologies to teach students how to rapidly create prototypes that are for fit, form, and function, to decrease the time to market: 2) product development knowledge by teaching students key principles such as lean manufacturing, quality control, and supply/operation management. This would allow industry to help implement the desired skill sets need to be successful in the workforce. The equipment would be used for the design and development of the product and could be arranged to mimic a manufacturing floor as well as help develop initial prototypes. The lab would be created to be compact to fit in a variety of locations and modular so equipment could be rearranged to mimic a production line or a lean cell. The flexibility of the lab allows for better lab utilization then classic shops or labs leading to a more sustainable system. The replication of the lab at a variety of sites (USU-Moab) will allow for easier training and troubleshooting of equipment and curriculum during summer training sessions.

With a bachelor's degree in Outdoor Product Design and Development, students will incease their qualifications and competencies to move forward on the business or product side of the industry. The degree is targeted to provide technical designers and product developers to the outdoor recreation product industry. The interdisciplinary nature of the training opportunities will also provide students with entrepenueurial skills and manufacturing logistics product management.

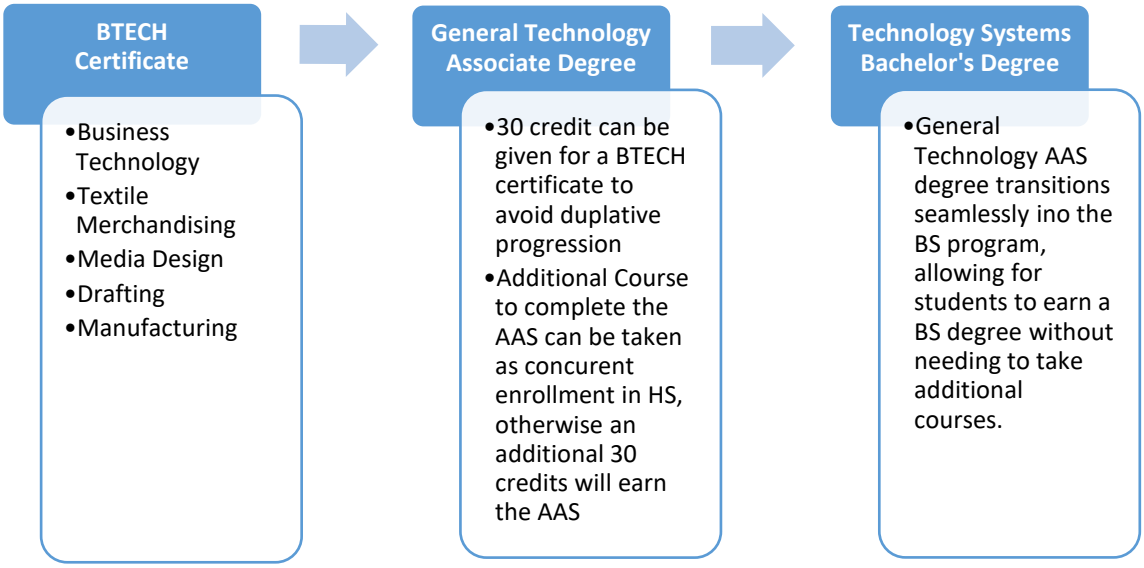
iii. Includes non-duplicative progression of courses with academic and CTE content

Program courses include career and technical education (CTE) components at the BTECH certificate level and focus on skill development at all levels. For details related to how each credential (e.g. BTECH Certificate, USU General Technology Associate of Applied Science degree (Design and Creative Arts /Technology Systems), USU Bachelor of Science in Technology Systems with Product Development Emphasis, and USU Bachelor of Science in Outdoor Product Design and Development) stacks without duplication to the next, refer to these attachments: ***Full Pathway*** and ***OPDD Four Year Program Plan*** *with Concurrent Enrollment*. Partnership efforts to align this non-duplicative progression of credentials with workforce needs will prepare students for various levels of outdoor recreation employment and encourage them to pursue additional training and advancement opportunities.

Pathway 1: Transition from a Utah secondary education program with concurrent enrollment courses to USU's Outdoor Product Design and Development Bachelor of Science Degree.



Pathway 2: Transition from an applied technology college certificate program to USU's General Technology Associate of Applied Science Degree with a Product Design emphasis and then to USU's Technology Systems Bachelor's Degree with a Product Development emphasis.



b) Expected student enrollment, attainment and job placement rates

Two primary factors demonstrate demand for USU's OPDD program and associated pathways. First, many secondary education programs in the state offer CTE courses in CAD design, textile design, and a variety of manufacturing process based courses that provide a strong non-duplicative pathway of courses for students to move from their school districts to BTECH's certificate program or directly to USU's general technology associate or OPDD bachelor program. Second, Utah is home to growing number of outdoor product industries. Momentum from regionally connected employers will provide industry experiences and enthusiasm for the pathway model.

The following table outlines anticipated student enrollment, completion and job placement rates for spring 2017 through fall 2018 semesters beginning at the previously identified BTECH certificate level. These numbers are based on our experience with other CTE pathways and are informed by conversations with industry leaders.

	Spring 2017	Fall 2017	Spring 2018	Fall 2018
# Enrollments (certificate)	35	40	42	46
# Completers (certificate)	16	18	21	23
# Job Placements				
# Enrollments (associate's)	30	56	(55)	(60)
# Completers (associate's)	7	(16)	(36)	(38)
# Job Placements	7	13	(20)	(22)
# Enrollments (OPDD bachelor's)	138	170	(180)	(180)
# Completers (bachelor's)	-	-	-	-
# Enrolments (Tech Sys.)	-	47	(60)	(70)
# Completers (bachelor's)	-	-	(12)	(20)
# Job Placements	-	-	(10)	(18)

Table 2: Expected Student Enrollment, Attainment and Job Placement Rates

It will take several years for the career pipeline to become full, which will coincide with industry growth from targeted economic development in the participating communities.

c) Evidence of input and support from industry advisory group

The Outdoor Product Design and Development degree at USU was developed with input and assistance from the world's leading technical designers and manufacturers and heads of outdoor product companies. Over the past three years, USU OPDD faculty have strategically utilized the Outdoor Retailer Show in Salt Lake City to actively engage industry partners in conceptualizing program goals, objectives, and curriculum design. The OPDD program has begun holding biannual industrial advisor board meetings starting in Fall of 2017. The advisor board helps to direct the programs goals and curriculum to meet the needs of industry. The scope of those efforts, along with a nonexclusive list of key industry contacts who provided direct input on the OPDD degree, is reflected in the table below.

Name	Company	Position
Martijn Linden	Armada/Black Diamond/ Patagonia	VP for Design and Development
Doug Graham	W.L Gore & Associates	Global Account Manager
Paige Fink	Smartwool	Director of Product Development Apparel
Anne Wiper	Smartwool	VP of Product Development
Tony Hsieh	Zappos	CEO
Kristin Lieber	IDFL Laboratory and Institute	Chief Finacial Officer
Keith Wilson	IDFL Laboratory and Institute	Research and Development Director
Jill Layfield	Backcountry.com	CEO
Ted Forbes	Backcountry.com	EVP of People
Shannon Ellis	Patagonia	VP Human Resources
Deanna Lloyd	Patagonia	HR Recruiter
Perry Klebahn	Atlas Snowshoes	Founder
Ellen Schmidt-Delvin	University of Oregon	Director, Sports Product Management
Jacob Bolling	NRS	Marketing
Nazz Kurth	Petzel America	President
Paul Webber	Klim	Managing Director of Sourcing
Dan Nordstrom	Outdoor Research	CEO
Mary Hopkins	W.L. Gore & Assoc	Fabrics-Strategic Marketing
Tom Boyle	W.L. Gore & Assoc	Fabrics-Marketing
Brian Krezel	Simms	Director of Design
Jamie Bainbridge	NAU	Director of Textile Development
CJ Whitaker	Cotopaxi	VP Product Design and Development
Steve Smith	Blackpine Sports	President
Mike Dowse	Amer Sports Winter & Outdoor	President and GM
Tara Latham	Black Diamond	Design Manager
Walter Wilhelm	Black Diamond	VP Business Process
Nathan Grothe	REI	Product Manager
Andrea Olsen	Prana	Men's Outerwear & Active
Michael Wallenfels	Mountain Hardware	Co-Founder
Ashley Robertson	ICON Health and Fitness - Altra Running	Senior Apparel Development Manager

Table 3: Evidence of industry input and support

For other examples of industry participation, refer to the attached ***OPDD Industry Partnership Opportunities***.

d) Evidence of official action in support of proposal

i. Utah System of Technical Colleges Board of Trustees

The president of Bridgerland Technical College provided a letter of commitment, which is attached to this proposal. The Utah System of Technical Colleges (USTC) commissioner has expressed support for the OPDD Pathway Development proposal, and the USTC Board of Trustees will consider and provide final support for the proposal during their meeting in January 2018.

ii. Utah Board of Regents

Per directions from the Governor's Office of Economic Development, a summary of the proposal was sent to the USHE Commissioner's Office. As part of the process, the Commissioner's Office will review the full proposal at their next meeting and forward it for the next level of review.

e) Funding request and justification

USU is requesting Strategic Workforce Initiative funds to advance educational pathway partnerships and increase stackable credential training opportunities for high school and technical college students in Cache, Box Elder, and Grand counties. Other counties will be served as the program expands. These training opportunities will increase the number of outdoor product professionals to meet regional workforce demands.

Funds are requested to support direct costs associated with 1) hiring one full time faculty position (housed at USU Logan) and two part time/one half FTE faculty positions (one housed at USU Moab and one housed at BTECH in Logan), 2) providing workshops for high school career and technical education (CTE) instructors, and 3) purchasing equipment (e.g. 3D printers, CNC mills, laser cutters/engravers, industrial sewing equipment) and related supplies to ensure appropriate student learning opportunities and maintain laboratory equipment.

The following budget table and narrative detail the request.

Funding Categories	Year 1 Budget Request	Year 2 Budget Request	Year 3 Budget Request	On-going Budget Request
Salary & benefits for 1.5 FTE USU faculty positions (1 FTE in Logan and ½ FTE USU Regional Campus).	$147,900	$147,900	$147,900	$147,900
Salary & benefits for 0.5 FTE BTECH faculty position	$50,000	$50,000	$50,000	$50,000
In state travel	$3,000	$4,000	$4,000	$2,000
USU Equipment and related supplies	$50,000	$40,000	$30,000	$20,000
BTECH Equipment and related supplies	$20,000	$15,000	$15,000	$15,000
Summer Teacher Training and Development	$8,000	$10,000	$12,000	$15,000
Total Budget Request	$278,900	$266,900	$258,900	$249,900

Table 4: SWI Funding Request

Salary & Benefits for Two Faculty Positions

Support is requested to fund one full time faculty position at USU Logan, one half time faculty position at USU Moab, and one half time position at BTECH. Salary support requested for both USU faculty (1.5 FTE) is $102,000 with benefits of $30,600 (at a 45% benefit rate). Salary and benefit support requested for a BTECH position is $50,000. Total funds requested for salary and benefits is $197,900.

In addition to facilitating stackable credential training opportunities through BATC, planned campus locations for new faculty will support core program implementation and development as well as logical extension of the program to Moab where many outdoor companies operate. The Outdoor Product Design and Development program is in its third year and the requested faculty positions will provide

stability for the new, growing program. Enrollment at the conclusion of the fifth semester of the OPDD degree program is 170 majors with waiting lists for most required courses. ASTE has effectively used and will seek opportunities for continued use of distance delivered courses within the OPDD Pathways program.

Travel

To ensure quality course development and delivery at secondary schools, the proposed initiative will support summer workshops. Travel funds in the amount of $2,000 on going is requested to facilitate faculty in-state travel to participating high schools with $3,000-$4000 requested in the first three years due to the increased travel required in setting up of the program.

Equipment

The equipment used to prepare students is highly specialized and varies from computer design software using 3-D printer capabilities to laser cutter/engravers, industrial sewing equipment, CNC mills, investment casting, injection molding, thermal forming, and composites processing equipment. This initiative requests funding for equipment and related supplies to support the BTECH laboratories ($15,000) and USU laboratories at Moab and Logan ($20,000) on going. The equipment will be used to create a compact digital fabrication lab, in which the students will be taught how to go from a digital design to a physical product rapidly. The labs will be sustainable due to the multifunctional nature of the equipment and therefore the monetary responsibility is spread through several programs rather than a single program. The labs would also allow the regional campuses in the economically depressed parts of the state to provide design and development services to local entrepreneurs to develop businesses locally.

Summer Workshops

In addition to in-state travel, $15,000 is requested to support curriculum development (e.g. kits) for the secondary summer workshops and for the training of secondary, TECH college, and USU instructors.

USU's School of Applied Sciences, Technology and Education appreciates our connection to Bridgerland Technical College programs and looks forward to enhancing and developing these collaborations in the outdoor product development arena. The OPDD Pathways program allows for development of an educational pathway consistent with Regent Policy 473's integrity in the process of awarding credit for high school, BTECH and USU students. OPDD pathways will allow students to enter a career path during high school, continue to earn a certificate from BTECH, continue to complete an Associate of Applied Science degree in General Technology with a Creative Arts or Technology Systems emphasis from USU, and finally, continue to complete either a Bachelor of Science degree in Technology Systems with a Product Development emphasis or a Bachelor of Science degree in Outdoor Product Design and Development from USU. Strategic Workforce Initiative funding for the OPDD Pathways program will build the instructional infrastructure and ensure successful implementation.

Strategic Workforce Investment: Learning Experience Design

Name of Educational Institutions

Utah State University (USU), Bridgerland Technical College (BTECH)

Primary Contact Person

Brian Belland brian.belland@usu.edu; Mason Lefler mlefler@btech.edu

Summary

We are requesting funds to develop additional pathways to the learning experience design profession. This cross-career workforce will help the economy to keep ahead of downsizing due to automation. The primary pathway will include career changers who will in turn, use their newly acquired degree in the areas of instructional and user experience design on behalf of others looking and needing to change their career trajectory. As a secondary pathway we propose building on the existing foundation of the AM-STEM and IT-STEM Academy so that high school students can join career changers and start earning BTECH credits that will apply towards a USU Associates of Applied Science and then a Bachelor's of Arts degree. In doing so, the LED program will help supply learning professionals to meet already high demand that will only increase over time (see Table 1).

Strategic Industry Cluster

Aerospace and defense; Financial services; Software development and information technology

Targeted Industries

Business training, educational software, user experience design, military training

Project Title

Strategic workforce initiative: Learning experience design program

Educational Partnerships

Cache County School District, Logan School District, and Rich School District

Key Industry Partners

Atomic Jolt, CIDILabs, Conservice, McKinnon-Mulherin Inc., RentDynamics, UK2 Group, US Air Force

Counties to be Served

Box Elder, Cache, Rich

Funding Level Requested

$248,872

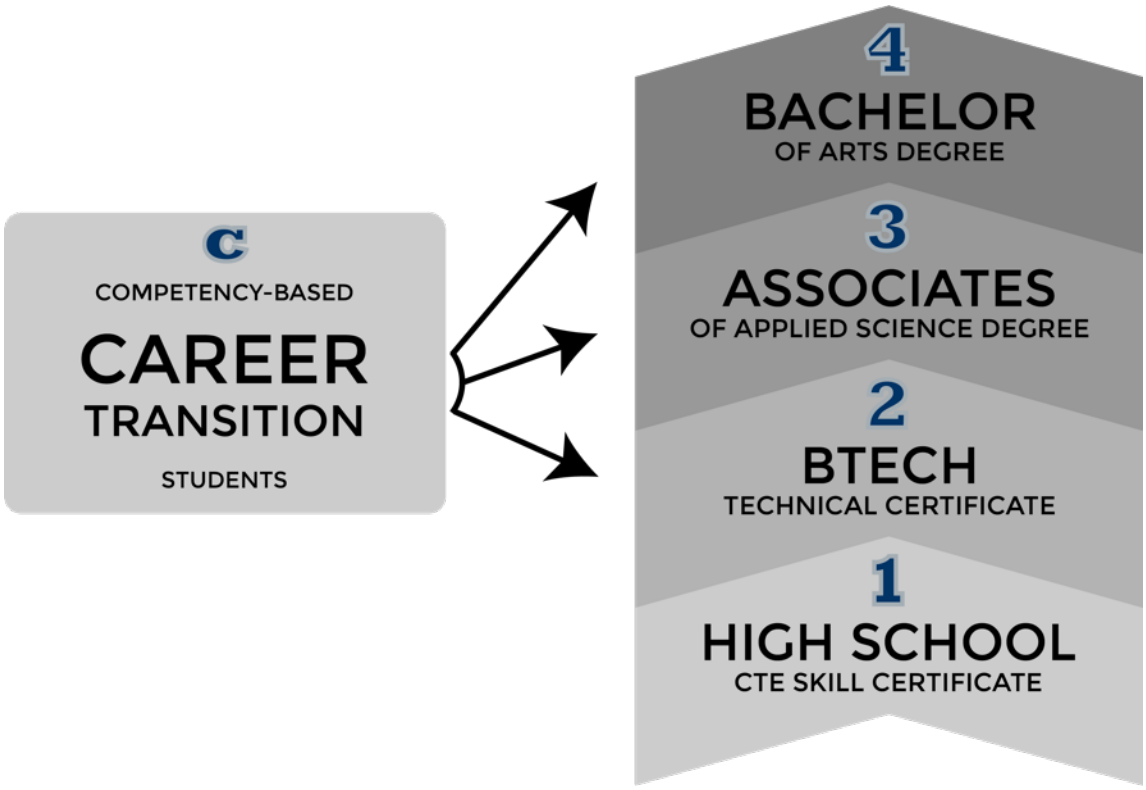
Proposal

Utah State University and Bridgerland Technical College are proposing the creation of a stackable credentials program that can accommodate dual pathways to the learning experience design field – the primary pathway is for career changes, and the secondary leverages existing programs for high school students.

Both pathways will take advantage of stackable credentials for High School students in the

Automated Manufacturing STEM Academy (AM STEM) and IT-STEM Academy programs that partners USU, BTECH, and the Box Elder, Cache, Logan, and Rich School Districts. The cornerstones of these programs are. Career changers will enter the stackable model where it makes the most sense for them. Program features include:

- Partnerships at the University, College, High School, and Corporate level. BTECH provides expert faculty and curriculum, high schools provide space and faculty to serve as facilitators and student recruiters, and companies provide, real world projects for the classroom, internship opportunities, and jobs for students after graduation.
- Collaborative development of curricula among college, high school, and industry partners
- Hands-on learning combining a mix of synchronous online classes, asynchronous online coursework, and hands-on lab activities in local schools
- Ability to apply coursework to certifications, and to apply certifications to Associate's degree and Bachelor's degree programs at USU.



With a combination of technical training and learning experience design preparation, graduates will have the opportunity to be highly competitive for jobs of the future. Automation is taking over industries from truck driving to manufacturing, and that is likely to increase even more in the coming years (National Academies of Sciences, 2017). In addition, the jobs that are at the greatest risk of loss to automation tend to be lower-paid, lower-skilled, and require less education (Executive Office of the President, 2016). A highly-motivated workforce in several sectors will thus need to update their skills and knowledge in order to serve in different jobs. With this shift in the economy, there is a need for people who can train the workforce and the

end users on how to troubleshoot and otherwise interact with the new automated workflows (National Academies of Sciences, 2016). This same group of knowledge workers will be a key part of out-pacing automated job loss by educating and training Americans for jobs of the future in a way that is affordable, inclusive, and allows for job-driven and lifelong learning (Executive Office of the President, 2016).

