



January 15, 2021

Kansas Board of Regents  
1000 SW Jackson St., Suite 520  
Topeka, KS 66612-1368

Dear KBOR Staff and TEA Members:

Enclosed you will find an application for a New Program Request opportunity in Tooling and Fixture Fabrication at Wichita State University Campus of Applied Sciences and Technology (WSU Tech).

The mission and creation of the National Center for Aviation Training (NCAT) was to support the future workforce needs of aviation and manufacturing in south central Kansas. One of the areas that has been a known deficiency is in the area of tooling and fixture fabrication. This area is highly specific and requires a variety of specialized skills in order to build the pieces, parts, and fixtures needed to build the tooling necessary that is used then to build airplane pieces and parts to specifications. Many of the individuals currently employed have been in their positions for a long time and are retiring at an alarming rate. To deal with this influx, WSU Tech has partnered with Textron and has the support of other local industry members to begin offering the Tooling and Fixture Fabrication program. This program will blend skill sets from basic tool use, precision measuring, design, machining, welding, industrial maintenance, and tooling specific skills to synthesize a complete a program to match the industry need. In addition, the program has the potential to expand into the secondary pathway via the Kansas Department of Education Aviation Pathway in Manufacturing, which includes two courses specific to tooling.

The program is prepared to start in August 2021 and will have minimal costs for the first two years of the program utilizing existing labs and program resources. WSU Tech is excited about the possibility of adding relevant manufacturing programming that meets the immediate needs or local workforce.

Should you have any additional questions, comments, or concerns please do not hesitate to contact me.

Warm regards,

A handwritten signature in black ink, appearing to read 'Scott Lucas', with a long horizontal line extending to the right.

Scott Lucas, Ph.D  
Vice President, Career and Technical Education  
Wichita State University Campus of Applied Sciences and Technology  
316-677-9535



# New Program Request Form

## CA1

### General Information

Institution submitting proposal	Wichita State University Campus of Applied Sciences and Technology
Name, title, phone, and email of person submitting the application <i>(contact person for the approval process)</i>	Dr Scott Lucas Vice President of Aviation, Manufacturing, and Instructional Effectiveness <a href="mailto:Slucas@WSUTech.edu">Slucas@WSUTech.edu</a> 316.677.9535
Identify the person responsible for oversight of the proposed program	Bruce Fritz, Associate Dean Manufacturing
Title of proposed program	Tooling and Fixture Fabrication
Proposed suggested Classification of Instructional Program (CIP) Code	48.0507 Tool and Die Technology/Technician.
CIP code description	Tool and Die Technology/Technician. A program that prepares individuals to apply technical knowledge and skills to operate machine tools used in the forming of metal components, as well as the fabrication of special tools, dies, jigs and fixtures used in cutting, working and finishing metal components.
Standard Occupation Code (SOC) associated to the proposed program	51-4111 Tool and Die Makers
SOC description	Tool and Die Makers May update this section to show: Analyze specifications, lay out metal stock, set up and operate machine tools, and fit and assemble parts to make and repair dies, cutting tools, jigs, fixtures, gauges, and machinists' hand tools.
Number of credits for the degree <u>and</u> all certificates requested	TC -50 AAS - 65
Proposed Date of Initiation	August 2021
Specialty program accrediting agency	No Program level accreditation
Industry certification	OSHA 10 Certification NC3 Certifications PMI 1 Tape and Rule Measurement PMI 2 Slide Caliper Measurement

	PMI 3 Gage Measurement PMI 4 Angle Measurement PMI 5 Micrometer Measurement PMI 6 Dial Gage Measurement Welding Safety Principles of Welding Head, Eye, and Face Protection Mike Rowe Works Work Ethics Certification
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Signature of College Official \_\_\_\_\_  Date\_\_ 1/29/21 \_\_\_\_\_

Signature of KBOR Official \_\_\_\_\_ Date \_\_\_\_\_

## **Narrative**

Completely address each one of the following items for new program requests. Provide any pertinent supporting documents in the form of appendices (i.e., minutes of meetings, industry support letters, CA1-1a form).

### **Program Description**

Provide a complete catalog description (including program objectives) for the proposed program.

