



Utah Cluster Acceleration Partnership Grant Proposal

Name of Educational Institution: Bridgerland Applied Technology College (BATC)

Primary Contact Person: John Davidson
Associate Vice President
Bridgerland Applied Technology College
1301 N 600 W, Logan UT 84325
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Abstract:

Summary: Bridgerland Applied Technology College is requesting funds to develop an advanced certificate in the Automated Manufacturing and Robotics program called Controls Engineering Technician. This grant request is to help purchase Lab equipment and trainers, develop curriculum and online courses to be able to offer this program at BATC Logan and Brigham City.

Applicant Type: Educational Institution Post-Secondary

Targeted Industries and Occupations: Advanced Automated Manufacturing, Advanced Robotics Production, Maintenance, Programming

Project Title: BATC Controls Engineering Technician

Key Partners and Secondary Educational Institutions:

Bridgerland Applied Technology College, Box Elder School District, Cache County School District, Logan City School District, Autoliv, Orbital ATK, Icon Health and Fitness, Pepperidge Farms, Schreiber Foods, Presto Products, ASI, Fanuc

Counties to be Served: Box Elder County, Cache County, Rich County

Projected Outcomes: Develop an advanced Controls Engineering Technician training certificate at BATC. Expand Automated Manufacturing and Robotics industry certification to include training courses in controls engineering in both Logan and Brigham City to support the growing need of local industry for qualified people.

Funding Level Requested: \$200,000

Narrative: The grant request is designed around adding a new Controls Engineering Technician certificate to BATC in the Automated Manufacturing and Robotics department. The new certificate is an advanced certificate for students to learn more about industrial automation integration in a manufacturing setting. The prerequisite for acceptance into this program is completion of either a 900 hour Advanced Operator Certificate, a 900 hour AM STEM Robotics Academy Certificate(Bear River Region High Schools Program), or equivalent industry experience which may require passing a competency exam. The following courses are required for the new certificate. Asterisked courses are newly added to the program. This grant request is to purchase the equipment to offer these advanced skills in labs and hands on assignments.

Courses		Hours
IAMT 1021	Troubleshooting Electrical Circuits	15
IAMT 1611	Troubleshooting Control Circuits	15
IAMT 1621	Troubleshooting Motor Circuits	15
IAMT 2002	Troubleshooting PLC Circuits	15
*IAMT 2012	Sensors and Instrumentation	120
IAMT 2024	Robot and Automation Simulation Software	30
Must do 2 out of the following 3 Basic Robot Programming		
IAMT 2026	Yamaha SCARA Basic Programming Certification	60
IAMT 2031	Fanuc Basic Programming Certification (30 hrs)	
IAMT 2033	Motoman Basic Programming Certification (30 hrs)	
Must do 1 out of the following 4 Advanced Robot Programming		
*IAMT 2027	Yamaha SCARA Advanced Programming	30
*IAMT 2032	Fanuc Advanced Programming	
*IAMT 2034	Motoman Advanced Programming	
*IAMT 2039	Robot Maintenance	
*IAMT 2036	Vision Systems Basic	30
IAMT 2050	Programmable Logic Controllers 2	90
*IAMT 2244	Industrial Safety Wiring and Applications	60
*IAMT 2246	Advanced Electric Drive Applications	90
*IAMT 2250	Programmable Logic Controllers 3	90
*IAMT 2252	Industrial Networking 1	60
*IAMT 2260	Robot PLC Integration	60
IAMT 2270	Human Machine Interface (HMI) Programming	90
*IAMT 2272	Industrial Networking 2	60
*IAMT 2274	Servo Motors and Applications	90
*IAMT 2280	Industrial Integration Capstone Assembly	90
*IAMT 2282	Industrial Integration Capstone Programming	90
*IAMT 2284	Troubleshooting Industrial Controls	30

Students will be designing and building complete automated manufacturing/processing cells that are found in any high end manufacturing/processing facility. This course will cover the entire process from equipment specs to integration with the following devices: Programmable Logic Controller, Human Machine Interface, Robot Arms, Bar Code Reader, Servo Controller and Drive, Industrial Networking Protocols, Panel layout and Safety Devices. These will be managed and operated over Ethernet and device level networks. The skill set being taught is in very high

demand. Because of the low number of individuals in the state of Utah who possess these skills, manufacturing facilities in the state are hiring people from outside like California and eastern states to fill these high tech positions in the state of Utah. With the right training and equipment we can fill these needs.

