V-TEK INC.

V-TEK, Inc.
751 Summit Avenue,
Mankato, MN, 56001,
April 1, 2019

Dual Training Grant Review Committee
MN Office of Higher Education
1450 Energy Park Drive, Suite 350
St. Paul, MN 55108

Dear Dual Training Grant Review Committee,

Applicant Summary

This letter is written as a reply to the PIPELINE Program Dual Training Grant round #8 request for application and this is V-TEK, Inc.'s first time applying for the PIPELINE Program Dual Training Grant. To begin, I would like to thank whomever is taking the time to read this letter of intent as well as evaluating our application. V-TEK, Inc. is headquartered in Mankato, Minnesota, and through its V-TEK and Royce Instruments product lines is a leading manufacturer of precision packaging, inspection and bond testing equipment for the electronics, automotive, aerospace, medical, micro-molding and micro-stamping industries. Mankato is also where the trainee will be participating in our OJT.

For over 30 years, V-TEK has been a major provider of precision packaging services, supplies and rework/inspection. With a high performing, dedicated and innovative team, V-TEK is known globally for its superior service, technical support, customer satisfaction and quality, with locations in Minnesota, California and Mexico. V-TEK, Inc.'s vision is to develop comprehensive, innovative solutions which make our customers' jobs easier and support those solutions with superior customer service.

Description of related instruction as it relates to industry-recognized degree, certificate, or credential:

Mechatronics Engineering Technology AAS Degree: The mechatronics program has been offered at South Central College (SCC) since 2008. Since then, the program has seen great success with full enrollments and over 90% placement rates. Currently the college is serving over 100 students between the North Mankato, Faribault, and Dept. of Corrections cohorts. Students in the dual-training program who complete this degree gain an understanding about the fundamental concepts, knowledge, and process control/field techniques and skills within advanced automation. These skills are typically required by employers for those persons interested in obtaining employment in plant maintenance, set-up, installation, and assembly related to automated manufacturing production systems.

Mechatronics courses are primarily delivered face-to-face on the North Mankato and Faribault campuses, but students are also able to take select classes online. In this case, lectures are delivered online and lab work is done using a kit at home and/or scheduled lab time at the college. A copy of the program's scope and sequence is included. This information is also on the mechatronics program page, accessible at southcentral.edu/mechatronics.

Certified Production Technician (CPT): The CPT industry credential is integrated in the Mechatronics program. There are four exams a student must pass to earn the CPT—Safety; Quality Practices and Measurement; Manufacturing Processes and Production; and Maintenance Awareness—which align with the Industry-Wide Technical competencies on the Mechatronics Pipeline Pyramid. This certification is recognized across the United States by manufacturers, high schools, and post-secondary institutions.

PIPELINE Dual Training Competencies associated with related instruction:

SCC's mechatronics program allows students to strengthen skillsets that align with three levels of the Dual-Training Pyramid: 1) Academic Competencies: physics; reading and writing; communication; and mathematics; 2) Industry-Wide Technical Competencies: manufacturing process design & development; maintenance, installation, & repair; quality assurance & continuous improvement; and health, safety, security & environment; and 3) Industry-Sector Technical Competencies: PLC; mechanical; and electrical.

Basic academic competencies prepare students to problem-solve and function in a team-based workplace, while the integrated MSSC CPT credential demonstrates their proficiency in the industry-wide competencies (recognized across the US by manufacturers, high schools, and post-secondary institutions). The industry-sector competencies taught in class provide students with general industry skills that they will use to complete the occupation-specific competencies identified in their on-the-job training plan by their employer.

Description of on-the-job training

V-TEK, Inc.'s OJT involves the trainee going through 3-phases in which they will be building machines for current customers and/or potential, all machines will be inspected and quality controlled at the end of build by experienced V-TEK, Inc. team member.

1st Phase, the trainee will be assembling our most basic machines. This type of OJT will be supervised building, in which a trainee and their mentor will be building the machines simultaneously. The mentor in this phase will be an assembler with experience and confidence in building basic machines. In this phase the trainee will also be learning the fundamentals of assembly in which they will be using going forward. This phase has 135 hours of required training.