The Tooling and Fixture Fabrication Program offers a multidisciplinary degree providing students with the knowledge and practical skills to become a tool and jig builder in multiple manufacturing environments. This program follows an apprenticeship model which blends theory-based classroom/lab instruction with on - the - job experience. Each week the students will have the opportunity to apply what they learn in the state-of-the-art labs and classrooms at the National Center for Aviation Training to manufacture aircraft at local aerospace organizations. The technical courses will include mechanical design, aviation/aerospace manufacturing, welding, machining, and electronics. General Education courses plus workplace skills training will provide the depth and breadth of knowledge students need to succeed in a global economy.

### **Program Outcomes**

- Obtain general industry OSHA 10 card and apply safety principles in a work environment to minimize hazards and prevent losses to productivity.
- Learn and apply skills and knowledge from multidisciplinary technical courses in mechanical design, aviation/aerospace manufacturing, welding, machining, and electronics toward the construction and fabrication of tools, jigs, and fixtures.
- Build and fabricate tools, jigs, and fixtures from various materials in accordance with specifications and quality standards from blueprints, electronic drawings and shop sketches for various applications in multiple manufacturing and related environments.
- Analyze, through various methodologies, the quality and functionality of built tools, jigs, and fixtures to meet specifications, tolerances, and standards appropriate to their application.

List and describe the admission and graduation requirements for the proposed program.

### Admission Requirements

The requirements for admission to Tooling and Fixture Fabrication program are:

- Attainment of 16 or more years of age
- Documentation of high school graduation or satisfaction of high school equivalency certificate requirements, or students currently enrolled in high school or GED program and have attained junior status.
- Completion of application and related procedures

### Transfer Students

- Admission of transfer students to the Tooling and Fixture Fabrication
- program contingent upon their meeting the following requirements:
  - Regular admission and good standing at a regionally accredited technical certificate or degree granting institution and proper completion of applications and related procedures.

### Program Requirements

- 50 semester credits for a technical certificate and 65 semester credits for the associate applied sciences degree with an overall GPA of 2.0 or higher.
- A passing grade in all courses (grade of C) within the student's declared program of study.
- Completion of all skill competencies with a minimum grade of 80%
- At least 25 percent of the credit must be earned at WSU Tech.
- Recommendation for graduation by the registrar.

### Graduation Requirements

To be awarded an AAS degree or technical certificate, students must pass all required coursework, submit required transcripts for transfer credit and meet all academic, financial or other obligations required for their program of study. To be eligible for graduation, students must have an overall GPA of at least 2.0. WSU Tech urges students to continuously monitor their educational progress. Prior to the final semester or registration period, students must meet with an Academic Advisor to ensure that all requirements will be finished prior to the anticipated graduation date.

### **Demand for the Program**

Using the Kansas Department of Labor's Long-Term Occupational Outlook, (<https://klic.dol.ks.gov>) identify employment trends and projections: occupational growth, occupational replacement rates, estimated annual median wages, and typical education level needed for entry.

Tool and Die Makers (SOC Code 51-4111) apply their skills and knowledge to the operation of machine tools used in the formation of metal components and the fabrication of specialty tools, dies, jigs, and fixtures used in the cutting, working, and finishing of metal components. The Kansas Department of Labor's Long – Term Occupational Outlook indicates annual openings for graduates in this field in the South-Central region at 58 with 78 job openings annually statewide. Total projected openings between 2016 and 2026 are 582 in the South-Central Region and 777 statewide. During this period, all job openings are attributed to worker replacement from retirements or workers moving to another industry. Data from other sources (JobsEQ, Chumra Economics 2019) provides an even clearer picture of the need for the proposed Tooling Fixture and Fabrication Program at WSUTech. In Sedgwick County, the industry will need 239 new workers over the next ten years due to separation demand, meaning replacing workers that retire or move to another sector. The Aerospace Industry, specifically the Aerospace Process and Parts Manufacturing industry sector, will need 71.9% of those new workers. With the remaining demand for new workers distributed primary across related sectors including Metalworking, Machinery Manufacturing, and Machine Shops.

The Kansas Department of Labor's Long- Term Occupation Outlook Indicates a statewide annual median wage of \$ 63,747, with those wages rising to \$77 559 for an experienced employee. In the Southcentral region of Kansas, Tool and Die workers' median yearly salary is \$69 140.