Competencies:

- Use line diagrams, schematic drawings, and test equipment to isolate problems in basic electrical systems, control systems, basic electrical motors, PLCs, and advanced industrial PLC controls.
- Follow a step-by-step troubleshooting process to solve problems within an integrated system.
- Troubleshoot and repair problems within a specific amount of time and within budget.
- Identify industry and standards organization used in process control
- Understand how sensors work
- Identify Piping and Instrumentation diagrams (P&ID)
- Understand the scientific principles of temperature, heat transfer, and temperature measurements.
- Understand the scientific fundamentals of pressure, hydrostatics, and Pascal's law, and pressure movement.
- Understand the scientific rules of point and continuous level measurement, level switches, ultrasonic and radar principles, and weigh systems.
- Understand the scientific principles of flow, Reynolds number, compressible gases, and all types of flow measurement.
- Understand the scientific essentials used in typical Industrial analysis measurements. Covers: liquid, gas, oxygen, humidity, moisture, viscosity, refractive index, conductivity, ph, ORP analyzers.
- Understand the operation of modern wireless and industrial digital communication systems as well as information on electrical and pneumatic communication systems.
- Understand the operation of modern automatic control systems as well as providing coverage of electrical and pneumatic controllers.
- Understand the operation of final control elements and safety systems such as control valves, regulators, dampers, actuators, positioners, solenoid valves, variable-speed drives, relief valves, burner control systems, shutoff valves, proximity switches, sensors, and alarm systems.
- Load cell diagnostics and configuration
- Learn PAC Logix operation and basic programming
- Learn PAC Logix hardware capabilities
- Learn PAC Programming tags
- Advanced troubleshooting
- Application of safety devices
- Advanced PLC programming with safety devices
- Configure Motor Drive for integrated control
- Advanced Drive Applications

- Install and wire analog devices to/from Motor Drive
- Configure internal logic for counting/timing.
- Analog system wiring and troubleshooting
- Program and configure a temperature controller to maintain temperature
- Configure and use a flowmeter to monitor fluid process
- PID Control
- Utilizing diagnostics for troubleshooting
- Overview of basic network programming
- Learn industrial networking software
- Learn to setup networking hardware
- Network PLCs, I/O blocks, sensor systems, and robots
- Wire I/O and PLC networking connections
- Learn common networking communications protocols
- Learn to integrate PLC programs and hardware with robot controllers, sensors, and vision systems
- Troubleshoot integration problems
- Learn the programming techniques used in creating an Human Machine Interface
- Understand and identify the use and need for Human Machine Interface in an automation environment
- Interface with PLC to simulate a virtualized mixing system
- Advanced PLC skills including configuration and commissioning
- Advanced knowledge of electrical systems and wiring.
- Advanced understanding of industrial communication protocols and terminology
- Motion Control
- Encoder Feedback
- Networking Servo Drives
- Master Axis Control
- Advanced Motion Control
- Multiple Axis Control
- Configuring Motion modules in PLC
- HMI Integration for monitoring and jogging servo drives
- Advanced wiring and troubleshooting
- Advanced Safety wiring and troubleshooting
- Integrating multiple technologies into working manufacturing cell.
- Advanced PLC programming
- Advanced Networking Skills
- Advanced Motion Control

Starting July 1, 2015 BATC has a certificate approved and will be enrolling students in the Automated Manufacturing Controls Engineering Technician certificate. It has pre-requisites of the lower level Automated Manufacturing and Robotics certificates. This will appeal to students

in the program currently and those individuals from industry that are already working in plants and need these high end skills as their company's automation increases.

There are career pathways established for students to move on to the next level with all of the 900 hour or better certificates allowing students to move on to USU and receive 30 credits towards an AAS in General Technology. Beyond that, agreements are being worked on to allow students to move into BS programs at USU in Technology and Engineering Education, UVU in Engineering Robotics Technology (ERT) or Manufacturing Management at UVU which is an online degree. Weber State University is also working on a pathway for these students. These are all high paying in demand career paths for these students.

Industry Need: An advisory committee has been set up and strong support has been displayed. The first meeting was held almost 2 years ago and 27 people arrived from 12 different companies. Hardware and training needs were discussed, along with a questionnaire which was filled out by those attending

BATC Custom Fit department did a partial survey of companies in the Bear River Region and developed a list of over 2000 robots with the type of robot and the companies. Below is a sample from the survey.

<i>Company</i>	<i>Total # of Robots</i>	<i>Major Type/Brand</i>
MOM Brands	14	All FANUC
Autoliv Brigham City	360	60 Motoman Multi-access; 300 Yamaha Scara Series
Schreiber Foods	8	All FANUC
Pepperidge Farm	4	2 FANUC, 1 capping robot, 1 German Schubert multiarm
Autoliv Tremonton	100	65-70 FANUC; 28-30 EPSON pick-n-place

Contributions to Local Economic Growth: Robots are being added quickly to manufacturing facilities in the Bear River Region performing welding and pick-and-place operations. Companies like Autoliv in Brigham City and Tremonton are in the process of replacing outdated equipment with six axis robots. Pepperidge Farm recently added a new wing which is almost entirely automated, and according to members of our advisory committee companies such as Icon Health and Fitness, Gossners, MOM Foods, Schreiber Foods and others have all expressed that robotics will continue to grow and become more prevalent in their respective industries.

Automated manufacturing is the area that is helping local companies compete on an international level and the industry is growing rapidly. Most of the major employers/manufacturers in the Bridgerland region are currently expanding and adding more and more automation to their facilities. Automated manufacturing in the State of Utah has

been growing rapidly and is high on the list of key industries under the State's Economic Development Department.

According to their Web site, "Utah boasts a skill labor pool of over 10,000 employees in automated manufacturing related firms." The Schools in the Bear River Region are dedicated to meet this growing need.