Stackable Sequence of Credentials

We have designed a stackable sequence of credentials with an entry point for either career changers or high school students. In both cases students begin a pathway toward working in the exciting world of learning and experience design. The initial set of credentials are those associated with the IT-STEM Academy and the AM-STEM programs. But we are also requesting funding for a BTECH instructor whose job will include working with a USU instructional designer to develop parallel certificate programs that can be delivered alongside the AM STEM and STEM IT programs.

Career Pathways

Students interested in entering the field of learning and experience design currently have the following options to learn the required skills:

1. Company-specific training (as is done currently in the 367th Training and Support Squadron at Hill Air Force Base and in many Utah companies)
2. Obtain a graduate degree in instructional technology and learning sciences at USU (or equivalent at other USHE schools)

To our knowledge, there is currently no undergraduate program in this field. USU is in the process of creating an undergraduate program in Learning Experience Design that will lead to an Associate's degree and a Bachelor's degree.

Career Path Growth and Quality of Jobs

The USA Department of Labor, Employment, and Training Administration categories that are most closely related to instructional design and user experience design are:

- Instructional coordinators
- Training and development specialists
- Training and development managers

Utah is projected to have exceptionally strong growth in these categories between 2014 and 2024 (See Table 1). These are well-paying jobs. Furthermore, Utah has the highest employment in the training and development specialist category per thousand jobs (3.31) and the highest location quotient (1.72) out of all the states and the District of Columbia (United States Department of Labor: Bureau of Labor Statistics, 2017). This makes the career pathway very attractive for students, and makes it likely that there will be well-paying jobs for graduates.

Table 1. Projected growth rate from 2014-2024 and median salary for Learning experience design-related occupations in Utah and the USA as a whole

Job	Growth rate from 2014-2024		Median Annual Salary	
	Utah	USA	Utah	USA
Instructional coordinator	27%	7%	$59,450	$62,460
Training and development specialist	33%	8%	$47,650	$59,020
Training and development manager	32%	7%	$81,380	$105,830

Note: Data from (U. S. Department of Labor, Employment, and Training Administration, 2017)

Potential for Success

Over the past few years, USU's has successfully developed a pathway from Bridgerland into an AAS degree and just recently into a Bachelor's degree within the College of agriculture. These new AAS and BS degrees stack on top of 900 hour certifications from 22 different Bridgerland Departments. The AM-STEM and IT-STEM Academy programs that bootstrap the proposed program have been highly successful. This provides evidence that the foundation for our program is strong. Upon completion of the AM STEM certification, students are immediately eligible for internships or full-time employment, and have opportunities for additional education. Autoliv, for example, has created a limited internship for students completing a 900-hour certificate with a starting salary of $15.00 per hour. This internship opportunity provides valuable real world experiences in addition to covering full tuition for continuing education in an applicable field. Other local companies provide flexible hours to facilitate class enrollment. Additional supports among local businesses include tying raises and promotions to education and tuition reimbursement.

While this foundation is strong and has forged important pathways for students a BS in college of Agriculture does every job trajectory. For example, there are 5 recent certificate completers in Bridgerland's Business department who are either currently in the AAS degree pathway or who have recently completed it. However, none of these students are planning on continuing on to the BS. It is important to note that those five students represent just one of the twenty-two other programs that are sending students into this pathway.

This proposal seeks to establish another pathway from the AAS degree in the College of Agriculture into a new bachelors degree the Eccles College of Education at USU within the department of Instructional Technology and Learning Sciences. The new ITLS Bachelors is the next best option for a pathway since instructional design, user-centered design, and user-experience design are needed in every sector. Cutting across multiple targeted indusitries

graduates of this Bachelor's degree can design learning applications in e-learning and mobile environments, design facilitator led learning experiences, engage in evaluation and assessment that drive workforce behavior, solve performance problems or engage in organizational development. From on-boarding training for new employees to educating customers on proper use of a technology product our graduates are in high demand.

Connecting these students and their job prospects with this degree pathway will be an important part of re-tooling our 21st century workforce.

Pathway specifics

The AM STEM Certificate can apply 30 credits toward an Associate of Applied Science (AAS) degree at Utah State University (USU). As of August 2017, there is a direct pathway from the AAS degree to a Bachelor's of Science in Technology Systems with an emphasis in manufacturing control systems at USU. In addition to the 30 transferable credits, upper level industrial robotics and automation courses taught by Bridgerland have been articulated for up to 12 credits towards the USU bachelor's degree. Weber State University also applies 25 credits toward their AAS degree in control systems upon certificate completion. Students have increased levels of opportunity at each of these pathway levels.

The AM STEM program has led to large increases of high school enrollment as well as certification completion. From 2009 to 2015 Bridgerland averaged just 3.3 high school students per year (See Table 2). After establishing the AM STEM program, the yearly average increased to 148 in our first three years (See Table 1). That is over a 4300% increase in high school attendance. From the first to second year of AM STEM, Bridgerland grew from 117 to 142 (21% increase) and then from 142 to 185 (30% increase) in the third year.

Table 2. Increase of Bridgerland Automated Manufacturing High School Enrollment

School Year	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018
HS Total	3	5	2	2	0	8	117	142	185

It is important to note that this increased high school enrollment has also led to an increase in certificate completion (900-hour certificate). These students are not only gaining high demand skills in the high demand area automated manufacturing and robotics but they are also persisting after high school to complete Bridgerland industry recognized certificates (See Table 3). For many, they are also continuing their coursework in order to earn an associate or baccalaureate degree.

Table 3. Increase of Bridgerland Automated Manufacturing Certificate Completion

School Year	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Total	3	3	3	3	8	9	9	53

While this program has provided many students with a pathway to college and significantly enlarged the pipeline of highly skilled manufacturing/robotics workers, it has not completely fulfilled demand. There are issues with curriculum, retention, and recruitment that need to be resolved in order for Bridgerland to satisfy the current and future demand for automated technicians in Northern Utah.

Table 4. IT STEM enrollments for inaugural (Fall 2017) semester

Box Elder	12
Cache County	43
Logan County	5
Rich County	25
BTECH Brigham Campus	2
Total	87

In its first semester (Fall 2017) the IT STEM program has already brought in 87 students. Between AM STEM growth as well as existing enrollments and the IT STEM Academy there is a significant pipeline of students.

Funding Request and Justification

Items and associated amounts are listed on page 9. We request funds for computers, other equipment, and software to be placed at participating high schools and at BTECH, which students can create training products and optimize user experience thereof. The set at BTech is so that the instructor can broadcast the curriculum and test assignments. We request funding for one instructor at BTECH to teach the learning experience design component of the AM-STEM and the STEM-IT programs from BTECH, and one instructor at USU to coordinate and facilitate the integration of real world learning and experience design projects into the AM-STEM and STEM-IT programs. We also request funding for three 0.5 FTE graduate instructional design assistants from USU. One will assist the BTECH instructor in developing curricula and associated learning and assessment materials for the learning and experience design component of the AM-STEM program. The second will assist the BTECH instructor in developing curricula and associated learning and assessment materials for the learning and experience design component of the STEM-IT program. The third will assist the USU instructor in developing curricula and associated learning and assessment materials for the real world learning and design projects.

Leverage of Funds

USU has already committed to an Assistant/Associate Professor of Practice in Instructional Technology and Learning Sciences to start in Fall 2018, whose role will in part be to cultivate internships, employment, and other collaborative relationships between industry and the department. This person will be intimately involved in forging collaborative partnerships for the undergraduate program.

BTECH already has established the AM-STEM and IT-STEM Academy programs. They are already being delivered via a mix of synchronous video conference and asynchronous coursework. The facilities are already in place in local school buildings in the partnering districts. The AM-STEM and IT-STEM Academy programs are performing very well by a number of metrics - growth in enrollment, certification completion rate. These are already adequately funded. The funding requested in the current proposal will be used to (a) develop learning experience design content to be inserted into the current coursework in the AM STEM and IT-STEM Academy coursework, (b) cultivate internship opportunities. That is, for each career pathway (e.g., software development), students will be able to learn a brief overview about the learning and user experience design aspect of the given pathway, and will be informed of additional certifications they can stack onto their credential if they are interested.

The USU Department of Instructional Technology and Learning Sciences already has a design lab where students can engage in maker activities and design learning materials. Funding sources included the ITLS department as well as contributions from individual faculty. The lab includes a computer gaming station, configurable work areas, 3d printers, tools, meeting space, two offices, and a vinyl printer.

Value Added to the Utah Economy

As automation transforms Utah's economy, there is a need for a workforce that can train co-workers and end users on how to troubleshoot and optimize automated systems and products. In talking with representatives of the Utah business, non-profit, and military sectors, it has become apparent that employers need to be able to hire training professionals who can quickly begin producing organizational results through the creation of quality training products (Kaufman & Stakenas, 1981). Hirees who do not need to be trained in how businesses work or how to do instructional design and user experience design. This proposed project presents an opportunity to create value for existing Utah companies and organizations, but also to attract more great businesses to Utah. Companies already have many great reasons to choose Utah as a home, including great quality of life, reasonable cost of living, and a business-friendly climate. One of the key considerations companies make when choosing a location for expansion is access to the human capital they need to thrive. Utah is projected to have very high growth in jobs in the learning and experience design field (U. S. Department of Labor, Employment, and Training Administration, 2017). As noted previously, Utah is projected to have the highest growth rate out of all 50 states and the District of Columbia in the training and development specialist category (United States Department of Labor: Bureau of Labor Statistics, 2017). Companies need to know that a well-qualified workforce is available to fit their training needs. This goes both for companies that are already located in Utah and considering expanding or even relocating to other states, and companies in other states who are considering Utah as a new home.

Strategic Workforce Initiative Proposal 2018
Application Partners Signature Sheet

Name of Institution: **Utah State University**, Bridgerland Technical College, Box Elder, Logan City, Rich School Districts

By signing below, the following individuals attest that they have reviewed and approve the attached proposal for funding.

DocuSigned by: M Liechty Cache County School District CTE Director	Mike Liechty Print Name	1/5/2018 Date
Logan City District CTE Director	Dave Long Print Name	Date
DocuSigned by: John Davidson BTECH Vice President – Contracts and Grants	John Davidson Print Name	1/5/2018 Date
DocuSigned by: K. Chad Campbell BTECH Campus President	K. Chad Campbell Print Name	1/5/2018 Date
DocuSigned by: Brian Belland USU Associate Professor ITLS	Brian Belland Print Name	1/5/2018 Date
DocuSigned by: USU Department Head ITLS	Andrew Walker Print Name	1/5/2018 Date
USU President	Noelle Cockett Print Name	Date

Strategic Workforce Initiative Proposal 2018
Application Partners Signature Sheet

Name of Institution: **Utah State University**, Bridgerland Technical College, Box Elder, Logan City, Rich School Districts

By signing below, the following individuals attest that they have reviewed and approve the attached proposal for funding.

Cache County School District CTE Director	Mike Liechty Print Name	Date
Logan City District CTE Director	Dave Long Print Name	1/5/18 Date
BTECH Vice President – Contracts and Grants	John Davidson Print Name	Date
BTECH Campus President	K. Chad Campbell Print Name	Date
USU Associate Professor ITLS	Brian Belland Print Name	Date
USU Department Head ITLS	Andrew Walker Print Name	Date
USU President	Noelle Cockett Print Name	1-5-18 Date

Budget

	Cost	Total Year 1	Ongoing total
Instruction			
1 USU Lecturer Position Salary + Benefits	$90,000	$90,000	$90,000
3 0.5 FTE USU Graduate Assistant Instructional Designers Salary + Benefits	$24,624	$73,872	$73,872
1 BTECH Learning and Experience Design Instructor Salary + Benefits	$70,000	$70,000	$70,000
1 Equipment BTECH Computers, software	$10,000	$10,000	$10,000
1 BTECH **Supplies**	$5,000	$5,000	$5,000
Total		$248,872	$248,872

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CACHE
County School District
Constructing Great Minds!

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North Logan, Utah 84341
Phone 435.752.3925
Fax 435.753.2168
www.ccsdut.org

January 5th, 2017
Strategic Workforce Initiative

Cache County School District (CCSD) has enjoyed a rich partnership with USU for many years. Lifelong learning is a core value of CCSD and the clear entry point to a stackable credential model that sits at the origin of the existing IT-STEM Academy and AM STEM partnerships with BTECH and USU exemplify that lifelong learning interest.

We also acknowledge the need to prepare students to be successful in a changing world and see the expansion of the IT-STEM and AM STEM opportunities with the current Learning Experience Design (LED) workforce proposal as a key embodiment of preparing students to not only be part of the changing workforce but to be part of shaping how the workforce is changed. Students will be employable as soon as they begin classes in high school in areas such as programming, web development, mobile development and media design. The integration of User Experience design and user centered design in the LED program will play a key role in continuing that workforce preparation through a Bachelor's degree experience.

We welcome an expansion of this partnership and the ability for a broader range of students, with interests in marketing, business, and media design to catch a vision for how their post-secondary education can proceed and also tie in meaningfully to their high school experience.

Michael R Liechty

Michael R Liechty
Deputy Superintendent
Cache School District

LOGAN CITY SCHOOL DISTRICT
101 WEST CENTER STREET, LOGAN, UTAH 84321
WWW.LOGANSCHOOLS.ORG
P 435 755 2300
F 435 755 2311

January 5, 2017

Strategic Workforce Initiative

The Logan City School District (LCSD) has worked with BTECH to implement both the IT-STEM Academy and the AM STEM programs on automated manufacturing. In combination, these programs provide both before and after school course options staffed by our teachers that would not otherwise be available to students. Students in these programs are then able to apply these courses towards a variety of BTECH certificate programs that can in turn be applied to an Associate of Applied Science degree at USU.

LCSD sees a clear and pressing need for additional degree options for students pursuing these BTECH certificate programs and welcomes the opportunity for an additional partnership with USU as well as key industry partners. The Learning Experience Design (LED) Strategic Workforce Proposal will provide clear educational opportunities for our students as fill pressing needs in the Utah Economy. The LED focus on particular on competency based education models is both forward thinking and will play an important role in the program's eventual success.

Sincerely,

David A. Long

Director of Education and Technical Services
Logan City School District

BRIDGERLAND TECHNICAL COLLEGE

btech.edu

January 4, 2018

Utah Governor's Office of Economic Development
60 East South Temple, 3rd Floor
Salt Lake City, UT 84111

Re: Strategic Workforce Investment: Learning and Experience Design (LED)

It is clear that the economy is becoming more fluid. This fluidity increases instability for workers. It is exceptionally important for the state to invest in programs that will develop a workforce of individuals skilled in training and development. The students that will graduate from this program will not only help their companies create instructional materials for products built in and sold from Utah, but they will also train and develop employees for nearly every sector of Utah's economy.

Bridgerland Technical College (BTECH) strongly supports Utah State University's (USU) proposal for Strategic Workforce Investment funds to support the formation of a new Learning and Experience Design pathway. This pathway will create a crucial career pathway from local school districts and BTECH programs into a field that is currently in need around the state and will only grow exponentially going forward. This proposal builds on our previous successful pipelines of the AM STEM and IT STEM, to provide another stackable credential pathway. It expands existing program resources through concurrent enrollment opportunities for students and provides viable career development options for them.

By promoting and developing seamless pathways into the USU AAS Degree in General Technology and then to the new Learning and Experience Design (LED) BS at USU, the LED proposal pathways program will facilitate additional training and employment opportunities for high school and BTECH students. The proposed pathway provides opportunities for students to apply secondary CTE education directly toward degree curriculum at USU through more than just one of BTECH's certificate programs.

As a partner in the LED Pathways program, BTECH will provide managerial oversight for the program as it relates to our students. Specifically, BTECH will:

- work with project partners to implement and monitor the project
- monitor project budgets and spending
- participate in professional development workshops
- implement curriculum in accordance with the state of Utah's education standards
- collect data about progress toward proposed goals
- submit required reports in a timely manner

BTECH already has a strong working relationship with Utah State University. Both institutions are committed to aligning curriculum with workforce needs; expanding and improving training pathways; providing workforce for training development, user experience design, and instructional design in Utah. We are confident that Utah State University and Bridgerland Technical College will work with education and industry partners and leverage Strategic Workforce Investment funds to improve economic vitality across the entire state of Utah.

Sincerely,

K. Chad Campbell
President

Utah State University
OFFICE OF THE PRESIDENT

January 5, 2018

SUBJECT: Strategic Workforce Initiative: Learning Experience Design (LED) Proposal

To whom it may concern:

Because of the surge in workforce jobs that require both specific and soft skills, the need for people who specialize in work force training and instruction is high across the nation. This increasing demand for people with instruction and experience design expertise is even higher in Utah, with demand growth estimated between 27-32 percent through 2024. This growth in demand for people with this expertise is due to the need for retraining workforce, and that need is no more pressing than in Utah.

Utah State University is committed to partnering with local school districts, Bridgerland Technical College (BTECH), and key industry partners to make sure that our youth, as well as adults already in careers, have access to people who can help them lay out career paths. The USU Instructional Technology and Learning Sciences program is nationally recognized for its leadership in the field at the graduate level. The proposed program described in this proposal will extend USU's excellence in instruction and experience design into an undergraduate Bachelor of Arts degree. Funding for this program in 2018-19 will ensure that needed experts are available as Utah's workforce matures and evolves over the next few years.

USU's proven success working with BTECH provides an ample and effective pipeline for high school students. I am particularly excited about the forward-thinking inclusion of competency-based models for career changing learners. These students can enter at multiple points in the pathway including at the BTECH certification, USU Associate's, or USU Bachelor's levels. The proposed program allows student to receive credit for their rich work history as well as demonstrable skills and knowledge – these credits will contribute to fulfillment of the degree and certification requirements.

Finally, this proposal pairs nicely with resources already committed by the Emma Eccles Jones College of Education and Human Services and the Department of Instructional Technology and Learning Sciences Department. The commitments include a new professor of practice faculty member who will engage industry partners and a design lab space for students to congregate, try out designs and ideas, and work on real world projects.

In summary, this proposal outlines an avenue for people who want to help others find appropriate career pathways that fulfill their goals and contribute to Utah's workforce needs.

Sincerely,

Noelle E. Cockett
President

1400 Old Main Hill Logan, UT 84322-1400 Ph: (435) 797-1162 Fax: (435) 797-1173 www.usu.edu

ATOMIC JOLT

January 5th, 2017
Strategic Workforce Initiative

Atomic Jolt sits at the intersection of instructional design and development. We recognize that a well-designed learning experience is only part of a successful solution. We have deep experience developing technology based instructional solutions for organizations. We believe that the critical conversations that happen between design and development are where the rubber truly meets the learning road.

We are particularly excited to leverage our robust and growing client base as well as rich variety of work which spans higher education, small business/startup consulting, and innovative design approaches like Agile among many others into real world projects for LED students.

Atomic Jolt recognizes the shifting nature of the workforce in Northern Utah and the need to train the next generation of designers and developers to meet those changing workforce needs.

Joel Duffin, PhD, CEO
Atomic Jolt
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cidilabs
Cooperative Instructional Design Innovations

January 5th, 2017

Strategic Workforce Initiative

Cidi Labs is a new startup company that is looking to pioneer technology transfer in the area of education support. Our technology was developed at Utah State University, who then spun us out as a stand-alone company. We partner with Canvas by Instructure (a Utah company), which is the sole provider Learning Management System (LMS) for the State of Utah education system and support instructional design tools that make it easier for instructional designers, faculty and teachers at Utah's educational institutions such as the University of Utah and Utah State University to efficiently create effective online course materials inside the Canvas LMS.

There are several start-ups in the Ed-tech space right here in Utah with similar models to serve the needs of the burgeoning instructional design sector.