A more in-depth look at Sedgwick County data (JobsEQ) indicates the average mean annual wage for Tool and Die Makers was \$72,000, with the average salary for experienced workers listed at \$85,600.

To qualify for the expected job openings in the Tool and Die Maker industry, successful candidates will need the specialized training provided by the proposed Tooling Fixture and Fabrication Program at WSUTech. The KS Long – Term Occupation outlook (2016 – 2026) indicates the typical education needed for entry into the field is a postsecondary non-degree award. The JobsEQ 2020 data supports and quantifies that information by indicating 32. 7 % of the Tool and Die sector's open positions require a minimum of some college, no degree, while 17.9% require an associate degree.

Show demand from the local community. Provide letters of support from at least three potential employers, which state the specific type of support they will provide to the proposed program.

See Appendix A – D

Describe/explain any business/industry partnerships specific to the proposed program.

*If a formal partnership agreement exists, agreement explaining the relationship between partners and to document support to be provided for the proposed program must be submitted to the Board office independently of the CAI materials for review purposes. The agreement will not be published or posted during the comment period.*

WSUTech is developing the proposed Tooling and Fixture Fabrication Program in partnership with Textron Aviation, the 3rd largest employer in Kansas. In 2020, WSUTech received a Kansas Department of Commerce Jobs for Innovative Industry Skills Training (JIIST) Competitive Grant\* to fund the project. The grant's goal is to develop a Tooling Apprenticeship at Textron Aviation, which then becomes the training model across the Aerospace Industry in South Central KS.

To begin, 15 apprentices will attend classes at WSUTech two days per week and work with mentors in the Tooling Department at Textron three days a week. While at WSUTech, the apprentices will experience courses explicitly developed for Aviation Tooling. The curriculum created in 2012 for a US Department of Labor's Trade Adjustment Assistance Community College and Career Training (TAACCT) program was a collaborative project between Edmunds Community College in Washington and The Boeing Company. The grant also provides funds for WSUTech to develop two new courses, with Textron supplying the expertise to ensure the classes meet current industry standards. When they are not in classes, students will have the opportunity to apply what they have learned on-the-job under the instruction of mentors from the Textron Aviation Tooling Department. Upon completing the apprenticeship program, students will obtain an Associate of Applied Sciences from WSUTech and complete a full rotation of each specialty in the Tooling Department at Textron.

\* See the attached JIST documentation (appendix H and I ) and please note the JIST grant deadlines were extended to July 2021 due to the impact of Covid – 19 Pandemic.

In addition, to the funds provided through the JIST grant, Textron has agreed to provide an industry expert from their Tooling department to function as the faculty of record for the programs' initial launch. This industry expert will teach all courses in the proposed program with WSUTech faculty providing any necessary subject matter expert support. The industry expert will be teaching two days a week at the NCAT facility for 32 weeks (about 7 and a half months). As the program grows into its second and third year WSUTech hopes to continue this type of employee sharing arrangement with other companies interested in send employees to the proposed program.

The College will continue developing working relationships with area business and industry in order to develop internships, earn and learn opportunities, and guaranteed interviews for program participants/ graduates. These partnerships are of tremendous benefit for placement upon graduation and obtainment of the available certifications. Below is a list of the current business and industry representatives that will work with the proposed program. The willingness of these business and educational institutions working with WSU Tech to create this program speaks to the value WSU Tech places on industry and other partnerships.