Sustainable wages: The average wage for an Instrumentation & Controls (I&C) Technician is \$27.57 per hour. A skill in Distributed Control Systems (DCS) is associated with high pay for this job.

Job Description for Instrumentation & Controls (I&C) Technician

An instrumentation and controls (I&C) technician generally works at a manufacturing plant and is in charge of repairing and maintaining the instrumentation, robotic controllers, other equipment, and sensory readouts. The I&C technician works to ensure that manufacturing devices - which are often remotely controlled - work efficiently and in a manner that ensures maximum safety for all workers. Much of the I&C technician's job is spent performing diagnostics, assessing equipment for any malfunctions or sluggishness. The technician is expected to identify and repair instrumentation systems that fall under their responsibility as necessary. Additionally, many manufacturing plants report data for efficiency and environmental data, and the I&C technician must ensure that the data recorded by instrumentation is accurate.

These technicians are also frequently in charge of scheduling regular maintenance and system downtimes. When there are updates or new instrumentation installations, the I&C tech is in charge of ensuring installations are performed and performing any new training necessary for operators. Many plants also expect I&C technicians to be control board-certified and able to work the control room as needed.

A degree from a technical college or vocational school in instrumentation or robotics is generally required for this position. Additionally, many employers require some plant experience as an operator. I&C technicians generally work full time in a manufacturing plant environment, and they should expect shift work that may include day, evening, and/or overnight shifts.

Instrumentation & Controls (I&C) Technician Tasks

- Use computerized systems to enter and retrieve data.
- Troubleshoot plant equipment and systems.
- Calibrate sensors and analyzers and configure logic in control systems.
- Give technical guidance and assistance to less experienced personnel.

According to Buzzle.com-

Robotics Technician Salary - The salary of a robotics technician largely depends on the following factors:

- *Educational qualifications, Amount of experience, Skills, Location of job, Type of employer*

A robotics technician's average salary is around \$62,000 per year which is quite impressive. However, most robotics technicians generally earn between \$32,000 to \$52,000 per year. On the other hand, the robotics engineer average salary can be between \$60,000 to \$80,000 depending on the location and post of the candidate. (<http://www.buzzle.com/articles/salary-of-a-robotics-technician.html>)

Robotics Technicians salary specific for Utah from the Bureau of Labor Statistics:

Median hourly wage \$26.77

Mean hourly wage \$27.80

Annual mean wage \$57,820

Labor Market Demand:

Labor demand is increasing because of expansion of automated manufacturing facilities in Northern Utah. Below is data provided by the Utah Division of Workforce Services:

- There are 302 manufacturing establishments in the local area (Cache/Box Elder/Rich Counties)
- 31.1% of total area wages comes from manufacturing and manufacturing jobs in the Bear River area account for 13.1% of manufacturing jobs statewide
- 15,231 individuals are employed in the manufacturing industry with a payroll of \$649.9 million

Controls technicians and Engineers are seen as high importance skills in the occupational profiles from <https://jobs.utah.gov/>

Statewide employment numbers within the manufacturing industry:

- Computer-Controlled Machine Operators (580)
- Robotics Technicians (70)
- Mechatronics Engineers (580)
- First-Line Supervisors for Mechanics, Installers, and Repairers (4,260)
- Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders (80)
- Electro-Mechanical Technicians (70)
- Industrial Machinery Mechanics (3,870)
- Team Assemblers (10,600)
- Inspectors, Testers, Sorters, Samplers, and Weighers (4,330)
- Manufacturing Engineering Technologists (500)
- Electrical Engineers (1,260)
- Industrial Engineers (1,940)
- Electrical Engineering Technicians (2,290)
- Industrial Engineering Technicians (610)
- Electrical and Electronics Repairers, Commercial and Industrial Equipment (1,090)

References for Labor Market Demand:

http://bls.gov/oes/current/oes_ut.htm

http://jobs.utah.gov/wi/pubs/industrybriefs/manufacturing_br.pdf

DOL Summary

Electro-mechanical technicians troubleshoot, repair and upgrade computer-controlled mechanical systems.

Quick Facts: Electro-mechanical Technicians	
2012 Median Pay	\$51,820 per year \$24.91 per hour
Entry-Level Education	Associate's degree
Work Experience in a Related Occupation	None
On-the-job Training	None
Number of Jobs, 2012	17,300
Job Outlook, 2012-22	4%
Employment Change, 2012-22	700

What Electro-mechanical Technicians Do

Electro-mechanical technicians combine knowledge of mechanical technology with knowledge of electrical and electronic circuits. They install, troubleshoot, repair, and upgrade electronic and computer-controlled mechanical systems, such as robotic assembly machines.

Work Environment

Electro-mechanical technicians work closely with electrical and mechanical engineers. They work primarily in manufacturing, engineering services, and research and development.

How to Become an Electro-mechanical Technician

Electro-mechanical technicians typically need either an associate's degree or a postsecondary certificate.