The increased need for training, learning and education as well as the need for online programs to differentiate from each other underscores the need for a company like ours and others in the space. A big part of what we do relies on that same level of innovation and the LED program will produce exactly the kind of designer/developer combination of employee skill-set that we so desperately need to grow our business. We encourage you to support the LED program.

Sincerely,

Mike Zackrison, CEO

CONSERVICE®
The Utility Experts®
750 S. Gateway Drive
River Heights, UT 84321
conservice.com

January 5, 2018

SUBJECT: STRATEGIC WORKFORCE INITIATIVE

Conservice is a multi-market utility billing company meeting the needs of both large and small customers. Since 2007 we have grown from 100 employees to over 1,600. That has necessitated an increase in amount of in house training as well as training for some of our business clients.

Like many companies we have a story to tell and a philosophy to how we approach our work. We cultivate a positive and fun work environment where successes are celebrated and rewarded, where our employees feel supported. The kind of place where you can have a foosball tournament in the Mos Eisley Canteena break room or come to a holiday party with Davide Blaine. We work as hard as we play and take our training seriously.

For all of those reasons we are particularly interested to partner with both USU and BTECH for their Learning Experience Design (LED) Strategic Workforce Initiative proposal. We recognize that acknowledging workplace culture and starting training with a user-centered focus is critical to the kind of business we are and that user-centered design plays a key role in the preparation of LED students.

We see an excellent opportunity to be part of the conversation about how students entering from either the K-12 or career transition pipeline are prepared for training positions.

Education is important to us and several of our units are pioneering efforts for work release, we also have Internship opportunities for BTECH students and would like to expand those for Bachelor's students in the LED program.

We look forward to the creation of this educational opportunity for our current as well as for our future employees.

Sincerely,

Shauna Karren
Director of Human Resources

McKinnon-Mulherin Inc.
P.O. Box 1890
Salt Lake City, UT 84110

Utah Governor's Office of Economic Development
60 East South Temple, 3rd Floor
Salt Lake City, UT 84111

January 5, 2017

Re: Strategic Workforce Investment—Learning and Experience Design (LED)

Dear Strategic Workforce Initiative Committee:

I am a founder, officer, and consultant with McKinnon-Mulherin, an instructional design firm based in Salt Lake City, Utah, that focuses on training and on developing eLearning and corporate communication solutions. Our company has received many accolades, including being listed on *Utah Business* magazine's prestigious top women-owned business list for nine years in a row, and the Salt Lake Chamber Small business award. We have had success and grown as a business because of the attention to detail, solid grounding in learning theory, and careful attention to optimal experience we put into all of our training development projects.

We are supportive of the Learning Experience Design Strategic Workforce Initiative Proposal because it is our belief that one cannot create great training products without considering both how people learn and how they interact with software. While standup training does still happen and matters, in the present day, much corporate training and education is done through eLearning. Thus, in training design, it is critical to consider at once how people learn and how they interact with software to create an optimal learning experience. As the Utah economy grows and becomes more technical, it is critical that the training and development workforce also grow. Currently, when hiring training and development professionals, we either need to hire bachelor's level candidates with no knowledge of instructional design or user experience design, or master's level candidates with little knowledge of how business and industry works. Being able to hire candidates who have business and industry knowledge, skill, and experience and learning and experience design knowledge, skill, and experience would be very beneficial for our business, and likely for the larger Utah business sector.

We see an excellent opportunity to be part of the conversation about how students entering from either the K-12 or career transition pipeline are prepared for training positions.

We look forward to the creation of this educational opportunity for our current as well as for our future employees.

Sincerely,

Shauna Bona
Strategic Learning Consultant and Small Business Owner

To Whom it May Concern,

Rent Dynamics offers multiple products in the multifamily industry. We provide Software as a Service as well as run a full-service contact center. We are located in Logan, Utah and strive to be a great asset to the community.

As the Software Development Manager at Rent Dynamics I am constantly hiring and training new software engineers, many of which have come from Bridgerland Technical College (BTECH). In addition, we have to continually hire and train our contact center agents as well as our clients to utilize our software platform. Also, I have served on Bridgerland's IT advisory board. Both of these roles (Manager and Advisory Committee Member) have made me keenly aware of just how crucial effective employee training and development can be for an organization. In many ways, our capacity to effectively train our employees is correlated with our success and growth as a company. We promote from within the organization. This usually results in a highly skilled software engineer needing to develop new skills (user experience design, project management, instructional design) as she/he moves up in the organization. However, many of my employees do not have a clear pathway for obtaining these skills because, as of now, there is only a masters and doctorate degrees available in the Instructional Technology and Learning Sciences department (ITLS) department at Utah State University (USU)

This project is much needed. The knowledge and skills proposed in this new pathway from Bridgerland to USU would be exceptionally valuable for both my current and future employees. I am committed to this project and excited to contribute as an advisory committee member to ensure its success.

Sincerely,

Skyler Cain

Software Development Manager
Rent Dynamics
W: 435.227.2146
M: 435.232.9498
E: skyler@rentdynamics.com

UK2 Group / Hosting Services Inc
517 W 100 N
Suite 225
Providence, UT 84332

January 5, 2018

To Whom It May Concern;

On behalf of Bridgerland Technical College (BTECH) and the Instructional Technology and Learning Sciences department (ITLS) and Utah State University (USU), I am writing this letter to express my commitment to the Strategic Workforce Initiative grant proposal titled "Learning Experience and Design". I have worked closely with Bridgerland for over 11 years in an Advisory Board capacity on its IT/Web & Mobile departments. I can attest to their experience, professionalism, and commitment to innovate education in Utah.

The LED proposal is a good example of a project that is both innovative and sorely needed. I have hired many Bridgerland Technical College graduates as an HR Director for nearly 15 years. As our company continues to grow, employees will have a need to learn new management skills such as user experience design, project management, and instructional design. This program would offer potential employees a pathway for not only advancement of much needed skills but also upward mobility. In addition to current employees, I would also like to see many more applicants applying for jobs with these skills. This grant will build upon the IT-STEM pathway, which is of real benefit to many growing companies. With the increase of growth of IT within the state, my need for highly qualified individuals (in these specific skills) will only grow.

I am committed to the LED project and would be a willing participant to advise the project to ensure that the new ITLS Bachelor's degree and pathway from Bridgerland will result in growth for students and companies across the state of Utah.

Sincerely,

Brian Chambers
Director of Human Resources
UK2 Group / The Hut Group
Brian.chambers@uk2group.com
435-227-1217

Strategic Workforce Initiative (SWI) Abstract Proposal
Information Technology (IT) WEB Development

Partnership—Weber State University (WSU), through the College of Engineering, Applied Science & Technology (EAST) and the School of Computing, a departmental unit within the college, is applying for Strategic Workforce Initiative funding for a cooperative IT pathway among the following education partners:

- Weber State University—Dean David Ferro, College of Engineering, Applied Science & Technology; Dr. Allyson Saunders, Associate Dean; Dr. Brian Rague, Department Chair, School of Computing
- Davis Technical College—Mike Bouwhuis, President; Kim Ziebarth, Vice President of Instruction; Marcie Valdez, Foundation Director and Grant Administrator
- Davis School District—Jay Welk, CTE Director; Neil Hancey, Skilled and Technical Services; Mike Parker, CTE Information Technology

Weber State University, Davis Technical College, and Davis School District are current members in the Governor's Information Technology (IT) Pathway Pilot partnership for the Northern Wasatch Front Region (NWFR). This NWFR partnership covers the following three pathway areas for Information Technology:

1. Software Development
2. Cybersecurity and Networking
3. Web Development

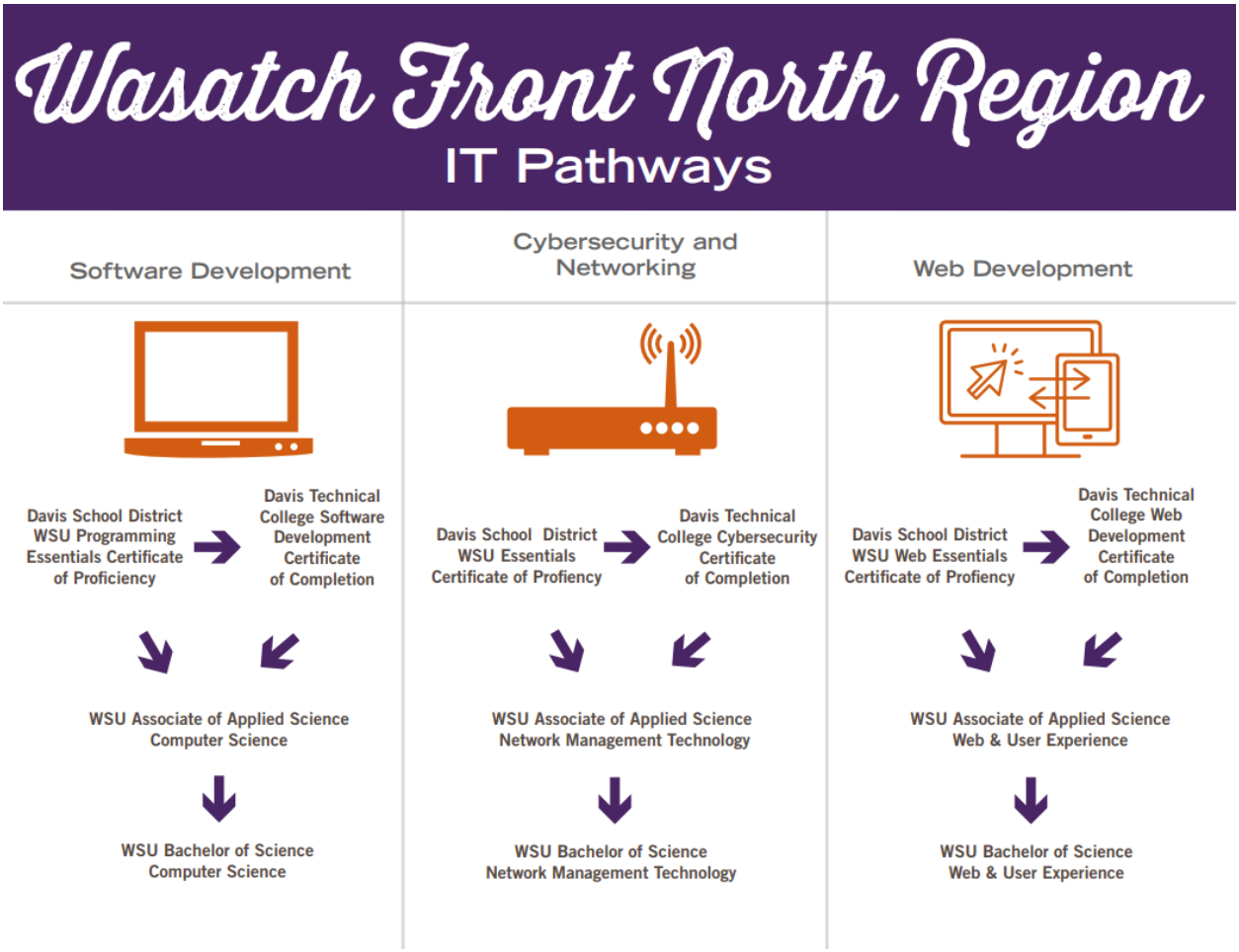


Figure 1: Wasatch Front North Region IT Pathways

Proposal—Web Development Pathway

This proposal involves the third pathway in the Wasatch Front North Region, which is Web Development. Last year's approved proposal for WSU and area school district partners was in the area of software development. This proposal is for the web development pathway leading to different associate's degree and bachelor's degree. The following paragraphs describes each partners roll in the web development pathway.

Weber State University

This proposal involves the third pathway: Web Development. WSU proposes to add a 16-credit Web Development Essentials Certificate of Proficiency as a stackable credential. The courses in this certificate will be articulated with Davis Technical College, and these same courses will be offered as concurrent enrollment courses with Davis School District. This WSU Certificate of Proficiency is in the initial approval stages and requires approval through appropriate curriculum channels. Currently, WSU offers the following courses as concurrent enrollment that would apply towards the 17-credit Web Development Essentials Certificate:

WEB 1400 – Web Design and Usability (3 credits)
CS 1030 – Foundations of Computing (4 credits)
CS 1400 – Fundamentals of Programming (4 credits)

The following courses are proposed concurrent enrollment courses to match Adobe Certifications of Davis School District students:

WEB 2200 – Image Editing (3 credits)
WEB 2210 – Computer Illustrations (3 credits)

WSU's Web and UX program offers certificates of proficiency and associate's and bachelor's degrees, providing a number of entry and exit points for students with each successive step. This proposed pathway will achieve two goals of the Strategic Workforce Initiative: (1) provide students access to an advanced degree and associated higher wages, and (2) prepare students with skillsets that allow for earlier access to available employment through internships. WSU is already a participant of an SWI with Davis School District in the area of Programming and Software Development (Computer Science.)

WSU would require an instructor/coordinator to teach Web and UX at WSU and work with Davis School District to assist an increasing number of students in successfully completing the web essentials certificate (through concurrent enrollment) while in high school. Thus, high school students could complete this 16-credit certificate from Weber State University while attending high school. Moreover, students will have 16 of the 40 major course credits required for the Web and UX Associate of Science degree. These students can be even further ahead in their degree pathway if they take other general education concurrent enrollment courses such as English and mathematics. This instructor would also coordinate articulated courses with Davis Technical College.

Davis Technical College
Students in the Davis Technical College Digital Media Design program are prepared for employment as web developers capable of image editing, graphic design, video production, search engine optimization, and animation. Students in this 1,200-hour program can earn up to 30 industry credentials, providing third party validation of knowledge and skill, increasing employability.

While the program boasts an 88% job placement rate, student enrollment is limited by the number of faculty members, impacting the pipeline to industry and educational growth opportunities for students. The College needs another faculty member who will be responsible for instruction, student advisement, and development of industry relations, contributing to student externships and placement opportunities.

Davis School District
Industry Certifications: Davis District provides Adobe Certified Associate testing in each of their 10 high schools. The cost for each school is $3,400 per year. Those licenses include unlimited practice and certification exams. Students can test in Photoshop, Premiere Pro, InDesign, and Illustrator.

Stackable Sequence of Credentials—To meet the growing demand for IT professionals, students are encouraged to start early in IT Education classes in secondary schools. Figure 2 contains the educational and employment opportunity IT pathways for Davis School District, Davis Technical College, and Weber State University. High school students can take Web Development concurrent enrollment courses that are applicable towards the proposed Web and User Experience Essentials Certificate of Proficiency. Students are also able to complete courses at Davis Technical College in the Digital Media area, which can apply towards the Digital Media Certificate at Davis Tech and/or the Associate of Applied Science degree in Web and User Experience at Weber State University. This AAS degree is a significant step towards the Bachelor of Science degree in Web and User Experience. With

stackable credentials started in high school and completed at Weber State University or Davis Technical College, these students can realistically become IT professionals and obtain employment at each credential level.

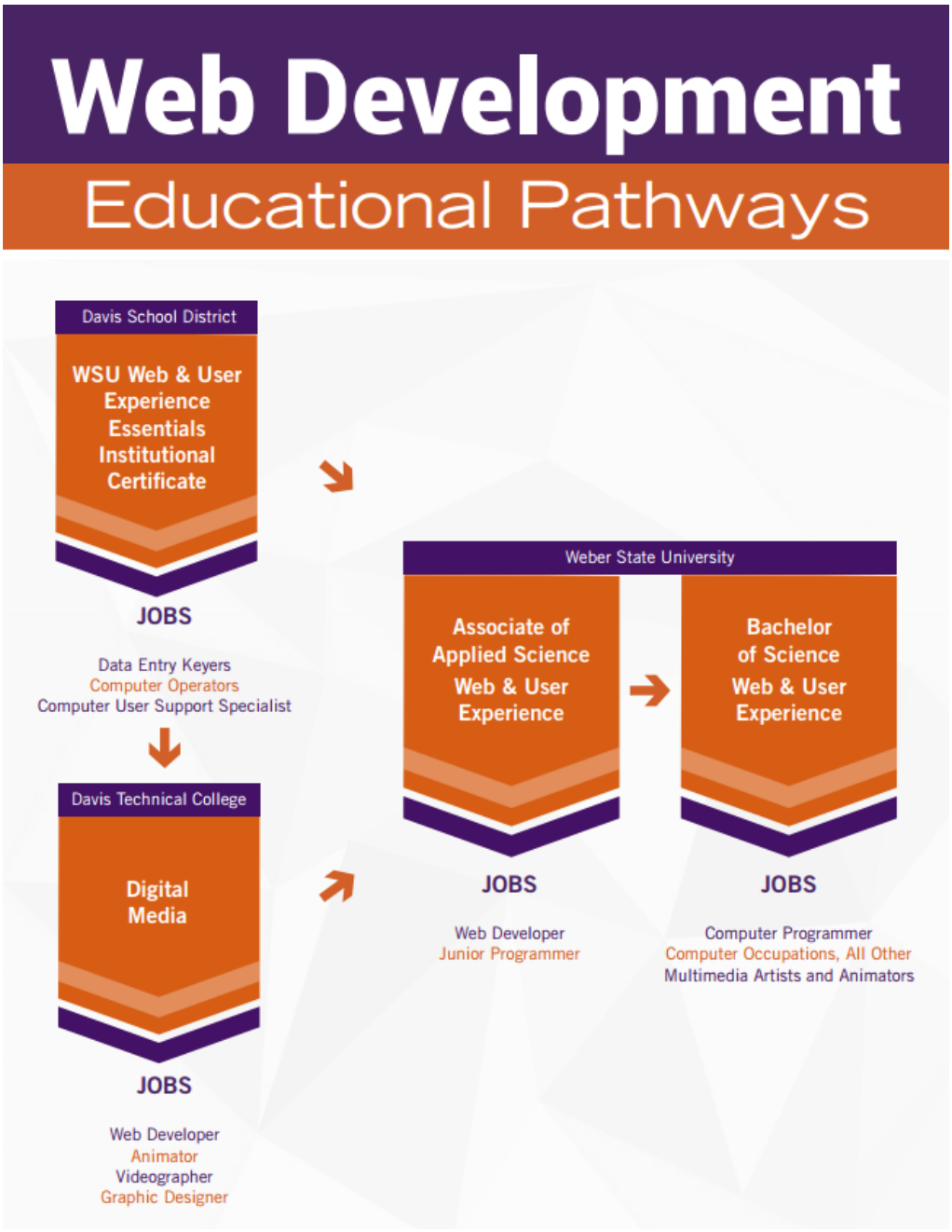


Figure 2: Web Development On-Ramps and Off-Ramps

Board of Regents Support—The Board of Regents will send a separate message of support.
USTC Support—Utah System of Technical Colleges will send a separate message of support.

IT Workforce Needs—The following table illustrates the number of Utah job openings and wages for job titles at the various levels of education.