2nd phase, the trainee will be shadowing more complex builds. The trainee will be shadowing a mentor who has years of experience building Royce models. These machines contain sub-assemblies and involve more software installation. This phase has 96 hours of required training.

3rd phase, this is the final phase of V-TEK, Inc.'s on the job training. In this final phase, the trainee will be involved in some of our most complex builds and quality control. The trainee will be shadowing an experienced assembler, who is also a South Central College Mechatronics alum, during the entire building process. These builds involve sub-assemblies, pneumatics, programing PLC's and the motor. Having an alum be the mentor for the final phase will allow the mentor to have a better understanding of what the trainee learned or is currently learning to make the training process more applicable. Quality control is part of the final phase as well, because it gives the trainee more insight on the process from the start of the build to finish. This will also teach techniques and skills on how to

properly QC a build, this may be one of the most important parts of their training because this is the final step before the product reaches the customer. This phase has 512 hours of required training.

Competencies from OJT

- Successfully operated and understood machine
- Assemble Machine to Specifications
- Optimize System Design
- How to Troubleshoot and Repair
- Test Run Modules and Assembled Systems
- Connect Wires and Components
- Documentations of Procedures for the Representation of Work Processes
- Design/Modify Circuits using Modern Software Tools
- Install, Set-Up and adjust required Mechanical, Electrical, and I/O systems
- Modify/Document Design of Pneumatic, Hydraulic, Electrical Circuits
- Write/Modify/Update/Troubleshoot programs to control machine
- Commission/Install the Assembly to Operational standards
- Analysis of Work Processes
- Program PLC's
- Configure all aspects of PLC's and Associated Control Circuitry for Correct operation
- Connect PLCs to electrical systems/networks
- Equipment and PLC using standards and documentation
- Preventative maintenance
- Troubleshooting and Repair

Anticipated on-the-job training setup

Please see attached training to gather more detail and see complete OJT structure. I have included images to give a quick view of it.

[Name]
[Start Date]

Mechatronics Technician — V-TEK INC.

Specific Competencies Involved in Training Tasks (no specific order)	Training Tasks	Trainer/Mentor	Mode of OJT	Start Date	Completion Date	Hours Completed	Hours Required	Quality Checked	% Complete or Pass/Fail	Title Changes
Successfully operated and understood machine	Intro to Basic Assembling Techniques		Supervised Build				1.5			
Assemble Machine to Specifications	Determine what items are included in shipment for a given work order		Supervised Build				4			
Optimize System Design	Assemble Machine to Specifications		Supervised Build				4			
Install, Set-Up and Adjust as Required	Wire Machine following Work Instruction Diagrams		Supervised Build				4			
How to Troubleshoot and Repair	Complete Physical Assembly Quality Checklist						1.5			
Mechanical, Electrical and I/O Systems										
Test Run Modules and Assembled Systems										
Connect Wires and Components										
Documentations of Procedures for the Representation of Work Processes										
Successfully operated and understood machine	Determine what items are included in shipment for a given work order		Supervised Build				2			
Assemble Machine to Specifications	Assemble Machine to Specifications		Supervised Build				18			
Optimize System Design	Wire Machine following Work Instruction Diagrams		Supervised Build				18			
Install, Set-Up and Adjust as Required	Complete Physical Assembly Quality Checklist		Supervised Build				2			
How to Troubleshoot and Repair										
Mechanical, Electrical and I/O Systems										
Write/Modify/Update/Troubleshoot Programs to Control Machine										Phase 1
Design/Modify Circuits using Modern Software Tools										
Test Run Modules and Assembled Systems										
Documentations of Procedures for the Representation of Work Processes										
Successfully operated and understood machine	Determine what items are included in shipment for a given work order		Supervised Build				2			
Assemble Machine to Specifications	Assemble Machine to Specifications		Supervised Build				18			
Optimize System Design	Wire Machine following Work Instruction Diagrams		Supervised Build				18			
Install, Set-Up and Adjust as Required	Complete Physical Assembly Quality Checklist		Supervised Build				2			
How to Troubleshoot and Repair										
Mechanical, Electrical and I/O Systems										
Modify/Document design of Pneumatic, Hydraulic, Electrical Circuits										
Design/Modify Circuits using Modern Software Tools										
Test Run Modules and Assembled Systems										
Documentations of Procedures for the Representation of Work Processes										