**Tooling and Fixture Fabrication – Industry Advocate Team**

First Name	Last Name	Company
PJ	Reily	USD 259
Jim	Barnes	Harlow Aerostructures, LLC
Larry	Thompson	Harlow Aerostructures, LLC
Brenna	Davis	
Rick	Kampschoeder	Bombardier Learjet
Bryan	Williams	Spirit AeroSystems, Inc.
Erin	Bettles	KGD Aerospace Manufacturing
Julie	Ramsdale	Atlas Aerospace
Matt	Hein	Aerotek
Robert	Koenigsman	GPSI
Cassie	McDonald	Axius Group
Erin	Bettles	KGD Aerospace Manufacturing
Kelly	Bielefeld	Wichita USD 259
Jeff	Nangle	Airbus North America Engineering, Inc.
William	Kaba	Spirit AeroSystems, Inc.
Bruce	Loeck	Spirit AeroSystems, Inc.
Link	Newton	Textron Aviation
Marc	Breiden	Aerotek
Michelle	Gifford	Textron Aviation
Chris	Wellbrock	Textron Aviation
Chris	Stephens	Cobham AvComm
Tony	Swortwood	Spirit AeroSystems, Inc.
Gary	Huntsman	Rockwell
Chris	Confer	Bombardier Flight Test Center
Jim	Edwards	Global Aviation Technologies
Robert	Gutierrez	Textron Aviation
Michael	Dye	Rockwell Collins
Gordon	Schultz	Consultant
Cheryl	Weitzel	Perfekta Aerospace
Dawn	Stock	Spirit AeroSystems
Jeff	Stone	GT Midwest
Matt	Sturges	Koch-Glitsch
Ryan	Smith	CE Machine
Paulino	Sanchez	Perfekta Aerospace
Kory	Schartz	Orizon
Jay	Shackelford	Shackelford Machine Inc
Tracy	Rice	Hartwig
Patricia	Kochler	JR Custom Metal Products
Adrian	Beal	Textron Aviation
Jason	Loewen	LS Industries
Bryan	Mackey	Dynamic NC

Jorge	Martinez	JR Custom Metal
Kelsie	Matta	Figeac Aero
John	McClure	Machine Tool Specialties
Don	McGinty	McGinty Machine Co. Inc.
Nick	Messer	Millennium Machine & Tool, Inc.
Cory	Miller	DECO Tool Supply Company
Ed	Miller	Milling Precision Tool
Jeremy	Gorges	Machining Programming Manufacturing Inc
Alan	Graves	Spirit AeroSystems
Doug	Hayes	Cox Machine
Chandra	Hubbard	Figeac Aero
Karla	Jacobson	R&R Aerospace
DavaLynn	Joy	TECT Aerospace
Lyndon	Davis	WEBCO Manufacturing Inc
Amanda	Duncan	Workforce Center
Kevin	Bright	Vector Tooling Technologies
Tim	Kice	Kice Industries Inc.
Bruce	Bachelor	Excel Industries
John	Merigian	AGCO Corp
Matt	Sturges	Koch-Glitsch
Diep	Ho	DL Dynamic
Kelly	Kitterman	USD 260

**Duplication of Existing Programs**

Identify similar programs in the state based on CIP code, title, and/or content. For each similar program provide the most recent K-TIP data: name of institution, program title, number of declared majors, number of program graduates, number of graduates exiting the system and employed, and annual median wage for graduates existing the system and employed.

There are no other programs in the state of Kansas either based on CIP code (48.0507) or content that provide curriculum to prepare a student to be a qualified Tool and Die Maker

Was collaboration with similar programs pursued:

- o N/A

**Program Information**

List by prefix, number, title, and description all courses (including prerequisites) to be required or elective in the proposed program. - See Appendix E

Many of the technical courses in this program are current courses in other programs across the WSUTech curriculum. To identify these courses a column labeled Course Information is part of Appendix E. This column provides an indicator of the following:

1. If the course is new to the WSUTech Curriculum inventory
2. The course equivalency, if applicable



### 3. The home program.

If the proposed program includes multiple curricula (e.g., pathways, tracks, concentrations, emphases, options, specializations, etc.), identify courses unique to each alternative.

- The Tooling and Fixture Fabrication Program does not include multiple curricula.

Provide a Program of Study/Degree Plan for the proposed program including a semester-by-semester outline that delineates required and elective courses and notes each program exit point.

See Appendix F

List any pertinent program accreditation available:

There is no relevant program level accreditation for the proposed program. WSUTech will continue to watch for relevant program accreditations and pursue accreditation should it become available.

### **Faculty**

Describe faculty qualifications and/or certifications required to teach in the proposed program.

Upon approval the Tooling and Fixture Fabrication program will become part of the WSU Tech Manufacturing Department. Oversight for the day-to-day operations of the proposed program will be the responsibilities of the Associate Dean, Manufacturing Programs.

Bruce Fritz – Associate Dean, Manufacturing Programs

Education

- BA-International Studies, Wichita State University.
- MA-Latin American Studies, University of Kansas

Higher Education Experience

- 19 total years of teaching experience as a paraprofessional, classroom teacher, and/or adjunct instructor in middle school, high school, community college, technical college, and 4-year institutions.
- 11 years as a technical college associate dean and/or dean.