Utah IT Employment Needs and Wages (Source: DWS)					
Stackable Education	**Job Title**	***Projected Annual Statewide Job Openings (2014-2024)***			**Median Annual Wage**
		2014 Employment	**2024 Employment**	**Total Annual Openings**	
WSU Web Development Essentials Certificates of Proficiency	Data Entry Keyers	4,130	4,700	110	$30,560
	Computer Operators	330	310	0	$40,880
	Computer User Support Specialist	7,800	11,250	450	$42,420
Tech College Certificate of Completion in Digital Media Design	Web Developers	2,120	3,290	140	$55,910
	Animators	310	390	20	$59,380
	Graphic Designers	3,120	4,040	170	$44,860
	Videographers	240	320	20	$50,320
WSU Associate of Applied Science	Junior Programmer	DWS data not available – this position leads to computer programmer position			
	Web Developer	2,120	3,290	140	$55,910
WSU Bachelor of Science	Multimedia Artists and Animators	310	390	20	$59,380
	Computer Occupations, All Other	2,660	3,530	120	$72,540
	Computer Programmers	3700	4,480	170	$77,530

Funding Request Items—The budget requested to support this proposal is listed below:

Budget On-going Funding	
Weber State University	
Funding Need	**Budget**
Faculty Position A faculty position to bridge the gap of lack of qualified IT teachers in the Secondary Schools. This person would **a.** Facilitate the training for Web Development concurrent enrollment high school instructors. b. Teach a minimum of half time (four classes) at the university to offset the increased demand at the university level. c. Advise secondary students in pursuing additional educational step (AAS Degree) and employment opportunities.	$120,000
Student Training—Since employers use a broad range of technologies including over 200 software programs and multiple platforms, students need individualized training that gives students the opportunity to obtain software, platform, and technology skills that are unique to employers. This money covers the cost of students' access to IT Web Development training.	$15,000
Davis Technical College	
Funding Need	**Budget**
Digital Media Design Faculty Faculty will increase program capacity and the pipeline to industry and continuing education. This individual would be responsible for • Instructing students (30 hours per week) Student advisement, and development of industry relations, contributing to student externships, and placement opportunities (10 hours per week)	$120,000
Davis School District	
Funding Need	**Budget**
Industry Certifications: Davis District provides Adobe Certified Associate testing in each of their 10 high schools. The cost for each school is $3,400 per year. Those licenses include unlimited practice and certification exams. Students can test in: Photoshop, Premiere Pro, InDesign, and Illustrator.	$34,000
Total On-Going Funding	**$289,000**

Strategic Workforce Initiative Proposal

Introduction / Summary

Applicant Name: Utah Valley University

Target Industry: *Information Systems & Technology (IS&T)*

Funding Level Requested: $260,000

Partners: K-16 Alliance, Mountainland Technical College, Utah Valley University

Introduction

Utah Valley University (UVU), in collaboration with the UVU MTECH K-16 Alliance and Mountainland Technical College (MTECH), will design clear and efficient pathways for student completion within the Software development and Information Technology sector. The pathways are designed to produce work ready graduates prepared to reduce the number of unfilled tech-sector jobs and increase educational attainment opportunities in the region. Pathways are carefully created to provide on-ramps via pathway certifications beginning in high school, which can then articulate to higher education certificate and degree programs to serve the needs of students while providing an educated workforce with multiple on and off-ramp points along the pathway.

Project Description

a. Program is responsive to the workforce needs of the CTE region in the *Software Development and Information Technology* industry cluster:

Although Utah is growing economically, technical employers have difficulty finding qualified employees to fill open STEM positions. For instance, a 2011 survey of engineering companies in Utah conducted by the Utah Technology Council showed that 51% of STEM employers were having difficulty finding enough qualified candidates and that 65% were seeking employees from out of state or out of the country (Univeristy of Utah, 2011). The October 2017 employment statistics show Utah has a state-wide increase in non-farm employment of 2.7% while Utah County is growing at almost twice that rate at 4.4% (Department of Workforce Services, 2017). Much of the growth in Utah County is being spurred by Silicon Slopes where jobs in the Information Technology and Information Systems are in demand and experiencing a high volume of annual growth (Department of Workforce Services, 2017). Clint Betts, Executive Director and Editor in Chief at Silicon Slopes, indicated the main barriers to building the tech industry in Utah are diversity, recruiting and education (Mathis & Gorrell, 2017). As Utah grows and the interest in locating tech companies in the state continues, it is estimated the talent shortage may grow to over one million surplus tech jobs by 2020 (Robbins, 2017). The unfilled jobs will be high-wage and high-demand positions, requiring skill and educational preparation. Both educators and employers need to double down on their efforts to increase the number of students entering the pipeline from multiple entry

points in order to increase certificate and degree attainment rates which could dramatically reduce the gap in trained workers and allow Utah to respond positively to the impending growth in high tech.

The Bureau of Labor Statistics has recorded significant growth in the computer systems design and related services sector for Utah County (Table 1). Total employment in the sector has increased 40.9% since 2012 while average annual wage has increased a significant 10.9% with average salaries coming in at $75,919 making this a high wage/high demand sector.

Table 1

Industry Trends (Utah County, Utah):
5415 Computer systems design and related services (all ownership categories *)

Category	2012	2013	2014	2015	2016	Chg 2012-16
No. of Establishments	477	508	508	526	558	17.0%
Total Employment	5,168	5,997	6,704	7,146	7,280	40.9%
Total Annual Wages	$353,798,351	$415,524,762	$477,150,421	$504,487,590	$552,692,768	56.2%
Average Annual Wage	$68,459	$69,289	$71,174	$70,597	$75,919	10.9%

Source: U.S. Department of Labor, Bureau of Labor Statistics

Standard Occupational Classification (SOC) reported by the Bureau of Labor and Statistics for the state of Utah shows significant growth in average annual total job openings of 1,310 across the many categories available and appropriate for students within the Information Systems & Technology Pathways (Table 2).

Table 2 – Standard Occupational Classification Data for Utah

SOC Code	SOC Title	Median Wage Change 2012-16	Employment Growth 2014-24	Average Annual Total Job Openings	Unit of Analysis
15-1111	Computer and Information Research Scientists	13.5	52.6%	30	Computer Systems
11-3021	Computer and Information Systems Managers	3.5%	45.1%	170	Computer Systems
15-1143	Computer Network Architects	16.8%	39.7%	40	Computer Systems
15-1152	Computer Network Support Specialists	-8.6%	35.9%	80	Computer Systems
15-1199	Computer Occupations, All Other	-1.0%	32.8%	120	Computer Systems
15-	Computer Programmers	4.3%	21.2%	170	Computer

1131					Systems
15-1121	Computer Systems Analysts	4.8%	49.5%	240	Computer Systems
15-1151	Computer User Support Specialists	1.6%	44.2%	450	Computer Systems
	Total			**1,300**	

Source: US Department of Labor, Bureau of Labor Statistics

The programs of study designed to support students in accessing the high wage/high demand IS&T jobs are only producing just over 1,000 graduates annually across the entire state (Table 3).

Table 3 Programs of Study & Training Across Utah

		Completers		Most Frequent Award		
CIP Code	**CIP Title**	**Number 2015**	**Change 2011-15**	**Title 2015**	**Number 2015**	**Unit of Analysis**
11.0101	Computer and Information Sciences, General	610	159.6%	Award < 1 yr	288	Computer Systems
11.0899	Computer Software and Media Applications, Other	5	N/A	Award < 1 yr	5	Digital Graphics
11.1006	Computer Support Specialist	13	N/A	Award < 1 yr	13	Computer Systems
11.0299	Computer Programming, Other	2	N/A	Award < 1 yr	2	Computer Systems
11.1003	Computer and Information Systems Security/Information Assurance	611	349.3%	Bachelor's	320	Computer Systems
11.0803	Computer Graphics	10	150.0%	Bachelor's	10	Digital Graphics
11.0202	Computer Programming, Specific Applications	188	548.3%	Bachelor's	187	Computer Systems
11.0201	Computer Programming/Programmer, General	125	267.6%	Bachelor's	67	Computer Systems
11.0501	Computer Systems Analysis/Analyst	0	-100.0%	Bachelor's	0	Computer Systems
11.0901	Computer Systems Networking and Telecommunications	233	161.8%	Bachelor's	147	Computer Systems
Total					**1039**	

Source: US Department of Labor, Bureau of Labor Statistics

Many of these trained employees are finding lucrative employment in their home cities outside of Utah County or are being attracted to out of-state employment, leaving the current educated gap of just over 300 based on the number of openings and the number of total graduates in tables 1 and 2. This gap is much larger when accounting for attrition outside of Utah County. Additionally, tech employers located in Utah County noted they regularly place a job add for a single higher but will often hire 10+ employees from every advertisement as they have more jobs to fill than applicants. Even a modest 5x multiplier of our 300 openings in Utah County brings the number much closer to 1500 job openings going unfilled from the statewide production of 1000 qualified graduates. Clearly there is a need to increase the pipeline of students into the IT&S pathway to increase graduates and produce an industry ready workforce to meet the demands of regional employers. UVU is planning a stackable pathway in IS&T to increase the eligible pipeline to these high wage/high demand career fields. The project proposed is timely and represents an opportunity to both effectively and efficiently allocate resources as UVU and MTEC are geographically, educationally, and economically positioned as key partners with industry leaders on Silicon Slopes to fashion a deeper entrenchment of the pipeline to meet the region's need for skilled workers at every level of the IS & T industry and facilitate a hub of economic growth in high tech fields.

b. Program leads to the attainment of a stackable sequence of credentials

At Utah Valley University (UVU), the Information Systems & Technology department focuses on preparing students for employment in a variety of roles within the areas of Information Systems and Technology. The IS & T states Mission Statement reads:

> The Information Systems & Technology Department offers stackable degree programs to provide students with engaged learning opportunities to help students develop technical, communication, managerial, and lifelong -learning skills. The department's programs prepare students for opportunities in information systems, information technology and security, information management, and education (Utah Valley University, 2017).

At MTECH the mission train an employable workforce using curriculum developed in coordination with industry. Rigorous accreditation standards require each certificate program offered have at least a 70% placement rate of graduates in a related industry. In the Information Technology and Web Development areas, MTECH curriculum is developed by industry and is taught by industry experts are currently employed and active in local industry. Curriculum is updated regularly in response to industry needs. Students in the Information Technology Program earn industry certifications through Test Out and Comp Tia. To accommodate articulation with area high schools, MTECH accepts work completed in high school as transfer credit towards competencies within the certification programs.

UVU currently provides multiple pathways to completion in the Information Systems & Technology programs stacking from certificates of proficiency or certificates providing job ready skills in less than one year of coursework in the following areas:

- Certificate of Proficiency Information Technology (18 cr or one year)
- Certificate of Proficiency Health Information Technology (one year)
- Certificate of Proficiency Data Analytics (one year)
- Certificate of Proficiency Database Administration and Data Warehousing (18 cr or one year)
- Certificate of Proficiency Application Development (one year)
- Certificate of Completion Network Administration (31 cr or one year)

Each Certificate maps to AAS degree pathways and onto BS degrees in:

- AAS in Information Systems & Technology
- AS Pre-major in Information Systems & Technology
- BS in Information Systems
- BS in Information Technology

Pathways between the Certificates, AAS/AS degrees and BS degrees are clearly defined at UVU, but are not clearly aligned between UVU, MTECH and the K-16 Alliance member high schools. The gap in articulations creates confusion for students as they are preparing for pathways in high school, and it adds time to degree completion for students transferring from MTECH to UVU. These disconnected pathways make it more difficult for students to navigate from high school through bachelor's degree attainment, and it results in fewer prepared workers entering the workforce. Additionally, the faculty in IS&T recognize the need to increase awareness of career clusters and the employment possibilities to students much earlier than the junior year of high school. Students must be prepared, in particular, in math as early as middle school in order to engage in the coursework in high school which prepares them for successful matriculation in any of the undergraduate pathways at MTECH or UVU.

This shortage of technologically ready graduates in Utah is critical to the state's economy because all of the economic clusters identified by the Governor's Office of Economic Development as priority opportunities for sustainable economic development rely on engineering and computer science type clusters for their success (Sutherland, 2012). State educational reports identify one of the biggest factors preventing students from obtaining degrees in STEM fields at Utah Valley University (UVU) is a lack of preparation in mathematics (Utah State Office of Education, 2009). Key to the success of this proposal will be early preparation in math and increasing interest in IS&T pathways for students facilitated through UVU PREP, and clear pathway creation with clear alignment from the K-16 alliance schools and MTECH to certificates, AAS/AS and BS degrees at UVU.

c. Program includes a non-duplicative progression of courses that include both academic and CTE content

UVU PREP:

UVU IS&T faculty will engage in curricular alignment activities aimed at providing Information Technology specific content and mentoring to the UVU PREP program to build the pipeline of students accessing appropriate coursework in high school. Hosted on the UVU campus, UVU PREP provides a seven-week program for three consecutive summers to eligible middle-school students as a collaboration between UVU and Alpine, Nebo and Provo school districts. In addition to delivering a broad STEM education, the course content is designed to provide experiences that promote a clear understanding of how mathematical concepts and procedures are applied in the fields of information technology, engineering and science. The program aims to motivate and prepare participants to successfully pursue STEM studies and careers by giving middle school students a deep-dive into mathematical concepts that are a core component to IS & T and really all STEM fields allowing them to enter high school ready for higher-level concurrent enrollment STEM courses. A comprehensive STEM education enables all students, but particularly women and underrepresented individuals, to overcome negative stereotypes and gain the technical skills and competencies needed to compete in today's local and global marketplace.

K-16 Alliance Partnership:

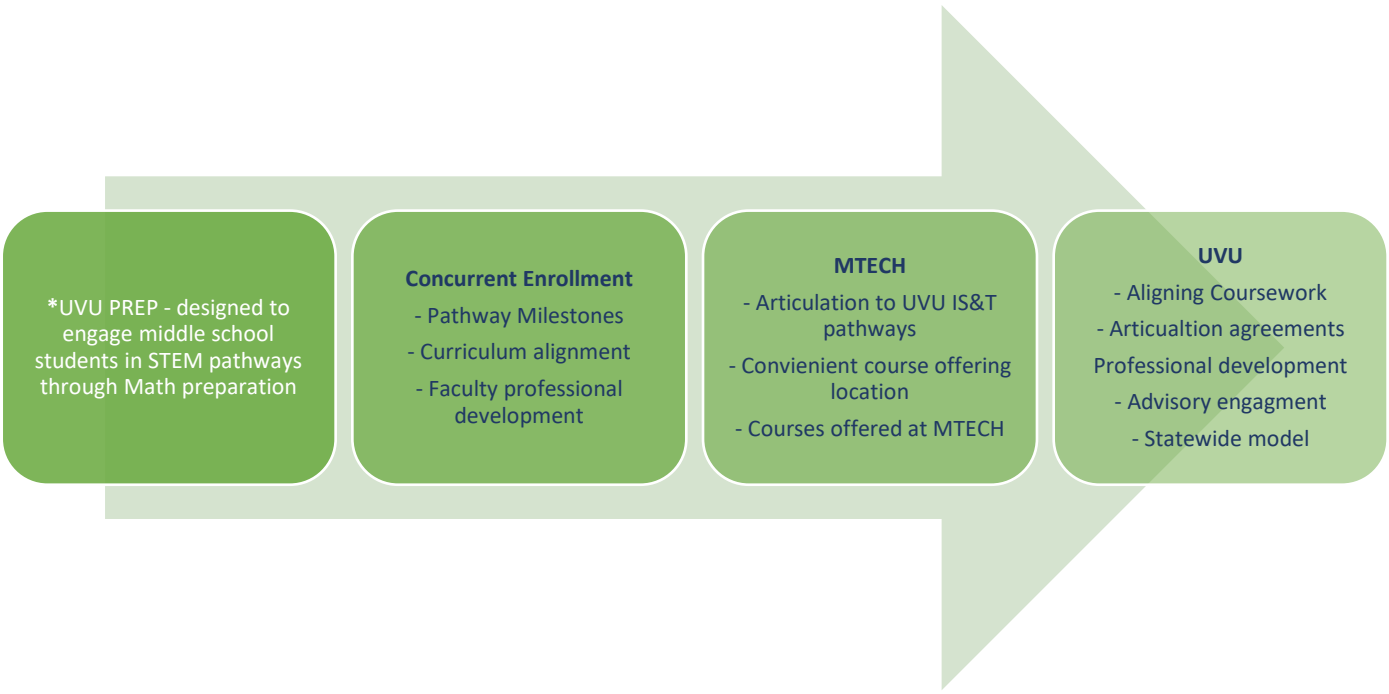
UVU faculty will continue to partner with K-16 Alliance members in creating Pathway Milestones to be offered to students through concurrent enrollment. This coursework, chosen during high school, will apply towards their degree pathway and reduce extraneous college credits. Carefully chosen concurrent enrollment courses assist students in saving money on college tuition and decreases time to degree completion. The Pathway Milestones will provide for a combination of academic preparatory coursework and CTE-focused coursework to inspire students to continue to pursue a IS&T pathway. UVU faculty will continue to partner with concurrent enrollment faculty to ensure a tight alignment between concurrent enrollment and university coursework. UVU faculty are committed to designing, providing and supporting high school faculty professional development to improve the quality and quantity of IS&T focused coursework offered to high school students through concurrent enrollment.

MTECH Partnership:

UVU faculty will work closely with MTECH faculty and with the University curriculum committee to create a clear and efficient articulation agreement for students attending MTECH and wishing to advance their degrees through AAS/AS and BS programs at UVU. UVU faculty will partner with MTECH faculty to create an articulation agreement allowing MTECH students to seamlessly transfer to UVU degree pathways without losing time towards their ultimate degree goals Articulation will be provided in block format to students to facilitate smooth transfer and completion. Additionally, UVU will partner with MTECH on course location to ensure students transferring from MTECH to UVU have access to classes at the Thanksgiving Point location. When possible, UVU may offer AAS degree courses on the MTECH campus for ease of access and transferability for MTECH students.

UVU Pathways:

UVU will review all IS&T coursework with a focus on alignment and articulation partners while continuing to support the stackable nature of the current degree offerings. Faculty will be provided with appropriate professional development training to ensure the broadest possible offerings and the latest technologies and responsiveness to industry need. The IS&T advisory committee will continue to partner with industry leaders to align curriculum to best practices in industry and provide for a well prepared workforce. UVU faculty will provide developed articulations and course maps to other USHE institutions as an opportunity for state-wide collaboration and best practices sharing.