Pay *The median annual wage for electro-mechanical technicians was \$51,820 in May 2012.*

Sustainability: A new certificate in Automated Manufacturing and Robotics (AM&R) Controls Engineering Technician was approved to be taught by BATC starting July 2015 this gives a standalone certificate and also as specializations in the AM&R 1500 hour program. This is a long standing program with industry demand and high placement rates. Having the long term instructor position funded and the lab built and equipped will make this long term and sustainable. Curriculum is already established and successful for the AM&R program and this will add the advanced training that industry is asking for. Adding the ability for students to also obtain an AAS degree from USU-BC will help people progress in their careers.

Student Demand: 93% placement in AM&R at BATC in 2014/2015

Collaboration: This proposal has been put together with input and support from local educational entities, CTE Directors from each of the school districts, USU, UVU and BATC, government entities (DWS), and local private industries. Below is a list of individuals that have given support or have been part of advisory meetings for Automated Manufacturing and Robotics Training.

Dr Gary Stewardson – USU, Dr Stanley Clemetson – UVU, John Davidson – BATC, Matt Fuller – BATC, Ed Ball – BATC, Wayne Moore – BATC, Sterling Petersen – BATC, Melisa Stark – DWS, Eden Johnson – DWS, Shane Oswald – Schreiber Foods, Kevin Riggs – Schreiber Foods, Kevin Bales – Schreiber Foods, Jay Wardle – Icon, Jason Lett – Icon, Wade Pierson – Icon, David Chatterton – Gossner Foods, Shaun Tuddenham – Gossner Foods, Robb Taylor – Gossner Foods, Shawn Kunsman – MOM Brands, Stephen Brown – MOM Brands, Brian Kwapis – ITW Panasonic, Don Fuller – Praxair, Rod Housley – Pepperidge Farms, Bruce Jensen – Airgas, Nolan Tilby – Airgas, Robert Ashby – Autonomous Solutions, Kenny Smith – Autoliv

Career Pathways: Students interested in robotics and controls engineering training have several options:

1. High school students taking BATC Robotics Stem Academy are introduced to robotics and automation in their high schools.
2. Short term industry certifications from BATC, are available for industry upgrade and certifications for the existing workforce.
3. BATC Automated Manufacturing and Robotics 1500 Hour training certification has the ability for students to have an emphasis in Controls Engineering Technician.
4. USU Associate degree in Technology obtained by completing 1500 hour certification and 32 credits from USU is available at the USU Brigham City Regional Campus.
5. BS Degree in Technology, Mechanical engineering or Manufacturing Engineering or Mechatronics from USHE schools.

Industry Recognized Certifications: Currently in automation and robotics, BATC offers globally recognized industry certificates from Fanuc Robotics and Yaskawa Motoman in basic programming, Yamaha SCARA Robot certifications, Cognex Vision Systems, Robotics troubleshooting and repair. By securing the funding offered through this grant, BATC will be able to offer the high end controls engineering skills needed by local industry. Opportunities for students to add additional national and globally recognized certifications in advanced programming and controls engineering certifications will be magnified.

Definition of Credential: See Appendix for a copy of the certificate requirements – BATC Automated Manufacturing and Robotics Controls Engineering Technician Certificate.

Program Deliverables: The following will be accomplished with this project:

- Industry training and certification in controls engineering will be offered
- Curriculum will be developed in Automated Manufacturing and Robotics Controls Engineering Certificate that can be shared through Canvas for online delivery to local industry and full time students
- Controls Engineering equipment and labs will be set up to teach the competencies for the new Controls Engineering Certificate.
- An Automated Manufacturing and Robotics Controls Engineering Certificate is approved to start enrolling students starting July 1, 2015 at Bridgerland Applied Technology College Logan and Brigham City Campuses.

Leverage of Funds: BATC has hired a full time instructor with a salary of \$50,000 plus benefits to teach the Controls Engineering Technician courses at BATC. This is an ongoing long term position to maintain sustainability of the new training certificate. Industry has also stepped to the plate donating robots, controls, entire assembly lines and consulting expertise.

Budget: The following equipment list is for the \$200,000 grant request but with educational discounts and industry support we will be looking at these or similar equipment for the lab and will equip the lab with the requested budget.

Controls Engineering Grant					
Final Integration	Electrical Controls	Supplies	2	\$55,500.00	\$111,000.00
AB	PLC Chassis and Modules	PLC programming	2	\$13,000.00	\$26,000.00
AB	Motion Controls and Power Supplies	Servo Drives	2	\$10,000.00	\$20,000.00
AB	Networks and HMIs	HMI and Industrial Networking	2	\$10,000.00	\$20,000.00
AB	Safety Devices	Industrial Safety	2	\$7,000.00	\$14,000.00
AD	Pushbuttons and MISC Electrical Devices	All Classes	2	\$4,000.00	\$8,000.00
CED/Codale	Wire and Cables	All Classes	2	\$6,000.00	\$12,000.00
AD	Sensors and Analog Devices	All Classes	2	\$4,000.00	\$8,000.00
Cognex	Barcode Readers	Industrial Networking	2	\$1,500.00	\$3,000.00
Final Integration	Mechanical Systems		2	\$24,500.00	\$49,000.00
QC Industries or Flexlink	Conveyors	Industrial Mechanics	2	\$8,000.00	\$16,000.00
Pnuematics	SMC Controls	Fluid Power and Industrial Mechanics	2	\$6,000.00	\$12,000.00
Electrician Costs	Contract for Pulling Mains to panel	NA	1	\$2,500.00	\$2,500.00
Tooling for Robot	Custom EOAT	NA	1	\$8,000.00	\$8,000.00
Final Integration	Robot and Controller		1	\$40,000.00	\$40,000.00
Fanuc, Epson or ABB	6-axis robot for integration	Basic Robotics and Robot/PLC integration	1	\$40,000.00	\$40,000.00