Industry Experience

- 11 years of technology industry experience at Textron Aviation-2 years in Interior Assembly Systems; 4 years in FAR Parts 25 and 27 Quality; 5 years in Interior Engineering.

### **Tooling Fabrication**

WSUTech has partnered with Textron Aviation to provide an instructor for the initial year of this proposed program. The instructor is an experienced employee in the Tooling Department at Textron (see details below). The Textron supplied instructor will be supported by faculty from WSUTech Aviation and Manufacturing departments. The WSUTech faculty for each course were selected based on their relevant industry experience in the subject matter, education, and teaching experience. As the program grows, WSUTech will seek similar faculty support structures from other companies interested in sending employees to WSUTech for Tooling and Fabrication training.

Michael McKay – Tool Engineer Leader – Textron Aviation

- Industry Experience – 42 years of tooling experience. Twenty-seven years spent as a Tool Maker and Jig Builder. Fifteen years as a manager in the Tooling Assembly department at Textron Aviation

## **Industrial Automation**

- Ralph Hudgens – Faculty, Industrial Automation
  - Education - AAS – Electronics/Computer Maintenance and BS – Industrial Engineering
  - Higher Education Experience -5 years teaching experience as a faculty member at WSUTech
  - Industry Experience - 25 years of industry experience in Industrial Automation

## **Aviation Manufacturing**

- Christine Parks – Faculty, Aviation/Composites
  - Education -Bachelors of Science Degree – Friends University
  - Higher Education Experience- 5 years teaching in Aviation Manufacturing and Composites Technology programs at WSUTech
  - Industry Training Experience- 10 years of industry training experience at the Boeing Company
  - Industry Experience- 30 years of experience in Aerospace Manufacturing
- Michael Arredondo - Faculty, Aviation
  - Higher Education Experience- 2 years teaching experience as a faculty member at WSUTech
  - Industry Training Experience- 15 years of industry training in aviation manufacturing
  - Industry Experience - 25 Years of experience in the manufacturing of aircraft

## **Machining**

- Michael Corby – Program Director: Machining Technology
  - Education - AAS – Machining Technology – WSUTech
  - Higher Education Experience - 5 years teaching in Machining Technology Program at WSUTech
  - Industry Training Experience - 15 years of experience as an industry trainer at Spirit AeroSystems and The Boeing Company
  - Industry Experience - 43 years of experience in the machining industry at Spirit AeroSystems and The Boeing Company

## **Welding**

- Joe Kean, Program Director: Welding
  - Education - AAS – Welding WSUTech
  - Higher Education Experience - 5 years of teaching experience as a faculty member at WSUTech
  - Industry Training Experience - 15 years of experience as a technical and safety trainer for the US Army
  - Industry Experience - 6 years of welding experience in industry with a certification in CWI/CWE

## **Design/Precision Instrumentation**

- Jeremy King, Program Director: Design
  - Education - AAS – Design, WSUTech
  - Higher Education Experience 13 years of teaching experience at WSUTech
  - Industry Experience 5 years of design experience

General Education Courses will be taught by existing faculty members who meet or exceed the following standards:

Transferable General Education Faculty:

Master's Degree or higher from a regionally accredited college or university in the teaching discipline or subfield, **OR** any master's degree plus 18 graduate or undergraduate credit hours in the teaching discipline or subfield.

Qualified faculty are identified primarily by credentials, but other factors may be considered in addition to the degree earned. For example, the ability to design curricula or develop and implement effective pedagogy through years of teaching with satisfactory performance.

Bachelor's Degree in the teaching discipline or subfield combined with 3+ years teaching experience in the discipline or subfield will be considered in lieu of a completed master's degree. A professional development plan to include a master's degree must be developed and pursued.

**Cost and Funding for Proposed Program**

- Provide a detailed budget narrative that describes all costs associated with the proposed program (physical facilities, equipment, faculty, instructional materials, accreditation, etc.).

**Advising Services**

Advising prospective students will be shared between the Dean, Manufacturing, and the college's Student Services staff. As with other programs offered by the college, Student Services personnel provide general information, assist students with admission to the college, and transfer credits. Program personnel provide detailed information about the Tooling and Fixture Fabrication program. Financial aid advising is provided by the Financial Aid Specialist.