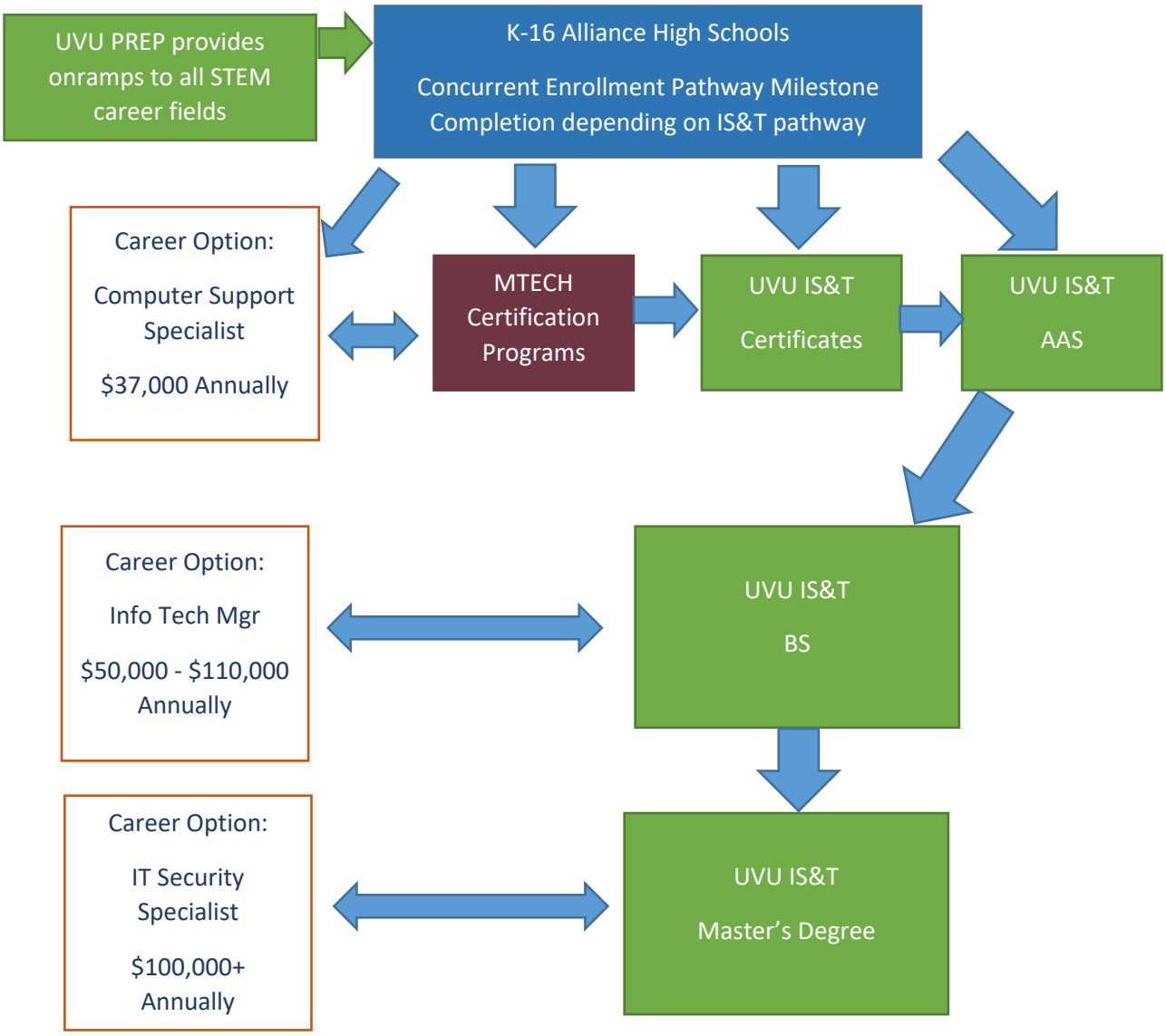
*****UVU PREP is not included in the funding for the SWI proposal but is an important partnership in building capacity in the pipeline of available and prepared students. UVU faculty are interested in supporting this program.

d. Expected student enrollment, attainment rates, and job placement rates

Enrollments are expected to increase significantly in the Concurrent Enrollment area which will lead to increased articulation to MTECH programming as well as freshman entering directly into UVU programming. Enrollments in each entry-point will continue to grow as the project progresses due to increased ease of transfer between institutions and increased awareness of availability of multiple options to completion (see Table 4).

Table 4			
Program Pathway	**FY 2018/2019**	**FY 2019/2020**	**FY 2020/2021**
K-16 Pathway Milestone	50	70	90
Articulation from MTECH to UVU Pathways	25	40	60
UVU Enrollment – entering Freshman	100	125	150
Job Placement	18	45	65

Stackable Credentials Model - Strategic Workforce Pathways (IS&T)



Project Partners

Educational partners: UVU, MTECH & K-16 Alliance Schools. Identified partners are committed to establishing and supporting pathways for students beginning during their K-16 journey through completion of higher education credentials or degrees. See Letters of Support in document Appendx.

Project Budget

Description	Year 1	Year 2	Year 3	Item Totals
Salaries	50,000	100,000	100,000	250,000
Benefits	20,000	35,000	35,000	90,000
Professional Development UVU Faculty & MTECH Coordinators	25,000	25,000	25,000	75,000
Curriculum Development MTECH Faculty	20,000	20,000	20,000	60,000
Professional Development for K-16 Faculty	20,000	20,000	20,000	60,000
Curriculum Alignment	20,000	10,000	10,000	40,000
Equipment	100,000	50,000	50,000	200,000
Yearly Totals	***255,000***	***260,000***	***260,000***	
		3-Year Project Total	***775,000***	

Budget Narrative:

Salaries/Benefits – First year salaries will be used to cover the two adjuncts to teach additional courses required to facilitate articulation agreements between MTECH & UVU. Second year, and beyond, salaries will be used to hire a full-time lecturer position at UVU to teach coursework in the articulated IS&T programs. This faculty member will have a 4/4 teaching load allowing for a course release each semester to partner with industry and facilitate increasing work based learning, job shadow and internship placements for students enrolled in IS&T pathways. These increased engaged learning opportunities will facilitate development of necessary soft-skills required by workforce partners.

Professional Development UVU Faculty – UVU faculty will partner with MTECH coordinators to design aligned professional development plans for IT&S faculty which can assist in facilitating better collaboration and articulation between the two schools. Plans will allow for engagement in key professional development opportunities including; university courses appropriate to acquiring additional degrees within the IS&T areas, workshops to develop key programming and software skills required by industry, conferences to network with other faculty and industry partners to facilitate course development and student placement, as well as other relevant training required by the industry to remain current.

Curriculum Development MTECH Faculty - MTECH faculty will partner with UVU faculty and industry to crosswalk MTECH programs by individual standards and objectives required within the UVU IS&T courses to facilitate ease of articulation. In the event curriculum must be enhanced or altered to better align between the schools, faculty will be compensated for rewriting course outcomes with industry input and feedback. Additional competencies required to facilitate articulation between the institutions will be written in collaboration between MTECH, UVU and industry partners. Examples of new competencies to be written include:

- Give prospective students (Adult or HS) foundational knowledge to be successful in either the MTECH program or the applicable UVU IS&T Certificate of Proficiency program;

- Create a Bridge course to fill in competencies where UVU feels students may be lacking, so students can be granted a Certificate of Proficiency in the respective IS&T program and be poised to move directly into an AAS, AS or BS Degree in IS & T.
- Provide faculty to offer bride course at MTECH Lehi campus

Professional Development for K-16 Faculty – UVU and MTECH will partner to design professional development programming for high school faculty enabling more teachers the ability to teach the concurrent enrollment curriculum available to be offered at area high schools. These professional development opportunities will be taught by UVU faculty, MTECH faculty or industry partners as appropriate. Stipends will be provided to K-16 faculty to facilitate attendance.

Curriculum Alignment – UVU faculty will work with MTECH faculty and K-16 partner faculty to update UVU curriculum to facilitate articulation between all three entities. UVU faculty will sponsor the curriculum adoption within the UVU curriculum structure to ensure inclusion in annual course catalogs and articulation documentation with the registrar's office.

Equipment – New equipment will be purchased to support additional courses offered at UVU's Thanksgiving Point location. Equipment necessary will include; software programs, additional servers to handle the processing necessary to support coursework, individual workstations for students. Workstations will be purchased in both years one and two in order to support expected program growth.

Letters / Evidence of Support

- Letter of support from Employer – Appendix A
- Letter of support from Mountain Land Technical College – Appendix B
- Letter of support from Rick Nielsen – K-16 Alliance Chair – Appendix C
- Letter of support from Board of Regents – Will be provided by Blair Carruth

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Appendix A

INSTRUCTURE

canvas · bridge

December 12, 2017

Jessica Gilmore
AVP Community Outreach & Economic Development
Utah Valley University

Dear Mrs. Gilmore,

As an employer in Utah County it is imperative my organization has a qualified workforce to fill key technology positions. Without a qualified workforce, my organization is forced to import talent from other states and or move our business outside of the Utah area where we prefer to locate. Our partnership with the educational institutions in our region is central to our ability to have a qualified workforce trained in the types of skills which are necessary to support our business. To that end we are thrilled to support the Pathways project in Information Systems & Technology presented by UVU with partnerships with MTECH and area high schools. This pathway project will go a long way in supporting our future success in the Utah County region.

If you have any further questions, please do not hesitate to contact me.

Sincerely,

Jeff Weber
SVP People
Instructure

Appendix B

Office of the President
Clay Christensen

2301 West Ashton Blvd. Lehi, UT 84043
CChristensen@mlatc.edu
801.753.4123

December 21, 2017

To whom it may concern,

Please consider this letter as official notification that the Mountainland Technical College is desirous of support for a Strategic Workforce Initiative Grant. MTECH is committed to provide the necessary support to ensure that the training needs of business and industry are met. Consistent with similar program development, we will provide the necessary leadership to ensure that the program completers are trained to meet the needs of the workforce. MTECH will work with Utah Valley University and other K16 partners to expand and coordinate a stackable credential in the Software development and Information Technology sector.

MTECH has years of experience in establishing career and technical education programs and is desirous to meet employer needs through establishment of additional CTE programs. Employer advisory committees have directed program development and startup of the MTECH information technology programs and expansion and inclusion can be completed with a very short turnaround time.

We value our partnership with business and industry in the Mountainland Region and state of Utah and are anxious to assist in meeting workforce needs. This letter reflects the support of the college to partner with Utah Valley University and service providers in the Mountainland Region to provide a seamless, articulated pathway from the secondary schools through the technical college and university. Should the grant be funded we will ensure that the necessary facilities, equipment and ancillary support are provided for delivery of the program for the MTECH portion of the educational delivery.

Please don't hesitate to contact me should you have any questions.

Sincerely,

Clay Christensen
College President
Mountainland Technical College

Appendix C

NEBO SCHOOL DISTRICT
...your partner in education

350 SOUTH MAIN STREET SPANISH FORK, UTAH 84660
PHONE (801) 354-7400 FAX (801) 798-4010

December 28, 2017

Jessica Gilmore
AVP Community Outreach and Economic Development
Utah Valley University

Dear Ms. Gilmore,

Please accept my full support for your Strategic Workforce Initiative Proposal regarding the development of "clear and efficient pathways for student completion with the Software development and Information Technology sector." The proposal will have significant impact on individual students, the communities they live in and represent, and is in direct alignment with the collective and collaborative goals shared by all members of the K-16 Alliance.

Additionally, the goals of the proposal support legislative and gubernatorial areas of emphasis for effectively preparing public education students for successful transitions into post-secondary experiences, including increased educational opportunities and gainful employment.

Thank you for your vision in developing and implementing plans that will be of such benefit to our local community and to the state as a whole. You have the support of each of the seven Superintendent's in the Utah Valley University service area and we look forward to working with you to implement this vision.

Sincerely,

Richard C. Nielsen
Superintendent, Nebo School District
Co-Chair, UVU MTECH K-16 Alliance
Trustee, Utah Valley University

SOUTHWEST AEROSPACE & MANUFACTURING STRATEGIC WORKFORCE INITIATIVE

STACKABLE CREDENTIAL PATHWAYS

SOUTHERN UTAH UNIVERSITY SOUTHWEST TECHNICAL COLLEGE

- ASSEMBLY MECHANIC
- FABRICATORS
- SHEET METAL MECHANICS
- INDUSTRIAL MACHINERY MECHANIC
- WELDERS, CUTTERS, SOLDERERS, & BRAZERS

Mid-level Yearly Salary*
$28,880–49,920

Entry Level Yearly Salary*
$18,720–37,440

OFF-RAMP TO INDUSTRY

HIGH SCHOOL WITH TECHNICAL TRAINING & CERTIFICATES

CERTIFICATES

Certified Solidworks Associate (CSWA)
AutoCAD Associate
Inventor Associate

CONCURRENT ENROLLMENT COURSES

INMA 0001 Industrial Robotics & Manufacturing
SHML 0001 Sheet Metal
SWWL 1001 Introduction to Welding
SWWL 1002 Advanced Welding
ENGR 1010 Engineering in the 21st Century
ENGR 1030 Computer Assisted Drafting
CCET 1010 Engineering Technology Graphics
CCET 1040 Computer Aided Design

IRON COUNTY SCHOOL DISTRICT · SOUTHWEST TECH · SUU SOUTHERN UTAH UNIVERSITY

- SUPERVISORS OF MECHANICS, INSTALLERS, AND REPAIRERS
- SUPERVISORS OF PRODUCTION AND OPERATING WORKERS
- ELECTRICAL AND ELECTRONICS DRAFTERS
- ENGINEERING TECHNICIANS

Mid-level Yearly Salary*
$52,000–62,400

Entry Level Yearly Salary*
$31,200–48,680

OFF-RAMP TO INDUSTRY

SUU AAS/STC CERTIFICATES

ASSOCIATE DEGREES

CAD/CAM Technology AAS
General Technology AAS
Pre-Engineering APE

CERTIFICATES

Industrial Maintenance & Automation
Welding Essentials
Production Welding
Structural Steel & Pipe Welding
Aircraft Assembler

SOUTHWEST TECH · SUU SOUTHERN UTAH UNIVERSITY

- COST ESTIMATORS
- INDUSTRIAL ENGINEERS
- INDUSTRIAL PRODUCTION MANAGERS
- AEROSPACE ENGINEERS
- QUALITY ENGINEERS
- CNC PROGRAMMERS
- MANUFACTURING PLANNING ENGINEERS

Mid-level Yearly Salary*
$47,840–101,920

Entry Level Yearly Salary*
$37,440–54,080

OFF-RAMP TO INDUSTRY

SUU BA/BS DEGREES

BACHELOR'S DEGREES

Engineering Technology Composite CAD/CAM Emphasis BA/BS

Engineering BS

SUU SOUTHERN UTAH UNIVERSITY

ON-RAMPS SERVING IRON, BEAVER, GARFIELD, KANE, PIUTE, SEVIER, SAN PETE, JUAB, MILLARD, AND WASHINGTON COUNTIES

* Salary levels were benchmarked against local company salary data.

Southwest Aerospace and Manufacturing Strategic Workforce Investment

Executive Summary

Southern Utah University (SUU) in partnership with Southwest Technical College (STC), Iron County School District (ICSD), MSC Aerospace and the Southern Utah Manufacturing Association (SUMA) submit this request for Strategic Workforce Investment funding. We will build upon and extend the current successful Utah Aerospace Pathway (UAP), a high school to technical college to job placement pathway partnership between ICSD, STC and MSC Aerospace to include degrees offered by SUU. Through this effort we provide the opportunity for stackable credentials with multiple entry points and exit points to support the aerospace and manufacturing industry in southern Utah.

The credentials begin with high school training and concurrent enrollment, and extend to additional certificates/certifications, associate and bachelor's degrees articulated through southern Utah school districts, to STC and/or SUU. These trained and educated students would supply skilled labor for the growing aerospace and manufacturing base here in southern Utah, meet the Governor's workforce goals, contribute to the Governor's rural initiative, 25k Jobs and celebrate 2018 as the Year of Technical Education.

The Need

Governor Herbert stated, "All students, urban, suburban, and **rural** need equal access and opportunities at an early age or other opportunities are lost and impact them and generations to follow."

The southwest portion of Utah is rural with unique needs. It is a vast area with many miles between businesses and schools. The number of jobs and the number of students within this region are low when compared to the Wasatch Front. These low numbers mean the need for an educated and trained workforce is even more critical for the local economy. For example, the impact of one successful skilled job placement in Iron County has the same economic impact as 11.48 skilled job placements in Salt Lake County. This Southwest Aerospace and Manufacturing Strategic Workforce Investment, (SAMSWI) will prepare individuals for high growth and high wage jobs to meet local aerospace and manufacturing needs, critical to grow the local economy.

Rural southern Utah lags behind the overall state scores in median income and per capita income, and most counties served by this proposal have higher unemployment rates and a greater percent of persons in poverty. While the focus of SAMSWI is to build our Iron County job placement and 9 additional southern Utah counties in SUU's service area. These counties include Beaver, Garfield, Kane, Piute, Sevier, San Pete, Juab Millard, and Washington and would benefit greatly by this initiative. Businesses are attracted to Iron County and the nearby region because of the accessibility of transportation (highway, rail and air), low criminal activity, high quality of living and the potential for a well-educated and trained workforce which we provide.

	Statewide	Iron	Beaver	Garfield	Kane	Piute	Sevier	Sanpete	Juab	Millard	Washington
Median Income	$62,961	$45,118	$50,492	$45,509	$47,530	$39,507	$48,711	$46,929	$55,201	$52,206	$54,398
Per Capita Income	$39,308	$27,037	$34,983	$34,084	$36,244	$27,399	$30,175	$26,808	$31,206	$33,522	$31,368
Unemploy-ment Rate	3.4%	4.3%	5.0%	8.4%	3.8%	6.0%	4.4%	3.9%	3.6%	3.3%	3.7%
Persons in Poverty, Percent	10.2%	18.4%	8.9%	10.9%	10.6%	17.7%	13.8%	16.8%	10.6%	11.2%	12.5%
Population Increase	2.0%	3.4%	1.9%	-0.01%	3.0%	-2.5%	1.6%	2.1%	4.2%	.4%	3.1%
Relative Rural to Urban Job Ratio 2016	1	11.48	81.7	105.04	73.92	350.24	25.74	19.18	51.63	42.64	Not listed
Year-Ago Numeric Change in Manufacturing Jobs	4,640	189	6	1	13	0	36	1	45	4	302

Figure 1. Comparative economic data indicators between Utah overall and southern Utah counties from Department of Workforce Services, U.S. Census Data and Utah Governor's Office of Economic Development.

In order to combat these lagging indicators, opportunities for residents to earn more must be addressed. To meet these needs, we propose a combination of outreach and gathering activities; outreach to the communities to offer resources, and gathering individuals to get needed training to improve their economic well-being. In a statement from the Department of Workforce Services, "In general, the more education, the higher the wage." And also, "Technical and management skills equal higher wages." (https://jobs.utah.gov/wi/data/occupation/occupationalwages.htmla). Thus, the outcome from this initiative is to offer a stackable credential education plan focusing on aerospace technology and manufacturing in southwestern Utah.

According to the *2015 Economic Report to the Governor,* prepared by the Utah Economic Council, the tech sector is having a transformative effect in Utah. Investments in this area in 2013 were over $100 million and total venture capital investments were around $1 billion in 2014. Jobs in this segment pay 167 percent of the Utah average annual wage.

Project Description

This proposal is building on the existing successful UAP Program developed between ICSD, STC and MSC Aerospace Company. The initiative addresses both traditional and non-traditional students as they work toward educational and workforce goals.
We propose to hire an Engineering/Engineering Technology Faculty to complete and coordinate all the items listed below. Each partner has personnel assigned to some aspect of these tasks. This individual would do all of the following and is a priority of the funding.

- Support and recruit students for the SAMSWI
- Improve the effectiveness and increase participation in concurrent enrollment programs within the school districts.

- Make students aware of articulation agreements between partners, recruit, mentor and support students through completion of their chosen credentialed pathway.
- Develop articulation agreements between partners as programs evolve.
- Train, mentor and support high school instructors and counselors so they are proficient with the curriculum and career options available to students. Completed through bi-semester visits and summer workshops.
- Develop and coordinate job shadowing, internships and industry led projects between the partners to provide students with real world experience.
- Develop a new hands-on manufacturing class for SUU CAD/CAM Engineering Technology students. This course requires coordination between all partners. Existing facilities will be used, but new tools and equipment are required, (reference budget).
- Specialized training for SUU and STI professors/instructors. First priorities are Verisurf Portable CMM and Creaform 3D Scanner.

It also incorporates the concurrent enrollment offered by SUU and STC to all its service area school districts.

The courses offered as concurrent enrollment by STC for this program are:

- INMA 0001 Industrial Robotics & Manufacturing
- SHML 0001 Sheet Metal
- SWWL 1001 Intro to Welding
- SWWL 1002 Advanced Welding

The courses SUU offers as concurrent enrollment directly related this proposal (aerospace and manufacturing) are;

- ENGR 1010 Engineering in 21st Century,
- ENGR 1030 Computer Assisted Drafting,
- CCET 1010 Engineering Technology Graphics,
- CCET 1040 Computer Aided Design

SUU will retrofit an existing lab space into a Makerspace. The Makerspace will house manufacturing equipment, a design station and work space for industry professionals to work with faculty and students on design and manufacturing projects and cultivate new and innovative ideas. This space will also be ideal for the adaptation of CCET1030 Intro to CAD/CAM 3D Design with manufacturing emphasis.