Est. Cost				\$200,000.00

Project Timeline:

- 20114/2015 BATC Automated Manufacturing and Robotics program expanded to Brigham City sharing a robotics lab with USU-BC
- Jan 2015 BATC hires new instructor for controls engineering courses and automated manufacturing.
- Jan 2015 automated manufacturing and robotics courses expanded to Brigham City Campus
- July 1, 2015 Controls engineering technician certificate approved to start. Classes begin in in fall brochure
- Summer/fall 2015 trainers and new equipment being developed for new controls engineering courses with grant funds.
- Winter 2016 BATC controls engineering courses to be offered in Brigham City.
- Winter 2016 Existing Logan BATC controls engineering technician students can work on USU AAS degree at USU-BC taking advanced automation and composites courses at USU-BC, technology classes and general education requirements towards AAS in General Technology
- Company internships are set up allowing on the job training for completing students
- Winter 2017 BATC students start completing 1500 hour certificates controls engineering technician certificates

Attachment A: Controls Engineering Technician Certificate Outline

Automated Manufacturing and Robotics Department
Certificate Progression Outline of Courses



Core Courses		Course Hours					
ELEC 1001	Computer Tools for Technology	60	600 hour Operator Certificate	900 hour Advanced Operator Certificate	1200 hour Basic Technician Certificate	1500 hour Industrial Robotics Certificate (IAMT 1151, IAMT1250, WELD1050 not required)	Controls Engineering Technician Certificate (WELD1050 not required)
IAMT 1011	Basic Electrical Theory and Wiring	60					
IAMT 1103	Basic Workplace Safety	15					
IAMT 1104	Industrial Safety	15					
IAMT 1151	3D Modeling	60					
IAMT 1200	Automated Manufacturing Basics	60					
IAMT 1250	Fluid Power Hydraulics	60					
IAMT 1252	Fluid Power Pneumatics	60					
IAMT 1300	Industrial Mechanics	90					
IAMT 1500	Electrical Motors/Drives	90					
IAMT 1511	P&ID and Electrical Print Reading	30					
IAMT 1102	Technical Communication Fundamentals	30					
IAMT 1600	Electrical Motor Controls	120					
IAMT 2000	Programmable Logic Controllers 1	90					
IAMT 2020	Introduction to Industrial Robotics	60					
IAMT 1021	Troubleshooting Electrical Circuits	15					
IAMT 1611	Troubleshooting Control Circuits	15					
IAMT 1621	Troubleshooting Motor Circuits	15					
IAMT 2002	Troubleshooting PLC Circuits	15					
IAMT 2012	Sensors and Instrumentation	120					
IAMT 2024	Robot and Automation Simulation Software	30					
WELD 1050	Welding Overview	90					
Must do 2 out of the following 3 Basic Robot Programming							
IAMT 2026	Yamaha SCARA Basic Programming Certification	60					
IAMT 2031	Fanuc Basic Programming Certification (30 hrs)						
IAMT 2033	Motoman Basic Programming Certification (30 hrs)						
Must do 1 out of the following 4 Advanced Robot Programming							
IAMT 2027	Yamaha SCARA Advanced Programming	30					
IAMT 2032	Fanuc Advanced Programming						
IAMT 2034	Motoman Advanced Programming						
IAMT 2039	Robot Maintenance						
IAMT 2036	Vision Systems Basic	30					
IAMT 2050	Programmable Logic Controllers 2	90					
IAMT 2250	Programmable Logic Controllers 3	90					
IAMT 2252	Industrial Networking 1	60					
IAMT 2260	Robot PLC Integration	60					
IAMT 2270	Human Machine Interface (HMI) Programming	90					
IAMT 2244	Industrial Safety Wiring and Applications	60					
IAMT 2246	Advanced Electric Drive Applications	90					
IAMT 2272	Industrial Networking 2	60					
IAMT 2274	Servo Motors and Applications	90					
IAMT 2280	Industrial Integration Capstone Assembly	90					
IAMT 2282	Industrial Integration Capstone Programming	90					
IAMT 2284	Troubleshooting Industrial Controls	30					
OTHER POSSIBLE ELECTIVES SHOWN ON NEXT PAGE							

1500 hour Automated Manufacturing Advanced Cert (requires 1200 hour Basic Technician Cert + 300 hours electives)

Attachment B: Contract Budget Form

Contractor _____

Contract Number _____

Contract Period _____

	Program Expenses	Grant Request	Cash Matching	In-Kind Matching	Total
1.	Salaries		\$50,000		\$50,000
2.	Fringe Benefits		\$20,000		\$20,000
3.	Equipment and Supplies	\$200,000			\$200,000
4.	Facilities (Construction)				
5.	Industry Donations Equipment/Supplies				
	Total Expenses	\$200,000	\$70,000		\$270,000