B	C	D	E	F	G	H	I	J	K	L
Assemble Machines to Specifications	Determine what items are included in shipment for a given work order		Shadow				1			
Connect wires and components	Gather and organize wiring for machine		Shadow				5.25			
Install, Set-Up and adjust required Mechanical, Electircal, and I/O systems	Build Sub Assemblies		Shadow				5.25			
Modify/Document Design of Pneumatic, Hydraulic, Electrical Circuits	Quality Control/Test sub-assemblies		Shadow				5.25			
Design/Modify Circutis using Modern Softwared tools	Install/combine sub-assemblies following Work Instructions to complete build of machine		Shadow				5.25			
Write/Modify/Update/Troubleshoot programs to control machine	Program Hard drive to fit machine requirements		Shadow				1			
Test Run Modules and Assembled Systems	Complete Physical Assembly Quality Checklist		Shadow				1			
Commision/Install the Assembly to Operational statndards										
Documentations of Procedures for the Represenations of Work Processes										
Analysis of Work Processes										
Assemble Machines to Specifications	Determine what items are included in shipment for a given work order		Shadow				1			
Connect wires and components	Gather and organize wiring for machine		Shadow				5.25			
Install, Set-Up and adjust required Mechanical, Electircal, and I/O systems	Build Sub Assemblies		Shadow				5.25			
Modify/Document Design of Pneumatic, Hydraulic, Electrical Circuits	Quality Control/Test sub-assemblies		Shadow				5.25			
Design/Modify Circutis using Modern Softwared tools	Install/combine sub-assemblies following Work Instructions to complete build of machine		Shadow				5.25			
Write/Modify/Update/Troubleshoot programs to control machine	Program Hard drive to fit machine requirements		Shadow				1			
Test Run Modules and Assembled Systems	Complete Physical Assembly Quality Checklist		Shadow				1			
Commision/Install the Assembly to Operational statndards										p
Documentations of Procedures for the Represenations of Work Processes										
Analysis of Work Processes										h
										a
Assemble Machines to Specifications	Determine what items are included in shipment for a given work order		Shadow				1			s
Connect wires and components	Gather and organize wiring for machine		Shadow				5.25			
Install, Set-Up and adjust required Mechanical, Electircal, and I/O systems	Build Sub Assemblies		Shadow				5.25			e
Modify/Document Design of Pneumatic, Hydraulic, Electrical Circuits	Quality Control/Test sub-assemblies		Shadow				5.25			
Design/Modify Circutis using Modern Softwared tools	Install/combine sub-assemblies following Work Instructions to complete build of machine		Shadow				5.25			
Write/Modify/Update/Troubleshoot programs to control machine	Program Hard drive to fit machine requirements		Shadow				1			
Test Run Modules and Assembled Systems	Complete Physical Assembly Quality Checklist		Shadow				1			2
Commision/Install the Assembly to Operational statndards										
Documentations of Procedures for the Represenations of Work Processes										
Analysis of Work Processes										