An SAMSWI Advisory Committee will convene annually to review progress toward the goals of this project consisting of the following members:

- Chuck Taylor, President of SyberJet Aircraft
- Megan Ralphs, HR Director, MSC Aerospace; Southern Utah Manufacturing Association
- Richard Cozzens, Southern Utah University Faculty, Engineering Technology
- Brad Cook, Southern Utah University Provost
- Will Pierce, Vice President of Instruction and Accreditation, Southwest Technical College
- Greg Sanders, Career and Technical Education Director, Iron County School District

As previously mentioned, a key component to the success of this project is the hiring of an Engineering Technology Faculty to increase the diversity and capacity of the department and be in a position to make the changes necessary to create an operational pathway for students to progress through multiple entry points through completion of their educational goals. With the improvement of the economy and the increase of jobs the CAD/CAM Engineering Technology program has seen increases in students in this major. At present the department is using adjunct faculty and faculty overloads for twelve courses. The Department of Engineering and Engineering Technology Advisory Committee has determined that our graduates of this program need to be accredited by the Accreditation Board for Engineering and Technology (ABET), and the department is in the process of applying for that accreditation. A barrier to this accreditation is that this major relies too heavily on adjunct faculty rather than tenure track professors. Funding this position will support the university strategic plan.

Below is an example of the successful outcomes of the work done through Utah Clusters Acceleration Partnership funding over the last three years. See figure below.

Utah Cluster Acceleration Partnership and Job Placement History

Partner	Institution Type	2016 Student Hires
Southern Utah University	Post-Secondary Education	
Southwest Technical College	Post-Secondary Education	
Iron County School District	K-12 Education	
Southwest Regional CTE Directors	K-12 Education	
Washington County School District	K-12 Education	
Utah Manufacturing Association (UMA)	Industry Trade	
Southern Utah Manufacturing Association	Industry Trade	
Metalcraft Technologies	Industry	9
SyberJet	Industry	13
Smead Manufacturing	Industry	17
Staheli West	Industry	2
Wilson Electronics	Industry	6
GAF	Industry	2
WL Plastics	Industry	2
Genpak	Industry	2
RAM Company	Industry	2
MCM Engineering	Industry	3
AMPAC	Industry	3
Utah State Office of Education	Government Agency	
United States Forest Service	Government Agency	3
TOTAL		**64**

Our Industry Partner MSC Aerospace

MSC Aerospace (comprised of MetalCraft Technologies, SyberJet Aircraft and Cedar Building Associates) is poised for immediate growth at all employment levels and will be looking to our community for the trained personnel it seeks. This expansion of the SAMSWI to include SUU degrees will assure the trained talent they need and is the focus of this initiative. While MSC Aerospace will be our key partner, providing internships, job shadowing and career opportunities, other companies locally and within the state are seeking personnel with the training we are providing including WL Plastics, ATK, Boeing, MCM Engineering and Smead Manufacturing.

MSC Strategic Hiring

Job Categories	2018	2019	2020	2021
Assembly Mechanics	4	4	4	4
Structure / Sheet Metal Mechanics	10	12	12	14
A&P Mechanics	1	1	1	1
Quality Inspectors	1	1	2	2
Assembly Inspectors	1	2	2	2
Assembly Planners	2	2	2	2
CNC Mill/Lathe Operators	1	2	2	2
CNC Programmers	1	1	1	1
Fabricators	4	5	5	7
Manufacturing Planning Engineers	2	3	4	5
Total Net New Hires	**27**	**33**	**35**	**40**

Stackable Sequence of Credentials

The students completing the SAMSWI have the option to go straight to work upon graduation from high school. They also have the option to continue their education through STC or SUU. Whether students come to this program through high school training or as traditional or non-traditional students, this program will facilitate and support their educational choices.

These individual courses are the on-ramps to a Certificate of Proficiency, an Associate Degree and/or a Bachelor Degree offered at Southern Utah University.

These stackable credentials will be supported by four (4) key ways:

First, for Certificates earned at STC that require 900+ clock hours, SUU will award 30 credit hours toward an appropriate Associate of Applied Science (AAS) degree. This is consistent with the exiting 15 articulation pathways that are already approved between STC and SUU (ranging from Accounting to Computer Science to Culinary Arts).

Second, for Certificates earned at STC that require fewer than 900 clock hours, SUU will grant an appropriate number of credit hours (consistent with Regent policy) that will count toward the attainment of an appropriate Associates degree. For example, a Certificate in Industrial Maintenance & Automation that requires 630 clock hours will articulate into SUU as approximately 21 credits toward an appropriate Associates degree.

Third, for individual courses completed at STC, SUU will grant credit according to the national definition of the Carnegie credit hour, which is approximately 3 credits for every 135 clock hours of training. Therefore, the Welding Technician–Interim Level course that requires 130.5 clock hours will articulate into SUU as a 3-credit course. That 3-credit course can then be applied to an appropriate Associate of Applied Science degree.

Fourth, and finally, every Associate degree earned at SUU (between 60-69 credits) can be applied to earning a Bachelor's degree, ranging from a Bachelor's degree in Engineering Technology all the way up to the Bachelor of Science in Engineering. (Note: SUU is currently

waiting for approval for a new Bachelor's degree in Mechanical Engineering; once approved, all Associate degrees will also feed into this new Mechanical Engineering degree.)

Programs at Southern Utah University (On-Ramps: High School or Post-secondary Education)	**Enrollment**	**Attainment**	**Job Placement (Off-Ramps into Industry)**
Certificates/Certifications			
Certified Solidworks Associate (CSWA)	130	126	2
AutoCAD Associate	92	92	2
Inventor Associate	24	24	0
Associate Degrees			
Pre-Engineering A.P.E	2	2	0
CAD/CAM Technology A.A.S.	3	3	1
General Technology – (various manufacturing emphases)	New Program		
Bachelor's Degree			
Engineering Technology Composite –CAD/CAM Emphasis, B.S./B.A	98	95	90
Engineering B.S.	152	150	135
Mechanical Engineering B.S	New Program		

Currently, we have students in the pipeline at both SUU and STC and shown below are the courses, hours or credits awarded, enrollment, attainment numbers and estimated job placement at the end of each of these pathways for 2017. Based on our history we expect to meet or exceed these numbers.

Single Course Offerings/Concurrent Enrollment Offerings					
PROVIDING ORGANIZATIONS	**COURSE NAME**	**Hours/ Credits**	**Enrollment**	**Attainment**	**Job Placement**
Southwest Technical College	Industrial Robotics and Manufacturing	130.5	29	26	0
Southwest Technical College	Sheet Metal (Aerospace Pathway)	65.25	10	10	4
Southwest Technical College	Welding Technician – Entry Level	65.25	159	142	0
Southwest Technical College	Welding Technician – Interim Level	130.5	83	77	0
Southwest Technical College	Electrical Safety, Meters, and Motor Controls (Adult Class)	60	7	7	5
Southwest Technical College	Industrial Safety Essential Skills (Adult Class)	60	14	14	7
Southern Utah University	ENGR 1010 Engineering in 21st Century	3	94	94	0
Southern Utah University	ENGR 1030 Computer Assisted Drafting	3	130	126	2
Southern Utah University	CCET 1010 Engineering Technology Graphics	3	82	79	0
Southern Utah University	CCET 1040 Computer Aided Design	3	92	92	2
Southern Utah University	EET 1700 Circuit Analysis	3	39	37	3
Southern Utah University	EET 2750 PC Hardware	3	40	40	1
Total			779	744	24

Project Timeline

Year 1:

- Upon notification of award, we will post the position opening for a July 1 hire for the Engineering Technology Faculty position.
- The CCET 1030 Manufacturing Course will have new curriculum and outcomes. This course will be taught once each semester at SUU.
- The Engineering Technology Faculty will make visits to the schools in the service area.
- We will prepare and notify teachers about the summer workshop for Summer 2018.
- Articulations between STC and SUU will be developed on courses in aerospace and manufacturing pathways.
- The first year of specialized training offered to SUU and STC professors/instructors would be to train on the Verisurf Portable CMM. This will insure these professionals have the most current knowledge when interacting with students and industry representatives. MSC Aerospace and other southern Utah businesses will offer job shadowing and internship opportunities.
- The Makerspace will be retrofitted and equipment installed and be operational spring/summer 2019.
- ABET Accreditation review will be initiated.

Year 2:

- The second year additional articulation agreements will be developed between SUU and STC.
- Based on our assessment findings in the first year we will adjust our activities to meet the needs in our service area with regards to courses, school visits and student outcomes. Summer workshop will be conducted for these teachers.
- Based on assessment findings the program will be adjusted.
- SUU and STC professors/instructors will be trained on Creaform 3D Scanner operations.
- MSC Aerospace will continue to offer job shadowing and internship opportunities and conduct offer tours for elementary and middle school field trips.
- Student pre and post assessments will be proctored at STC and SUU.

Year 3:

- Based on our assessment findings in the second year we will adjust our activities to meet the needs in our service area with regards to courses, school visits and student outcomes.
- The Engineering Technology Faculty will make visits to the schools in the service area sites and conduct summer training
- The third year of specialized training will be determined with advisement of the boards over SUU and STC insuring we are meeting the current needs of our community.
- Articulation agreements will be developed between the partners as needed..
- MSC Aerospace and additional partners will continue to offer job shadowing and internship opportunities and in the third year will offer tours for elementary and middle school field trips.
- Student pre and post assessments will be proctored at STC and SUU.

Budget and Justification

Budget	One Time Costs, FY 2019	Ongoing Funding FY 2019	Ongoing Funding FY 2020	Ongoing Funding FY 2021	Total
Grant Request					
Salary Faculty		$87,000	$87,000	$87000	$261,000
Salary Summer Workshop		$6,300	$6,300	$6,300	$18,900
Course Development	$9,667				$9,427
Student Workers		$5,500	$5,500	$5,500	$16,500
Benefits Faculty		$36,540	$36,540	$36,540	$109,620
Course Development	$2,175				$2,175
Benefits Summer Workshop		$1,418	$1,418	$1,418	$6,374
Benefits for student		$578	$578	$578	$1,733
Salaries Wages and Benefits	**$11,842**	**$137,335**	**$137,335**	**$137,335**	**$423,847**
Printing		$1,000	$1,000	$1,000	$3,000
Teacher stipends for summer workshop		$3,000	$3,000	$3,000	$9,000
Specialized Faculty Training for SUU/STC		$5,000	$5,000	$5,000	$15,000
Web Design		$1,000	$1,000	$1,000	$3,000
Go To Meeting		$300	$300	$300	$900
Workstation	$3,500				$3,500
Two monitors with graphics cards	$1,500				
laptop/portable device	$2,800				$2,800
Plotter Printer	$4,200				$4,200
Summer Workshop expenses, supplies		$2,000	$2,000	$2,000	$6,000
Makerspace tools and supplies	$8,720				
Current Expenses	**$20,720**	**$12,300**	**$12,300**	**$12,300**	**$57,620**
Classroom Retrofit	$90,000				$90,000
Construction	**$90,000**	**$0**	**$0**	**$0**	**$90,000**
Visit CE sites & DWS offices recruiting		$1,014	$1,014	$1,014	$3,042
Per diem		$576	$576	$576	$1,728
Hotel		$960	$960	$960	$2,880
Attend job fairs		$500	$500	$500	$1,500
Travel	**$0**	**$3,050**	**$3,050**	**$3,050**	**$9,150**
Total Budget	**$122,562**	**$152,685**	**$152,685**	**$152,685**	**$580,615**

Budget Justification

One time funding request:

1. **Salaries**

   One manufacturing course will be created that will be taught in the Engineering Technology Major at SUU. Students from STC will access this course through articulation. One month salary will be paid to an engineering faculty member to develop the curriculum for this course as a one-time expense of $9,667.

2. **Benefits**

   Benefits for the overload to faculty in the summer is calculated at 22.5% and includes retirement, FICA, Social Security and Workman's Compensation, $2,175 for the faculty teaching the summer workshop.

3. **Current Expenses**

   A design space will be created in the Makerspace for industry professionals to meet with faculty and students to develop prototypes using Makerspace equipment. One time purchases of an industry equivalent workstation with professional licensed software, $3,500. Two monitors with graphics cards are requested at $1,500. As the Engineering Technology Faculty will be traveling to partner meetings and schools around southern Utah, we also request a laptop computer or other portable device, $2,800. A plotter/printer will also be purchased for the workspace, $4,200.

   While much of the equipment for the Makerspace will come from various places on campus, the space lacks the tools and storage to make the space operational. We anticipate purchasing electric and manual toolsets, benches, cabinets, white boards, monitors, safety glasses, first aid kits, and electrical cords. $8,720.

   Total Current Expense: $20,720

4. **Construction**

   A lab in the Technology Building, (TH106) will be retrofitted to be used for a Makerspace and it will also be the classroom for the CCET 1030 Intro to CAD/CAM 3D Design class. The greater part of the space will be an equipped lab and teaching space. A portion of this space will be designated for meeting, and design space. The faculty will oversee the Makerspace and will meet with industry professionals by appointment to design and prototype parts. Cost for construction to retrofit the space: $90,000.

   Total One Time Costs: $122,562.

Annual Expenses Years 1-3

1. **Salaries and Wages**
   In the first year an SUU faculty in Engineering Technology will be assigned/hired permanently to teach in the Department of Engineering and Engineering Technology, oversee and teach technical concurrent enrollment courses, design business and community outreach activities including internships, industry tours, arrange for specialized training and testing, and supporting the high school technology and engineering teachers. This person will also manage the progress of students in the pipeline and beyond into careers for the reporting obligations of this program. The person for this job will require a unique set of skills in engineering, technology and curriculum development. As a faculty position the person will need to have a PhD in engineering and technical education and curriculum development. This position requires a proven record of quality teaching, project management skills and substantial background working with Utah high schools and concurrent enrollment. This person will also need substantial industry background so they can relate to the workplace requirements. This position with these skills and background require a salary of $87,000 each year.

   Each year a faculty or industry professional will be selected to develop and deliver a summer workshop to train high school teachers in a high demand area of the pathway program. One summer month's pay is budgeted for the person, $6,300.

   One student worker will assist the Engineering Technology Faculty with assessments, communications and reporting. The student will be paid $11 per hour and work 500 hours annually, $5,500.
   Total Salary and Wages: $98,800.

2. **Benefits**
   Benefits for the Engineering Technology Faculty include retirement, medical, dental, FICA, Social Security and Workman's Compensation. We are calculating the rate at 42% of salaries, each year, $36,540.

   Benefits for faculty overloads are calculated at 22.5% and includes retirement, FICA, Social Security and Workman's Compensation, $1,418 for the faculty teaching the summer workshop.

   Benefits for the student worker are calculated at $10.5% of wages and include FICA, Workman's Compensation and Social Security, $578.
   Total Fringe Benefits: $38,535

3. **Current Expenses**

   We request $1,000 in printing to advertise our pathway program to youth in the schools and adults especially those distant from our campuses.

The annual summer workshop will require stipends to help teachers with the costs of attending away from their homes. A stipend of $500 will be given to 6 teachers to help with lodging and gas, $3,000.

In order for faculty from SUU and STC to teach state of the art practices they will need annual training on industry standard equipment and software. Each year their advisory boards will meet to discuss the local needs for this training. Estimated cost is $5,000 per year.

To facilitate communication between the partners, industry, teachers in schools around southern Utah a license for "Go to Meeting" will be purchased, $300 and a website will be developed and maintained for posting announcements and information for teachers and students in the ten county area, $1000.

We also request $2,000 to pay for class supplies and materials for the summer workshop.

Total Current Expense: $12,300.

4. **Travel**
   Each year travel funds will be needed for the Engineering Technology Faculty to travel to the partner schools, and industry partners for meetings and trainings. Mileage is calculated at .41 per mile, ($1,014); Per Diem is calculated at $41 per day. ($576); and hotel costs are calculated at $120 per night, ($960). We also request $500 to pay for participation in regional job fairs ($500).

   Total Travel Request: $3,050.

Annual Cost to Operate the Southwest Aerospace and Manufacturing Strategic Workforce Investment: $152,685.

Total of one time costs and three years of annual costs: $580,617.

351 West University Blvd.
Cedar City UT 84720
Office (435) 586-7702
Fax (435) 586-5475
wyatt@suu.edu

Scott L Wyatt
PRESIDENT

January 3, 2018

To Whom It May Concern:

The proposed Southwest Aerospace and Manufacturing Strategic Workforce Initiative will create educational pathways to support students in high school and post-secondary training. It will also prepare them for technical jobs in southern Utah. I fully support this initiative. Southern Utah University will partner with Southwest Technical College, Iron County School District and MSC Aerospace to fortify our connections as we work to strengthen articulation agreements that benefit high school, traditional and non-traditional students to prepare them for the workforce. In addition we will increase and strengthen our concurrent enrollment offerings.

This is an excellent opportunity to further our mission as a dynamic teaching and learning institution. SUU has a deep commitment to student success and developing experiential opportunities that will lead them to careers in fields of engineering and technology. This proposed initiative is fully aligned with our goals.

The credentials begin with high school training and concurrent enrollment and extend to additional certificates, associate and bachelor's degrees articulated through southern Utah school districts, to SWTC and/or SUU. These students would supply skilled labor for the growing aerospace and manufacturing base here in southern Utah and meet the Governor's workforce goals and contribute to the Governor's rural initiative.

Thank you for your kind consideration of this opportunity to enhance student learning in engineering and technical education at SUU.

Sincerely,

Scott L Wyatt

SOUTHWEST
APPLIED TECHNOLOGY COLLEGE

Strategic Workforce Initiative Review Committee

January 5, 2017

Dear Review Committee,

Southwest Applied Technology College (SWATC) is happy to support and to participate in this proposed Strategic Workforce Initiative project. We believe that the project will provide students and prospective students in our region with significantly enhanced opportunities to gain certificates and degrees in high demand technical areas. It will also assist our regional industry partners by providing an expanded pool of qualified candidates in hard to staff technical specialties.

SWATC and Southern Utah University (SUU) have a track record of working together to create pathways that begin in high school and allow students to continue though certificate and degree programs. The proposal will positively affect our pathways in Robotics and Automation, and Computer Science. We are excited by the prospect of expanding our collaboration and providing additional opportunity for our students to take advantage of stackable credentials, with multiple entry and exit points that prepare them to work in high demand, technical jobs. High school, traditional post-secondary, and non-traditional students will all benefit from this effort.

We believe that this project can help provide the structure to allow students reach their educational goals in an efficient, cost effective way. It will also expand the pipeline of students pursuing education in technical fields through targeted efforts to provide high school students with information about the excellent career opportunities that exist. Initial and ongoing training will be provided for critical high school partners to keep them updated and engaged. The project will provide the structure, training, and education/industry collaboration that will benefit our students and help create the skilled talent our regional employers need.

Sincerely,

Dennis Heaton
SWATC VP-Instruction

O: 435.586.2899 | F: 435.586.2873
510 W 800 SOUTH, CEDAR CITY, UT 84720
WWW.SWATC.EDU

MSC AEROSPACE

December 28, 2017

Governor's Office of Economic Development
Strategic Workforce Investment Grant Review Committee

Dear Review Committee:

It is with great interest that MSC Aerospace (MSC) and its subsidiaries Metalcraft Technologies and SyberJet Aircraft write this letter in support of Southern Utah University's (SUU) proposal to the Governor's Office of Economic Development, Strategic Workforce Investment initiative. SUU is a vital partner to the Iron County business community and has been a long time supporter of our organizations. With recent year's integration of the Zuken Design Software course into the SUU Electrical Engineering Technology Program and the continued offering of the Unigraphics (NX) course in Engineering, Metalcraft and SyberJet have been able to hire 8 students in various engineering roles from internships to part-time and full-time positions.