Attachment C: Signature Forms and Letters of Support

DWS UCAP Grant Fiscal Year 2015
Grant Application Signature Sheet
Public Post-Secondary Educational Institutions or
Industry Trade Associations

Organization

Name of Entity: Bridger Land Applied Technology College

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

Ed Bell
 Dean or equivalent

Ed Bell 5/21/15
 Print Name Date

John Davidson
 Director, Development Office

John Davidson 5/21/15
 Print Name Date

Richard L. Maughan
 VP, Provost, UCAT Campus President

RICHARD L. MAUGHAN May 19, 15
 Print Name Date

DocuSigned by:
Robert Brems
 88166B560079160
 Institution President

Robert Brems 5/22/2015
 Print Name Date

Industry Trade Association Director
 (if applicable)

Print Name Date

Debbie Sparks
 DWS Economic Service Area Director

Debbie Sparks 5.19.15
 Print Name Date



May 18, 2015
Utah Cluster Accelerated Partnership Grant
BATC – Controls Engineering Technician

To Whom It May Concern,

The purpose of this letter is to document Bridgerland Applied Technology College (BATC) and my support for the Automated Manufacturing and Robotics program expansion into Controls Engineering Technician training. BATC has a long support history of providing training for local business and industry and our students in the automated manufacturing field. Last year with the help of UCAP funds, BATC was able to expand and develop industrial robotics into this program at the Logan and the Brigham City Campuses. The expansion of this program was needed to meet the needs of industry. Autoliv is a major employer in the region with facilities in Brigham City and Tremonton and because of demand is requesting that we further develop the robotics program and start teaching Controls Engineering which is a skill set at the top of automated manufacturing. A recent survey conducted shows more than 2000 industrial robots in manufacturing facilities in the Bear River Region.

Last year BATC in the new Logan robotics facility trained and certified 199 people in Industry recognized certifications, 45 with Motoman Robotics Merit Certification and 52 with Fanuc Robotics Certification.

BATC is partnering with Utah State University has developed and built a new 1200 sq. ft. robotics lab in the USU/BATC Brigham City Regional Campus. This grant request is to help additional equipment to this new area and the Logan Campus. With limited state program expansion funds we have hired 3 full time instructors and purchased basic robotics and automated manufacturing equipment to get things started.

This grant opportunity is very important to BATC to purchase additional equipment and hire additional instructors to help with this training, because it gives the opportunity to continue to expand training in the controls Engineering Technician field. We have local industry need for training and their support for this new certificate and with the help of additional funding we will be able to increase the amount of students trained and receiving certificates to help meet the goals of the state.

I want to thank you for making this grant opportunity available and let you know that any grant funds received will be used to leverage additional funds to expand the effectiveness of the training at BATC in automated manufacturing and robotics. We look forward to working with you if we are awarded this grant opportunity here at BATC in Logan, UT.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard L. Maughan', is written over a white background.

Dr. Richard L. Maughan

President

Bridgerland Applied Technology College



State of Utah

GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

**Department of
Workforce Services**

JON S. PIERPONT
Executive Director

CASEY R. CAMERON
Deputy Director

GREG PARAS
Deputy Director

May 21, 2015

Dear UCAP Review Committee:

I strongly support approval of the BATC Controls Engineering Technician UCAP proposal, which will serve individuals in Box Elder, Cache, and Rich Counties. Bear River Workforce Development Specialists work closely with area businesses and repeatedly hear the number one concern of employers as the lack of highly skilled technicians to meet their changing workforce demand.

Manufacturing employers in the Bear River Economic Service area account for 13.3 percent of manufacturing payroll job statewide, with 15,909 jobs in Box Elder and Cache Counties as of 2013 Q4. Utah Occupational Projections anticipate continued annual growth at nearly 4 percent for some occupations in this sector. Inexperienced wages range from \$16.40 to \$18.30 for Electro-Mechanical Technicians, Mechanical Engineering Technicians, and Computer Numerically Controlled Machine Tool Programmers with median wages in these same occupations from \$23.80 to \$25.40 per hour.

The manufacturing industry is being transformed by technology and innovation at a rapid pace. Local businesses continue to express the need to for a more highly-trained workforce with advanced automated production and manufacturing skill sets. Several major projects in Box Elder County will escalate this current demand.

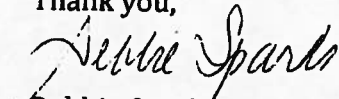
One of these projects is an expansion for Procter and Gamble at the Bear River facility, creating an additional 200 jobs at full build in a \$400 to \$500 million capital investment. The projected wages, including medical benefits, in aggregate, are expected to exceed the county average wage. The decision to expand in Box Elder County was heavily weighted on the future availability of a quality, high-skilled workforce in the area and the county competed with multiple sites throughout the country for consideration.

DWS is committed to supporting the quality of workforce and I believe the BATC Controls Engineering Technician project will successfully increase connectivity with the needs of industry with education and training, respond to industry-identified skills gaps, enhance existing regional partnerships with economic development, and promote additional regional stewardship of grantee's contributions to workforce development.