B	C	D	E	F	G	H	I	J	K	L	M
Assemble Machines to Specifications	Determine what items are included in shipment for a given work order		Shadow				5				
Connect wires and components	Build and wire electrical panel		Shadow				12				
Install, Set-Up and adjust required Mechanical, Electircal, and I/O systems	Build Base		Shadow				12				
Modify/Document Design of Pneumatic, Hydraulic, Electrical Circuits	Build Sub Assemblies		Shadow				12				
Design/Modify Circutis using Modern Softwared tools	Install Sub Assemblies		Shadow				12				
Write/Modify/Update/Troubleshoot programs to control machine	Finish wiring sub assemblies		Shadow				12				
Test Run Modules and Assembled Systems	Plum pnumatics		Shadow				12				
Commision/Install the Assembly to Operational statndards	Program PLC's and Motor		Shadow				12				
Documentations of Procedures for the Representations of Work Processes	Complete Physical Assembly Quality Checklist		Shadow				5				
Program PLC's											
Configure all aspects of PLC's and Associated Control Circuitry for Correct operation											
Analysis of Work Processes											
Connect PLCs to electrical systems/networks											
Equipment and PLC using standards and documentation											
Assemble Machines to Specifications	Determine what items are included in shipment for a given work order		Shadow				5				
Connect wires and components	Build and wire electrical panel		Shadow				12				
Install, Set-Up and adjust required Mechanical, Electircal, and I/O systems	Build Base		Shadow				12				
Modify/Document Design of Pneumatic, Hydraulic, Electrical Circuits	Build Sub Assemblies		Shadow				12				
Design/Modify Circutis using Modern Softwared tools	Install Sub Assemblies		Shadow				12				
Write/Modify/Update/Troubleshoot programs to control machine	Finish wiring sub assemblies		Shadow				12				
Test Run Modules and Assembled Systems	Plum pnumatics		Shadow				12				
Commision/Install the Assembly to Operational statndards	Program PLC's and Motor		Shadow				12				
Documentations of Procedures for the Representations of Work Processes	Complete Physical Assembly Quality Checklist		Shadow				5				
Program PLC's											
Configure all aspects of PLC's and Associated Control Circuitry for Correct operation											
Analysis of Work Processes											
Connect PLCs to electrical systems/networks											
Equipment and PLC using standards and documentation										P	
Assemble Machines to Specifications	Determine what items are included in shipment for a given work order		Shadow				5			h	
Connect wires and components	Build and wire electrical panel		Shadow				12				
Install, Set-Up and adjust required Mechanical, Electircal, and I/O systems	Build Base		Shadow				12			a	
Modify/Document Design of Pneumatic, Hydraulic, Electrical Circuits	Build Sub Assemblies		Shadow				12				
Design/Modify Circutis using Modern Softwared tools	Install Sub Assemblies		Shadow				12			s	
Write/Modify/Update/Troubleshoot programs to control machine	Finish wiring sub assemblies		Shadow				12				
Test Run Modules and Assembled Systems	Plum pnumatics		Shadow				12			e	
Commision/Install the Assembly to Operational statndards	Program PLC's and Motor		Shadow				12				

Correlation between related instruction and on-the-job training

The competencies listed in the dual-training pyramid and taught in SCC's mechatronics program include all of the essentials to maintaining a manufacturing facility. Representatives from V-TEK, Inc. and the college will collaborate on on-the-job training tasks that can enhance classroom instruction and vice versa.

Projected increase in compensation for as a result of dual training

At the start of V-TEK, Inc.'s OJT the trainee will have the title of "Mechatronics Apprentice", with a wage of $13.50/hr. After they have completed the first phase, they will maintain the title of "Mechatronics Apprentice", with a wage increase to $15.50/hr. and enter into the second phase. After the trainee completes the second phase they will move into the 3rd phase, which results in the final title change to "Mechatronics Technician", and another wage increase to $17.50/hr. Finally, when the trainee completes the third phase, they will continue to have the title of Mechatronics Technician but will receive a wage increase to $21.25/hr.

Phase	Title	Wage
Phase 1	Mechatronics Apprentice	$13.50/hr.
Phase 2	Mechatronics Apprentice	$15.50/hr.
Phase 3	Mechatronics Technician	$17.50/hr.
Completed OJT	Mechatronics Technician	$21.25/hr.

Additional employment opportunities upon completion of the dual training program

After the trainee completes V-TEK, Inc.'s OJT they will have the opportunity to move into a lead positions within the Assembly Department or the trainee could also be moved into the Engineering Department, where they focus on researching and developing future, past, and present products. Outside employment opportunities will be available for the trainee because they will have gained knowledge and experience with Assembly & Mechatronic fundamentals in which they will be able to use in any company they decide to work for.

Best Regards,

Christina Hogan

Vice President