In August of 2015, SyberJet Aircraft relocated and established the wire harness assembly shop for the SJ30 light business jet at our Cedar City location. Since then, SyberJet has hired 5 new student interns from the Engineering and Engineering Technology programs at SUU. These students are getting hands-on experience in manufacturing and quality control aspects of wire harness assembly as well as direct mentorship from Quality Engineers and Electrical Technicians.

In April 2016, MSC Aerospace in partnership with the Governor's Office of Economic Development (GOED), Iron County School District (ICSD) and Southwest Technology College (SWTC) announced the expansion of the Utah Aerospace Pathways program into Iron County. Of the 13 students that began the program in the fall 2016, Metalcraft has hired 4 of those students into full-time positions and others are pursuing bachelor's degrees beyond their Aerospace Manufacturing Certificate and pursuing Engineering. Fall of 2017 brought 9 new students to this program as it begins its second year. The initiatives of Southern Utah University's UCAP proposal helped support the next step for these high school graduates to take in their Aerospace Career Pathway.

As part of our community outreach we intend to continue our successful internship partnership with SUU, offer tours for students interested in our manufacturing plant, send representatives to meet with students during SUU's Technology Fair and Engineering Week, provide specialized training and workshops as needed, and support the Aerospace Pathway. Additionally, as part of the Advisory Committee for SUU's College of Science and Engineering we will continue to meet as industry partners and give guidance to their programs. We will also continue to support the Engineering Technology Department through assisting with curriculum development and providing adjunct instructors for specific curriculum as appropriate.

526 Aviation Way
Cedar City, UT 84721

METALCRAFT TECHNOLOGIES SYBERJET AIRCRAFT CEDAR BUILDING ASSOCIATES

+1 435.867.6868
mscaerospace.com

The increase in S.T.E.M. programs and initiatives in Southern Utah will have major impact to our organization, as well as, our other manufacturing partners in the area. As MSC and companies anticipate the certification of the new avionics in the SJ30 and the production increase to support existing customers and the production of the SJ30, there will be an increase in positions and the need to have a pipeline of potential candidates. We are highly supportive of the efforts at SUU to provide these additional educational and career development opportunities for their students and support their initiative to obtain the funding necessary to give them the resources and tools to make these programs successful.

Sincerely,

J. Spencer Grant, President
Metalcraft Technologies

Chuck Taylor, President
SyberJet Aircraft

Megen Ralphs, HR Director
MSC Aerospace

526 Aviation Way
Cedar City, UT 84721

MSC AEROSPACE

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mscaerospace.com

SOUTHWEST TECH
SOUTHWEST TECHNICAL COLLEGE

Strategic Workforce Initiative Review Committee

January 5, 2018

Dear Review Committee,

Southwest Technical College is proud to support and participate in this proposed Strategic Workforce Initiative project. We believe the project will provide students and prospective students in our region with significantly enhanced opportunities to gain certificates and degrees in high-demand technical fields. Also, it will assist our regional industry partners by providing an expanded pool of qualified candidates in fields experiencing tremendous workforce shortages.

Southwest Technical College and Southern Utah University have a positive track record of working collaboratively to create academic and career pathways which begin in high school and allows students to continue their education through certification and degree programs. The proposal will improve pathways in aerospace and manufacturing. We are excited about the prospect of expanding our collaboration and providing additional opportunities for our students to take advantage of stackable credentials which provide multiple entry and exit points preparing them for new and advanced employment in high-demand technical careers.

We believe this project can help provide the structure to allow students to reach their full educational and career goals in an efficient, cost-effective way. Also, it will expand the pipeline of students and employees seeking education in technical fields through targeted efforts to provide students with the knowledge and skills to add value to their employers and their industry. This project will provide the much needed structure, training, and collaboration between education and industry to benefit students and help to create and maintain the technical workforce desperately needed by regional employers.

Sincerely,

Will Pierce

Will Pierce, Ph.D.
Vice President of Instruction
Southwest Technical College

December 20, 2017

To whom It May Concern,

I am writing to support Southern Utah University's Strategic Workforce Initiative proposal, which would greatly expand a successful program in our community and help us build a much-needed workforce development program in Cedar City and throughout southwestern Utah. We have been extremely fortunate in Iron County to have outstanding collaboration between our school district, SUU, Southwest Technical College, and our private business community. This project will enlarge an existing educational program, creating valuable training for the manufacturing and aviation sectors of our community and, ultimately, strengthening our efforts to bolster these important industry sectors in our region.

I have had the opportunity to attend several meetings along with representatives from the University, Southwest Tech and the School district and I am very impressed with the high level of cooperation and coordination to move forward with this SWI proposal. Each of these entities are very interested in meeting the needs of MSC Aerospace and other companies in our region and throughout the state. Their efforts are very encouraging to me as I work with the Governor's Office of Economic Development and their 25K Rural Jobs Initiative, which will help rural counties like Iron County to create more employment opportunities. SUU's proposed project is an ideal plan to help meet existing business needs locally, while giving Iron County a leg up over competing areas that are also seeking to attract aerospace and manufacturing companies.

Iron County is currently working to address the problem of Intergeneration Poverty, as this issue significantly affects our county. Education and workforce development is the ideal way to tackle this issue, and SUU's plan to collaborate with the Tech College and the School District ties in directly with our IGP strategic plan.

I wholeheartedly support SUU's efforts and all of the work the University has done with our county's education partners. This project will have a tremendous positive impact in Cedar City, Iron County, and throughout the state of Utah. If it would be helpful to you, please contact me at my email or phone number listed below and I will be happy to answer any questions.

Sincerely,

Daniel B. Stewart
Director

Cedar City – Iron County Office of Economic Development
10 N Main, Cedar City Utah 84720
435-865-5115 • www.cedarcity.org

SUMA Southern Utah Manufacturing Association

January 5, 2018

Greetings;

The members employers of the Southern Utah Manufacturing Association (SUMA) write this letter to support SUU's funding proposal for the Southwest Aerospace and Manufacturing Strategic Workforce Initiative. As evidence of our support, SUMA will be donating $1,000 to SUU's Engineering and Technology Department toward funding of this initiative. This donation will be made at our 1st Quarter meeting held on January 16th, 2018.

SUU is an important partner for the manufacturing community in rural southern Utah; and we have been a longtime supporter of the Engineering and Technology Department. With a continued focus on preparing students for real-world opportunities; SUU has paved the way for students to be able to positively contribute to the community.

A focus on the career opportunities involved in today's manufacturing environment is vital not only to rural southern Utah; but also to the success of most of our companies located here. We encourage you to support the Southwest Aerospace and Manufacturing Strategic Workforce Initiative at SUU in order to make our community thrive and prosper.

Sincerely,

Spencer Douglas, SUMA President
Staheli West

Dallas Stephens, SUMA President-Elect
DHS

Mariah Rosie, SUMA Past President
BWAY Corporation

1033 N. Production Rd.
Cedar City, UT 84721

Telephone: (435) 865-1992 Ext. 16114
Facsimile: (435) 865-1993

Mariah L. Rosie, SPHR
Human Resource Manager

January 5, 2018

Greetings to the Board:

BWAY Corporation enjoys networking with Southern Utah University and has utilized the college for both internship opportunities and creating candidate pools when our technical positions become available. We rely on SUU's programs and initiatives, such as a Southwest Aerospace and Manufacturing Strategic Workforce Initiative, to find qualified and work-ready candidates.

While Southern Utah is a wonderful area to visit, the manufacturing segment is critical to those who wish to reside here. With our rural environment, students have limited opportunities for hands-on experience; having programs which allow students these real-world opportunities with the very latest of technology and automation only further their success. This initiative will prepare students to be more competent and capable of entering into careers and will empower them to be ready for the challenges these roles most surely will present. The Southwest Aerospace and Manufacturing Strategic Workforce Initiative will help students be able to achieve the skills needed to be placed in the workforce.

Please accept our strong encouragement of the Southwest Aerospace and Manufacturing Strategic Workforce Initiative, and support of SUU to help our rural area economy thrive.

Kind regards,

Mariah L. Rosie
Human Resource Manager, Cedar City Operations

WL Plastics Corp
4660 W HWY 56
Cedar City, UT 84721
Phone: 435-867-8908
Fax: 435-865-2703
dlangston@wlplastics.com

December 26, 2017

To: Richard Cozzens

Southern Utah University

Re: Strategic Workforce Initiative

Dear Review Committee:

Southern Utah University's engineering program adds a much needed value to our workforce here in Iron County. WL Plastics supports the ongoing development of the Strategic Workforce Initiative by Southern Utah University (SUU). WL Plastics and SUU have worked together for years supporting the Southern Utah Manufacturing Association. We also provide class tours and presentations to SUU students including introductory manufacturing and material science courses.

WL Plastics has hired several SUU graduates and I myself am a graduate of SUU's engineering program. The education and training that I received there has enabled me to flourish in my engineering profession. We look forward to more students working through this training to help raise the quality of our Southern Utah workforce.

Dustin Langston

Manager - Engineering & Quality Assurance
WL Plastics

SUU SOUTHERN UTAH UNIVERSITY

January 4, 2018

To Whom It May Concern,

Southern Utah University (SUU) in partnership with Southwest Technical College (STC), Iron County School District, MSC Aerospace and Southern Utah Manufacturing Association (SUMA) submit this request for Strategic Workforce Investment funding. We will build upon and extend the current successful Utah Aerospace Pathway (UAP), a high school to technical college to job placement pathway partnership between Iron County School District, Southwest Technical College and MSC Aerospace to include degrees offered by SUU. Through this effort we provide the opportunity for stackable credentials with multiple entry and exit points to support the aerospace and manufacturing industry in southern Utah.

The credentials begin with high school training and concurrent enrollment and extend to additional certificates, associate and bachelor's degrees articulated through southern Utah school districts, to STC and/or SUU. These trained and educated students would supply skilled labor for the growing aerospace and manufacturing base here in southern Utah, meet the Governor's workforce goals and contribute to the Governor's rural initiative, 25k Jobs.

We are excited to bring this program to the state for consideration for funding and Board of Regent endorsement.

Sincerely,

Julia Anderson

Julia Anderson

Director of Sponsored Programs, Agreements, Research and Contracts

Strategic Workforce Initiative Proposal:

Certificate Program in Geoscience Technology

Partner Institutions:	Utah State University, Department of Geology
	Uintah Basin Technical College
Strategic Industry Cluster:	Energy and Natural Resources
Funding Request:	$92,800 one-time and $153,825 ongoing

Submitted in concurrence by:

USU Geology Head, Joel Pederson	Jan. 4, 2018 Date
USU Science Dean, Maura Hagan	1/5/2018 Date
USU Interim Provost, Laurens H. Smith	1/5/2018 Date
UB Tech President, Aaron Weight	1/4/2018 Date

4505 Old Main Hill Logan, UT 84322-4505 PHONE: 435.797.1273 FAX: 435.797.1588 www.geology.usu.edu

Executive Summary

Certificate program in Geoscience Technology

Exploration, development, and management of mineral and water resources and the building of safe infrastructure all require a strategically trained workforce focused on the needs of industry. There is a particular demand for employees skilled in geotechnology, who can perform a range of tasks in the field, laboratory, and office, and obtain Professional Geologist licensure.

Utah State University's Department of Geology in partnership with Uintah Basin Technical College proposes to create a unique certificate program in Geoscience Technology that would include both online and practical-experience training. This broadly accessible program would serve as a stackable credential training Bachelor's level scientists who are then poised for Professional Geologist licensure. The program will be crafted in consultation with an industry advisory board to meet Utah's workforce needs associated with energy and natural resources.

We request one-time funds of $92,800 for technology and equipment used in student training as well as costs to create key online courses. Ongoing funds of $153,825 are for personnel at USU and UB Tech to instruct and advise students in the program.

I. Meeting the need for Geoscience Technicians in the Energy and Natural Resource Industries

Utah's energy and natural resource industries stem from our remarkable geologic setting and history. Natural resources that fuel Utah's economic engine range from oil, gas, ore, and coal deposits, to renewable geothermal, hydroelectric, and wind power, to the water resources we all rely upon.

According to the Governor's Office of Economic Development (GOED), in 2015, energy was a $20.9 billion industry in Utah, generating $656 million in state and local revenues and 16,143 jobs (http://business.utah.gov/industries/energy-resources/). Apart from energy, the total non-fuel mineral production in Utah was valued at $4.0 billion in 2014, which according to the Utah Geological Survey ranked 5th nationally in nonfuel mineral production value (Boden and others, Utah's Extractive Resource Industry 2014: Utah Geological Survey Circular 120). Such fuel and mineral development, in turn, requires the use, management and protection of water resources. Exploration, development, and management of all these resources require a strategically trained workforce. We show evidence below that our USU alumni and *regional industry partners recognize a critical need for employees experienced in geotechnology, who can effectively perform a range of tasks in the field, laboratory, and office.*

USU's Department of Geology proposes to partner with Uintah Basin Technical College (UB Tech) to create a certificate program in Geoscience Technology, designed to meet the energy and natural resources workforce needs of Utah. The program of study will blend online-delivered foundational science with hands-on development of practical geoscience skills not provided by other programs in the region. As a stackable credential, *this program has an organizing principal of student preparation for the Fundamentals of Geology exam to become a licensed Professional Geologist, required in 38 states, including Utah.*

Workforce needs of CTE region. The GOED has identified Energy and Natural Resources as one of the six main strategic industry clusters of Utah (http://business.utah.gov/industries/). Geoscientists, Hydrogeologists, and Environmental Scientists comprise key occupations for the Energy and Natural Resources industry. These targeted jobs require a Bachelor's degree in a geoscience-related field, yet just a 4-year, classroom-focused degree does not include the practical experience necessary on the job. Furthermore, a student graduating with a B.S. in Geology is not required to take the national Fundamentals of Geology exam, nor other certifications that are commonly desired by industry. Many job openings listed within this occupation state that a preference is given to candidates who have a Utah Professional Geologist License or have OSHA/HAZWOPER safety certification.

We envision a certification program that provides this practical training in the technologies and techniques scientists apply at work. Students will gain experience directly applicable to the needs of the mining, oil and gas, geotechnical and engineering sectors, and state and federal agencies that support the growth of Utah's energy, mineral, and water resource industries. We plan to partner with industry through a Program Advisory Board, who will identify target skills not covered in a traditional 2 or 4-year degree. Based on input received thus far, such skill-sets

include field exploration, drilling, core logging, construction-materials testing, soil and water sampling, field chemical screening, data management, and laboratory and safety protocols.

II. Program of Study and Stackable Credentials

Our vision is that the Geoscience Technology certification program will include a unique progression of both academic and practical-training, and it will lead to attainment of the final, stacked credentials necessary for employment as a scientist in energy and natural resources and licensure as a Professional Geologist as required in 38 states, including Utah.

The program will require 18 credit hours of work, including a combination of new online sections of established geology courses such as Petroleum, Groundwater Geology, and Applied Geophysics, as well as new training modules developed by UB Tech and USU-Geology, including a capstone practicum tailored specifically for the energy and natural resources fields (see Table 1). Energy development creates many jobs for geoscientists but it also involves complicated public lands and environmental issues, thus creating numerous additional jobs for environmental scientists and technicians. Our certificate program offers 2 emphasis tracks to address these needs, an Energy Emphasis and an Environmental Emphasis.

This program will be available to students starting their education in the Petroleum Technology Program at UB Tech, and more broadly to those transitioning into college degrees such as at USU's distance campuses at Uintah Basin, Price, and Blanding. Being partly online, this program will also be open to students pursuing a Bachelor's in geoscience or in related fields such as engineering at other institutions, as well as to those who already hold a degree from an accredited institution.

TABLE 1. Proposed Program of Study

Description	Course Description	Credits
Requirements	GEO *new*: Geoscience Industry Techniques	3
	GEO *new*: Geo Techniques Practicum	1
	GEO 5660 Applied Geophysics	3
	*Well Control Techniques**	1
	*OSHA-40-hr HAZWOPER**	1
Options	*(choose 3 in one emphasis area)*	
Energy Emphasis	GEO 3150 Energy in the 21st Century	3
	GEO 5420 Ore Deposits	3
	GEO 5530 Petroleum Systems	3
	GEO 5560 Subsurface Analysis	3
Environmental Emphasis	CHEM 3650 Environmental Chemistry	3
	GEO 5510 Groundwater	3
	GEO 5520 Groundwater Techniques	3
	GEO 5600 Geochemistry	4

*Offered by partner UB Tech **18 credits required**

Partnership with Uintah Basin Technical College. This program directly applies to the mission outlined by the State of Utah's Office of Energy Development by fostering collaborative relationships between Utah educational institutions and industry. Through our educational partnership with UB Tech, a new Well-control course will be designed to meet industry needs, and also tailored OSHA training will be provided. UB Tech already has a unique educational tool we can leverage in its Well-Control Simulator, one of only a few in the country. Furthermore, students starting with UB Tech's existing Petroleum Technology Certification will have a leg-up for this new program because they will have already met the requirements of those modules. In general, we hope this program will serve as a recruiting tool to attract students currently obtaining Associate's degrees into the geosciences.

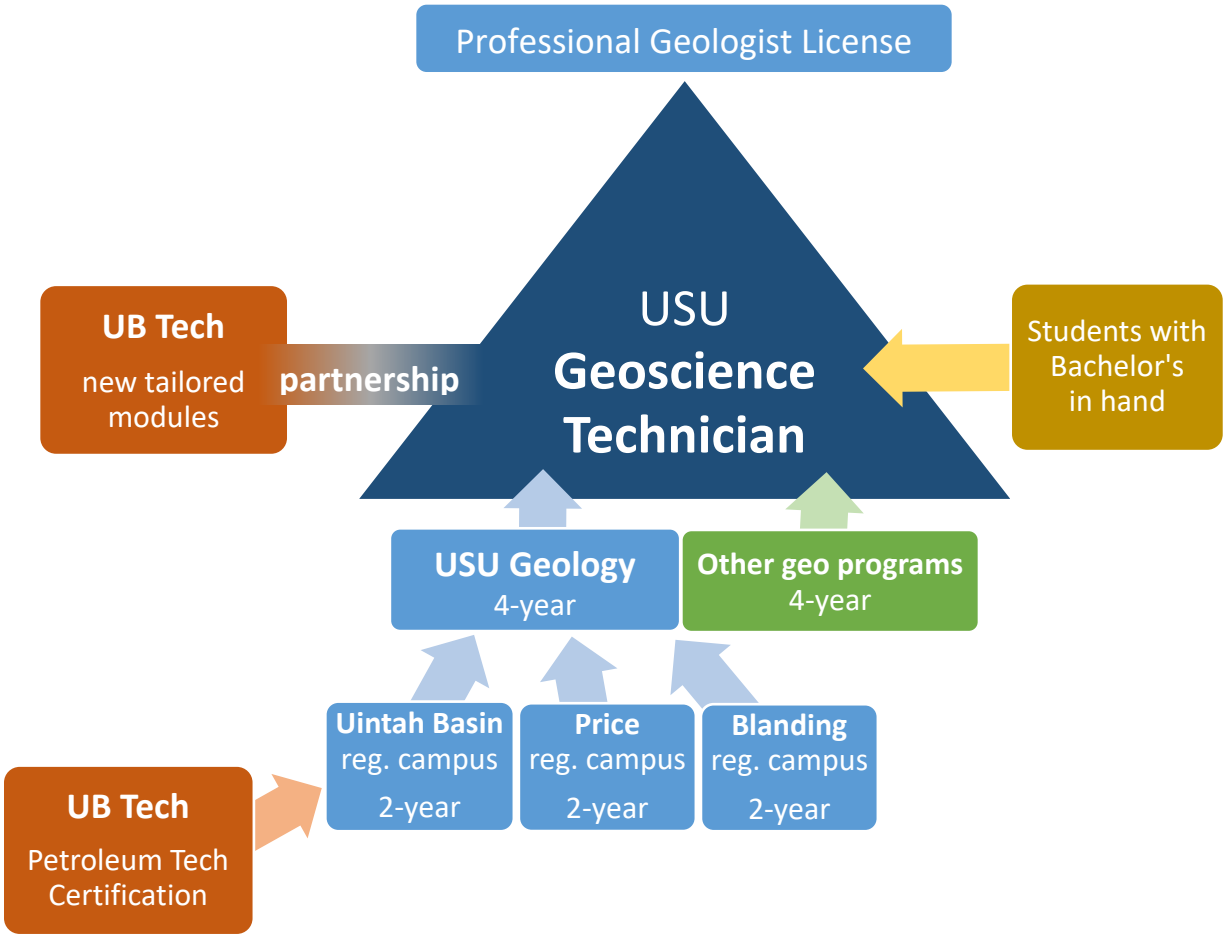

Figure 1. Pathways to the proposed Geoscience Technician program, and where the program stacks among credentials. Students completing UB Tech's Petroleum Technology certification would have prior experience and credits already done, as they continue on to a 2-year, then 4-year degree program, such as through USU's regional campuses. Students currently in 4-year geoscience degree programs such as at USU and other Utah colleges, or with a Bachelor's in geoscience in hand, could enroll in the new certification. The proposed program includes practical modules taught by partner UB Tech, and it would prepare students for the Professional Geologist licensure required in Utah and 38 other states.