The local DWS offices will continue to work closely with BATC to collaborate and share information regarding industry and employer needs, provide information on this program for customers interested in and appropriate for this type of program, and assist with connection to businesses in the community that have expressed interest in participating in education partnerships and internship opportunities.

If you have any questions, please do not hesitate to contact me at the phone number listed below or debbiesparks@utah.gov.

Thank you,


Debbie Sparks

Utah Department of Workforce Services
Wasatch Front North/Bear River Service Area Director
180 North 100 West
Logan, UT 84321
(435) 512-3770

May 13, 2015

Reference: Request for Proposal (RFP)
Utah Cluster Partnership Grant Proposal
Bridgerland Applied Technology College
Controls Engineering Technician Certificate

To whom it may concern,

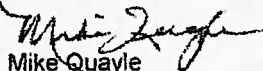
The purpose of this letter is to document my support for the above described application submitted for funds through the Utah Cluster Partnership Grant. Bridgerland ATC has an excellent history of training and providing support to local business in Northern Utah.

- Autoliv has partnered with these efforts in the following ways:
- Donations
- Equipment
- Partnerships
- Training Opportunities

I am very impressed with Bridgerland ATC and look forward to seeing the grant money used to further equip and provide training in the Automated Manufacturing Controls areas that are needed in northern Utah.

I look forward to using these resources by possibly hiring students or having employees trained in these areas to help my company be more productive and profitable

Sincerely,



Mike Quayle
Manager, Human Resources
Autoliv



May 22, 2015

Reference: Request For Proposal (RFP)
Utah Cluster Partnership Grant Proposal
Bridgerland Applied Technology College
Controls Engineering Technician Certificate

To whom it may concern,

The purpose of this letter is to document my support for the above described application submitted for funds through the Utah Cluster Partnership Grant. Bridgerland ATC has an excellent history of training and providing support to local business in Northern Utah.

Nucor Steel Utah has partnered with BATC in the following ways;

Donations
Career Day Fairs
Equipment
Partnerships
OJT Training Opportunities
Nucor Employee Training Programs
Nucor Employee Safety Training
Student Internships

I am very impressed with Bridgerland ATC and look forward to seeing the grant money used to further equip and provide training in the Automated Manufacturing Controls areas that are needed in northern Utah.

I look forward to using these resources by possibly hiring students or having employees trained in these areas to help my company be more productive and profitable.

Sincerely,

Terry D Larson
Roll Mill Electrical Supervisor
NUCOR Steel Utah

FANUC

FANUC America Corporation

Telephone: (248) 377-7000

3900 W. Hamlin Road

Customer Service Center (888) FANUC-US

Rochester Hills, MI 48309-3253

www.fanucamerica.com

May 18, 2015

Reference: Request For Proposal (RFP)
Utah Cluster Partnership Grant Proposal
Bridgerland Applied Technology College
Controls Engineering Technician Certificate

To whom it may concern,

The purpose of this letter is to document my support for the above described application submitted for funds through the Utah Cluster Partnership Grant. Bridgerland ATC has an excellent history of training and providing support to local business in Northern Utah.

FANUC Robotics America has partnered with these efforts in the following ways:

Equipment, Potential Internships, Job Shadowing, Integrator Placement, Integrator Development, Partnerships, Training Opportunities

I am very impressed with Bridgerland ATC and look forward to seeing the grant money used to further equip and provide training in the Automated Manufacturing Controls areas that are needed in northern Utah.

I look forward to using these resources by possibly hiring students or having employees trained in these areas to help my company be more productive and profitable.

Justin "Jake" Bodily, Bountiful, UT
District Manager- UT, ID, MT, WY, WA
FANUC Robotics America Corporation





May 20, 2015

Reference: Request For Proposal (RFP)
Utah Cluster Partnership Grant Proposal
Bridgerland Applied Technology College
Controls Engineering Technician Certificate

To whom it may concern,

The purpose of this letter is to document my support for the above described application submitted for funds through the Utah Cluster Partnership Grant. Bridgerland ATC has an excellent history of training and providing support to local business in Northern Utah.

Campbell Scientific has partnered with Bridgerland ATC in providing electronic test equipment, printed circuit board training and the annual Career Days for the youth of Cache Valley.

I am very impressed with Bridgerland ATC and look forward to seeing the grant money used to further equip and provide training in the Automated Manufacturing Controls areas that are needed in northern Utah.

I look forward to using these resources by possibly hiring students or having employees trained in these areas to help my company be more productive and profitable.

Sincerely,

Karsten Sorensen
Quality Manager
Campbell Scientific



May 21, 2015

Reference: Request For Proposal (RFP)
Utah Cluster Partnership Grant Proposal
Bridgerland Applied Technology College
Controls Engineering Technician Certificate

To whom it may concern,

The purpose of this letter is to document my support for the above described application submitted for funds through the Utah Cluster Partnership Grant. Bridgerland ATC has an excellent history of training and providing support to local business in Northern Utah. We have worked with in several areas:

Partnerships

Training Opportunities

Internships

We have been impressed with Bridgerland ATC and look forward to seeing the grant money used to further equip and provide training in the Automated Manufacturing Controls areas that are needed in northern Utah.

We are look forward to using these resources by possibly hiring students or having employees trained in these areas to help my company be more productive and profitable

Sincerely,

A handwritten signature in black ink, appearing to read "Brent Painter", written over a horizontal line.

Brent Painter

Presto Products



E-mail: fiero@fierofp.com

8675 South 700 West Sandy, UT 84070

Ph: (800) 828-4252, (801) 567-1188 Fax: (801) 567-1919

May 21, 2015

Reference: Request For Proposal (RFP)
Utah Cluster Partnership Grant Proposal
Bridgerland Applied Technology College
Controls Engineering Technician Certificate

To whom it may concern,

The purpose of this letter is to document my support for the above described application submitted for funds through the Utah Cluster Partnership Grant. Bridgerland ATC has an excellent history of training and providing support to local business in Northern Utah.

Fiero Fluid Power has partnered with these efforts in the following ways:

- We supplied Yamaha Scara Robots to BATC at cost.
- We arranged for BATC to receive factory training at no charge.
- We supplied Cognex Vision systems at cost.
- We donated fittings and valves to BATC at no charge.
- We will continue to support BATC with technical assistance and consulting at no charge.
- We will continue to provide BATC with excess equipment at no cost or below industry standard pricing.
- Where available we will provide training opportunities for BATC at no cost or below industry standard pricing.

I am very impressed with Bridgerland ATC and look forward to seeing the grant money used to further equip and provide training in the Automated Manufacturing Controls areas that are needed in northern Utah.

I look forward to using these resources by possibly hiring students or having employees trained in these areas to help my company be more productive and profitable

Sincerely,

A handwritten signature in black ink that reads "Brad Smith". The signature is written in a cursive, flowing style.

Brad Smith
Branch Manager/
Executive Committee Member
Fiero Fluid Power, Inc.



May 20, 2015

Reference: Request for Proposal (RFP)
Utah Cluster Partnership Grant Proposal
Bridgerland Applied Technology College
Controls Engineering Technician Certificate

To Whom It May Concern,

The purpose of this letter is to document Thermo Fisher Scientific and our support for the above described application submitted for funds through the Utah Cluster Partnership Grant. Bridgerland ATC has an excellent history of training and providing support to local business in Northern Utah.

Thermo Fisher Scientific is looking into partnering and possibly supporting through Donations, Equipment, Internships, and other avenues.

I am very impressed with Bridgerland ATC and look forward to seeing the grant money used to further equipment and provide training in the Automated Manufacturing Controls areas that are needed at Thermo Fisher Scientific and in Northern Utah.

I look forward to using these resources by possibly hiring students or having employees trained in these areas to help my company be more productive and profitable.

Sincerely,

A handwritten signature in black ink, appearing to read "SKA".

A handwritten signature in black ink, appearing to read "A. Stewart".

Steven Kennedy and Avery Stewart
Thermo Fisher Scientific



885 North 600 West
Logan UT 4321-3195
May 13, 2015

To Whom It May Concern,

The purpose of this letter is to document Schreiber Foods and my support for the development of a bachelor's degree that meets the needs of local manufacturing in controls engineering technology. There is a great need for a strong controls technicians and engineers to meet the skill requirements of current jobs.

1. Automated manufacturing and robotics is a field that requires strong academic skills such as, computer programming, strong mathematics and applied science and physics backgrounds to be competitive. Helping to develop these subjects at a bachelor's degree level helps us to be able to hire a better more competitive workforce locally.
2. We strongly support the automated manufacturing programs at our local Applied Technology Colleges, and would like to see curriculum that builds upon the certificates that the ATCs are offering. We would be willing to work with students after they graduate with possible internships or job shadowing.
3. We would be willing to sit on Advisory boards to help focus the program towards the skills that we require to hire the students completing the program.
4. We would be willing to donate excess or outdated equipment or expertise to help programs succeed.

We have a long standing relationship with the local High Schools and the ATCs and have been able to hire well trained students in the past and look forward to working with institutions of higher learning to continue increase the level of proficiency of our employees.

Sincerely,

A handwritten signature in blue ink, appearing to read "Kim Stalder".

Kim Stalder
Operations Technical Manager
Schreiber Foods

May 13, 2015

Reference: Request for Proposal (RFP)
Utah Cluster Partnership Grant Proposal
Bridgerland Applied Technology College
Controls Engineering Technician Certificate

To whom it may concern,

The purpose of this letter is to document my support for the above described application submitted for funds through the Utah Cluster Partnership Grant. Bridgerland ATC has an excellent history of training and providing support to local business in Northern Utah.

We have taken opportunities to train our existing workforce as well as employee graduates of BATC.

I am very impressed with Bridgerland ATC and look forward to seeing the grant money used to further equip and provide training in the Automated Manufacturing Controls areas that are needed in northern Utah.

I look forward to using these resources by possibly hiring students or having employees trained in these areas to help my company be more productive and profitable

Sincerely,


Tracy Salvesen
Icon Health & Fitness