Although partly online, for practical hands-on training, students will need to attend efficient, summer practicum experiences delivered out of the USU-Logan campus and UB Tech in Vernal. *At 18 credits, this program could be completed in as few as 2 academic semesters.* The result will be students who have received technical training not otherwise offered in B.S. Geology programs and who are well poised for the national Fundamentals of Geology Examination.

III. Expected Student Enrollment, Attainment and Job Placement Rates

The projected student completions in this program, once fully underway, is 10-15 students per academic year (Table 2). Some of these will be from USU itself. USU's Department of Geology enrolls about 70 undergraduate majors, with 12-15 completing a Bachelor's in Geology per year. We estimate half of our USU students per year will enroll in this program. For its part, UB Tech's Petroleum Technology Certification has enrolled 13 to 26 students per year, and it has an excellent 91% job placement rate for its graduates. Although only a minority of UB Tech students go on to seek Associate's or Bachelor's degrees, we suggest those who do should be attracted to this new program.

We also anticipate the addition of a few students from other geology and/or environmental programs across the state or some that have already completed a B.S. but are finding it challenging to obtain a job (Table 2). We use a conservative approach to estimate projected student enrollment due to the fluctuations within the energy and minerals industries. However, as we develop our online offerings, or if industry experiences a rapid growth rate, the program has the potential to grow. Job placement rates in Table 2 assume a 90% success, similar to that of UB Tech's existing Petroleum Technology program.

Table 2. Projected Enrollments and Job Placements

Category	Summer 2019 completion	Summer 2020 completion	Summer 2021 completion
Projected Enrollment from USU and UB Tech	5	5 to 10	5 to 10
Projected Enrollment from other institutions	1 to 3	3 to 5	3 to 5
Total Number of Job Placements*	4	10 to 15	10 to 15

*estimated based on the UB Tech Petroleum Technology Program 2011-2017

The jobs. There are several hundred projected positions per decade for geo, physical and environmental scientists in the state of Utah (Table 3). Thus, our student completion and placement estimates above are conservative and reasonable, and only partly meet the demand. Furthermore, these jobs are associated with median annual wages that are well above the 2015 per capita annual income of $39,308.

Table 3. Ten-Year (2014-2024) Projections for Geoscientist and Environmental Scientist Jobs in the State of Utah

Occupational Title	Number of Openings	Degree Required	Median Annual Wage
Physical Scientist	12	Bachelors	$91,258
Geoscientist	99	Bachelors	$68,555
Environmental Specialists	319	Bachelors	$64,977
Physical Science Technicians	227	Associates	$50,127
Environmental Science Technicians	221	Associates	$43,310

sources: https://jobs.utah.gov/wi/pubs/outlooks/state/ ;
https://jobs.utah.gov/wi/data/wagesincome/annualprofilewages.htm

These are occupations where people work in mud logging, well-site consulting, geotechnical drilling, conduct field work and test soils and water at environmental and engineering consulting firms, who work at chemistry lab and service companies, and who are managers of datasets. Many such job listings state a preference for candidates who have a Utah Professional Geologist license. OSHA certification is also preferred.

IV. Evidence of Industry Support and Advisory Board

Industry will play a key role in developing this program. In fact, both USU Geology and UB Tech already benefit from longstanding industry Advisory Boards for their programs. Curriculum, objectives and competencies will be determined through consultation with a new Program Advisory Board drawn from Utah-based industry. In addition, site visits with industry partners will provide access to key educational and future employment pathway opportunities.

In order to explore the need and support for this initiative and define the educational outcomes, we solicited responses from alumni in a range of industries. Key points of feedback are summarized in Table 4. Note that these are not official expressions of support from the person's employers. In addition, separate letters of support from other industry representatives are included at the end of this proposal.

USU Geology's existing Advisory Board are alumni drawn from a range of industries, regulatory bodies, governmental scientific agencies, and academia. UB Tech's Advisory Board is focused on local industry. These provide models for how annual meetings and program reviews of an advisory board keeps us informed of economic and employment trends. Members for our new Geotech Program Advisory Board will be drawn from regional exploration and development, groundwater and geotechnical companies, as well as state and federal agencies.

Table 4. Evidence of Industry Support and Alumni Feedback, December, 2017.

Company/Contact	Jobs	Feedback
Terracon, Midvale, UT Darlene Batatian, Development Mgr.	Geotechnical Consultant Geologist Geoscience Technician Environmental Scientist	"We are struggling to fill open job vacancies with appropriate candidates" "the timing is perfect" "I know we are not the only company struggling to fill field positions"
HydroGeologic Consultants Jeff Bigleow, Project Manager	Environmental Consultant Environmental Scientist Hydrogeologist	"I think this is a great idea ... It is amazing how many people (including me) don't know how to do environmental sampling tasks coming out of college"
Monsanto, Soda Springs, ID Shawna Olson, Geotechnician	Mining Geologist Environmental Scientist	"Far too often students leave a university with some of the skills needed to complete the work, but have to complete additional training's and certification programs in order to fill a position in the mining industry" "I often see geologists or hydrogeologists that do not have the skill set to complete the sampling tasks"
Sinclair Oil, Salt Lake City Angela Isaacs, Exploration Manager	Petroleum Geologist Geotechnician Geologist	" There is need for mud logging and well-site geoscience consulting, and critical to expand for Utah, is geosteering. Consulting geologists can make a really good wage and work from home geosteering for horizontal wells. Geosteering can be an important service that someone working from home in Utah can provide across the country. And of course there are a variety of jobs to be had in labs and service companies analyzing samples, core, and data for operating companies."
Crescent Point Energy Cameron Thompson, Geologist	Petroleum Geologist Geologist Geotechnician	"I think what you guys are proposing is great. I would like to see students in Utah get more exposure to O&G. We also have a really hard time finding good geotechnicians. These are good paying positions ($60-100k+) that more often than not go to people with degrees other than geosciences."

An annual meeting of the Geotech Program Advisory Board will be held in Logan, but also available by videoconferencing. The body will guide curriculum development and determine objectives and competencies for the program. In addition, the Geotech Program Advisory Board can provide panel discussions with students to discuss these trends and give feedback regarding employment-related skills. Industry partners will work with the Program Coordinator in identifying internship and summer employment opportunities. Finally, we aim to develop industry mentors who can be teamed with students to discuss communication skills, resumes, and defining career goals. Industry partners will also be asked to provide site visits to a range of workplace environments to demonstrate important aspects of the modern workplace.

V. Budget and Budget Justification

We seek funding for key technology and equipment items involved in student training, as well as for personnel to consult with industry partners, develop new online courses, advise students, and instruct the practicum courses.

TABLE 5. Budget Request

Category	One-time funds	Ongoing funding
Faculty of Prof. Practice (USU)		
12-mo. salary		$75,000
Benefits (46.5%)		$34,875
Instructor (UB Tech)		
6-mo. salary		$30,000
Benefits (46.5%)		$13,950
Course Development		
Online secs. of 3 existing courses	$13,500	
New course at USU	$ 4,500	
Technology for training		
Field gas chromatograph	$34,400	
Equip. for sampling/monitoring	$25,500	
Core logging tools	$14,900	
Total	**$92,800**	**$153,825**

Budget Justification. With one-time funds, we propose to develop online sections for 3 existing face-to-face courses, plus the new Geoscience Industry Techniques course. USU's Academic and Instructional Services has a standard cost of $4,500 for assistance in developing a new, cutting-edge online course in tandem with instructors.

Key industry technology that USU currently does not have, but which students in this program need to become proficient with, include a Defiant Technologies FROG-5000 field gas chromatograph for soil and air quality monitoring, as well as pumps, soil probes, multiparameter meters, and field spectrophotometers for water sampling and monitoring. Finally, for teaching students how to record rock and soil core during drilling, we request funds for a hydraulic core splitter, portable core saw, and other core-sampling tools.

In terms of ongoing funding, USU requests salary and benefits for a full-time Faculty of Professional Practice to oversee this program, collaborate with the industry Advisory Board, develop and teach the new courses, and advise students in the program. UB Tech requests ongoing funds for a part-time Instructor to develop and teach the tailored educational modules for the program.

VI. Letters of Support

January 4, 2018

RE: Strategic Workforce Initiative Proposal: Certificate Program in Geoscience Technology

To Whom It May Concern:

On behalf of Uintah Basin Technical College (UBTech), I express our collaboration with Utah State University's Department of Geology in the proposal for a Certificate Program in Geoscience Technology.

UBTech is delighted to partner with USU; providing Geology Majors at USU with technical education relevant to their field of study. The development of the proposed program will allow students to obtain in-depth career training in the oil & gas industry.

Upon selection for funding, UBTech will develop specific curriculum needed to ensure the success of the partnership and stackable credential.

UBTech and USU are excited to support local students in their educational endeavors and are always looking for ways to help students with their training and career goals.

Please feel free to contact me with any questions.

Sincerely,

Aaron K. Weight,
College President

1100 East Lagoon Street (124-5) • Roosevelt, UT 84066
• Tel (435) 722-6900 • Fax (435) 722-6999
450 North 2000 West • Vernal, UT 84078
• Tel (435) 725-7100 • Fax (435) 725-7199
www.ubtech.edu

PARSONS

10235 So. South Jordan Gateway, Suite 300 • South Jordan, Utah 84095 • (801) 572-5999 • Fax (801) 572-9069 • www.parsons.com

Date: 5 January 2018

Subject: Letter of support for Strategic Workforce Initiative Proposal: Certificate Program in Geoscience Technology

Parsons is a 70-year-old technology-driven firm that provides environmental, engineering, construction, and management support throughout the world to federal, regional, and local government agencies, as well as private industries. We have more than 10,000 employees in 100 offices worldwide in 26 countries. In our office, we perform environmental engineering, geological investigations, geophysical investigations, hazardous waste remediation, bridge design, tunnel design, and highway design, among other services. To perform these services, we need highly educated, skilled, and innovative employees with critical thinking/analytical capabilities. When we advertise such positions, we often find it very difficult to candidates that meet our needs.

In the past, we have offered paid 10-week internships for university students at Parsons' expense. Some years, we are not able to do this because of the costs involved, and the number of internships that we provide across the whole company is small. Parsons staff believe that the proposed program at Utah State University (USU) would help us to not only continue to offer internships (and possibly more and longer internships), but to help us find skilled employees in the future, bring in new ideas that would foster innovation, and provide our staff with additional growth opportunities. The Parsons office in Salt Lake City has hired several of our previous USU interns who are now working full time. Lastly, Parsons staff, including myself, would be happy to sit on an advisory board for the Strategic Workforce Initiative.

Overall, Parsons staff believe that the Strategic Workforce Initiative would be a valuable program, and would be made even more so if funding were available to not only provide internships, but also visits to interesting field sites.

Sincerely,
Dr. Mark Rigby, Project Scientist at Parsons Government Services

Crescent Point

main / 403.693.0020
fax / 403.693.0070
toll free / 1.888.693.0020

Suite 2000, 585 - 8th Ave SW
Calgary, Alberta, T2P 1G1

Dear Legislative Committee Members,

Crescent Point Energy is an oil and gas operator that is very active in the Uintah Basin in both Uintah and Duchesne counties producing over 19,000 barrels of oil equivalent per day. The Uintah Basin has been identified as an area of significant potential growth for Crescent Point Energy.

I am pleased to hear about the Strategic Workforce Initiative that will help provide additional industry related training to Utah's students. This initiative has my full support. Presently, the oil and gas industry is recovering from a downturn. Many people that left the industry took knowledge and skills with them. This has left a skills gap as we continue to recover, and need qualified individuals to replace those workers.

Beyond the typical knowledge acquired during academic studies, there are many skills that can be acquired in a school setting that will make Utah's student more competitive as they complete their degrees. Core and well cuttings analysis, specialized software skills, data management and various safety requirements are skills needed by many petroleum operators. The Strategic Work Force Initiative has a lot of potential to give a competitive edge to students who take advantage of it.

Presently many of Utah's oil fields are being run by people from out of state where training for these skills are readily available. On a personal level, I'd like to see more Utahn's operating and exploring the resources within the state. Nobody will manage the states's resources in a more responsible way than those that call it home. As a Weber State Alumni (class of 2006), had this program been available to me during my education, I would have had a significant advantage finding employment after graduation, and would have helped me in the early days of my Master's Thesis research, which involved describing over 1,000' of core.

I hope the committee will give the initiative its full support and funding to accomplish its goals. This could have a very positive impact for individuals and companies that work and operate within Utah's border.

Thank you,

Cameron Thompson
Senior Geologist
Crescent Point Energy

Caleb Pollock
326 N. Dove Road
Grapevine, TX 76051

January 4, 2018

Utah State Legislature
350 North State
Salt Lake City, Utah

Legislative Committee Members:

As an alumnus of Utah State University and the current Chair of USU's Department of Geology Advisory Board, I am writing to express my support of the Department's Strategic Workforce Initiative Proposal: Certificate Program in Geoscience Technology.

As a professional in the petroleum industry, I see immediate benefit in potential employees with training as described in the Proposal. Many petroleum operators are planning developments where substantial collection and handling of produced fluid and geological samples are required for geological interpretation, reservoir management, environmental stewardship and regulatory compliance. Generally, curriculum required for a Bachelor's degree in Geoscience lacks instruction in analytical and field techniques commonly used in the petroleum sector. Thus, it is a challenge for many employers to find entry-level employees who are immediately deployable and independent in the field. Consequently, considerable investment of time and financial resources are utilized in training. The proposed Certificate Program in Geoscience Technology has the potential to reduce the start-up time and cost for employers, improve the quality of data for analysis and most importantly, increase the employability of its graduates.

I have discussed the formation of an advisory board for the proposed Certificate Program with Joel Pederson, Chair of the Department. He and I agree that the topic is too specific for our current Board. However, we are confident that an advisory group for the program could be formed readily. I am also confident that the Department would utilize this group to improve the program and benefit students given our Advisory Board's record of cooperative and positive influence on the Department for more than a decade.

I urge you fund this proposed Certificate Program in Geoscience Technology to improve the educational opportunities and employability of future Utah geoscientists.

Sincerely,

Caleb Pollock

Cc: Kelly Bradbury, Joel Pederson, James Evans

WESTERN GEOLOGIC, LLC
2150 SOUTH 1300 EAST, SUITE 500
SALT LAKE CITY, UTAH 84106 USA

Phone: 801.359.7222 Fax: 801.990.4601 Email: cnelson@westerngeologic.com

January 3, 2018

Prof. Joel Pederson
Department of Geology
Utah State University
4505 Old Main Hill
Utah State University
Logan UT 84322-4505

Dear Joel:

I am pleased to write a letter in support of the Strategic Workforce Initiative Proposal: Certificate Program in Geoscience Technology.

As a Utah-based employer of students graduating in geology, I can verify that it has been an ongoing challenge for my company to find qualified/well trained entry-level employees. My experience with past new hires from the various geology programs in Utah has been that although they come well versed in understanding of geological processes and theory, they typically lack the basic skills needed in the "nuts and bolts" working environment and usually require a substantial bit of on-the-job-training before they become productive employees (drill rig operations, core logging, sampling, health and safety training, for example).

I believe that the Strategic Workforce Initiative Proposal: Certificate Program in Geoscience Technology program would provide valuable supplemental technology training to geology students from Utah schools that would help fill this need and make these graduates much better prepared to succeed in industry as well as more attractive employee candidates.

I would strongly recommend that this initiative be funded. Please let me know if there is anything else I can do to help support this much needed program. If needed, I would be happy to sit on an advisory board for this program.

Sincerely,

Western GeoLogic, LLC

Craig V Nelson, P.G., C.E.G.
Principal Engineering Geologist

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PROPOSED TIMELINE

√	DATE	ACTION	INVOLVED	LOCATION
☐	1/31/2018	Board Chair appoints Search Committee	Board of Directors	Commissioner's Office
☐	2/5/2018	Post position online	Commissioner's Office	Commissioner's Office
☐	3/30/2018	Applications due – Commissioners' office review applications	Commissioner's Office	Commissioner's Office
☐	4/6/2018	Commissioner's Office sends applications to Search Committee	Commissioner's Office	Commissioner's Office
☐	4/20/2018	Search Committee sends scores to Commissioner's office	Search Committee	
☐	4/27/2018	Scoring compiled/candidates selected	Commissioner's office	Commissioner's Office
☐	5/14/2018	Selection of candidates to interview/interview details (questions, schedule, etc.)	Search C./Comm. office	Conference call to Search Committee
☐	5/24/2018	Interviews	Search Committee	Dixie Technical College
☐	5/25/2018	Notify finalists	Commissioner's Office	Commissioner's Office
☐	5/28/2018	Complete references and background checks	Commissioner's office	Commissioner's Office
☐	6/14/2018	Final interviews/new President announcement	Board of Trustees and Board of Directors	Dixie Technical College
☐	7/2/2018	New President effective day of work		
☐				
☐				

Dixie Technical College

President Search Committee

Committee Member	Organization	Phone Number	EMAIL
Dave Woolstenhulme	System Commissioner	435-823-2294	dwoolstenhulme@utech.edu
Stephen Wade	System Trustee	435-229-5200	swade@stephenwade.com
Chuck Taylor	System Trustee	535-590-4295	chuck.taylor@syberjet.com
Trustee Osmond **Committee Chair**	System Trustee	801-897-8127	avosmond@gmail.com
Mark Fahrenkamp	Board Chairman	435-680-3593	fahrenkamp@infowest.com
Darcy Stewart	Board Vice Chair	435-703-4300	darcy@sunriver.com
Ed Burgess	Board Member	435-619-2121	ed@qualitydevelopment.com
Lorene Cox	School Board Washington County	435-668-1987	larenec@gmail.com
Jon Pike	Trustee, Dixie State University	435-632-6892	Jon.pike@selecthealth.com
Mitch Cloward	CEO, Dixie Reg. Medical Center		
Jordan Rushton	VP of Instruction Dixie Tech	435-674-8400	jrushton@dixietech.edu
Willian McMurin	Lead Instructor Dixie Tech	435-674-8600	wmcmurrin@dixietech.edu