**Additional services:**

WSU Tech provides a variety of services to students designed to ensure they are successful in their educational pursuits. There is no charge for any of these services.

**Online Services:** WSUTech provides numerous online support services designed to effectively support the hybrid and online instructional environment.

- NetTutor – available when the student is ready NetTutor is a 24/7 online tutoring service that provides effective as needed tutoring in all topic areas including general education discipline and technical areas such as nursing and engineering.
- Technology support for WSUTech online students includes.
  - Enhanced WIFI hot spots at all WSUTech locations available 24/7
  - \*Student Laptop Loan service\* available for nominal fee (\$50.00 per semester) students may rent a Windows device through the WSUTech IT Department
- WSUTech Online Orientation – Online Orientation is designed to provide students with access to comprehensive orientation and college success materials when it fits their schedule. The materials include topics such as what to expect in an online or hybrid course and effective study skills.
- Online Student Services Support: All student services including academic advising, enrollment, and financial aid are available to students in the online environment.
- Library – extensive online database services such as EBSCOhost and ProQuest are available to all WSUTech students.

**The Department of Learning Services house in the division of Academic Affairs** provides wrap around services to ensure students have access to the resources need to be fully prepared for the rigors of college coursework. The services provided by The Learning Services Department include:

- **Library:** The Library is located on the South campus while the NCAT facility includes a shared space which houses both library and tutoring. Additionally, online library services are available to all students and include access to extensive database services such as EBSCOhost and ProQuest. Students can also access several databases by signing up for the Kansas Library Card.
- **Tutoring Hub:** Services are provided at both the NCAT and South Campuses. Typical general education topics such as Math, English, and writing as well as technical topics such as Blueprint Reading and Accounting, are available. Tutoring services for science-based disciplines and health care programs are located on the South and Old Town campuses.
- **Mentoring:** The Learning Services department provides a formalized academic mentoring program for students with academic risk factors. This program pairs students with faculty volunteers and they work together to ensure students meet their academic obligations and goals.
- **Academic Success Week:** At the beginning of Fall and Spring semesters the Learning Services department hosts a week of workshops and events designed to engage students in the academic side of college. Topics include notetaking skills, dealing with stress, test taking skills, using library and technology resources such as the IT help desk and the Colab.

**TRIO Student Support Services:** For students who meet the colleges TRIO eligibility requirements WSUTech provides a package of services designed to help the students maximize their potential and meet their educational goals. These services include academic coaching, tutoring, financial planning, transfer assistance, culture enrichment, career exploration and mentoring.

**The Department of Student Engagement:** This department provides students with opportunities to engage in college life outside the classroom. Activities include student organizations and clubs such as Skills USA, Veterinary Nursing and Esports clubs. Other activities include welcome week events such as “Doughnuts with Your Dean” and lecture series on current topics.

**The Office of Disability Services:** coordinates services for students with disabilities.

**Career Services:** provides students with assistance in defining career goals, exploring personal interests, and career/general counseling.

**Collaboration Lab:** The Collaboration Lab (CoLab) provides students, faculty, and staff access to the latest technologies to enhance the learning experience. The technologies include HoloLens’s, green screens, a recording studio with audio and visual capabilities, online and on-ground meeting spaces equipped with up-to-date technology providing collaboration and recording capabilities. While physically located at the WSUTech South Campus, the CoLab technologies are available at other WUSTech locations via a mobile version of the lab.

### **Physical facilities:**

WSUT Tech will house the Tooling and Fixture Fabrication program at the National Center for Aviation Training (NCAT – 4004 N Webb Road). There is more than sufficient classroom and lab space available at this facility to accommodate the proposed program.

### **Instructional Equipment \$122,270.00**

WSUTech will purchase the following instructional equipment for the proposed Tooling and Fixture Fabrication program. The full cost of purchase will come from the Kansas Department of Commerce JIST grant.

Faro Laser Tracker \$76, 415.00 - The FARO Vantage Laser Trackers will enable students to build and inspect projects by measuring quickly, simply, and precisely with exceptional portability

Required Accessories and Supplies for Laser Tracker \$20,395.00 - Required supplies and tools to accurately use the Laser Tracker.

New River Kinematics Spatial Analyzer \$ 25,460.00 - will allow students to work with state-of-the-art measurement, alignment, and reporting software that will replicate what is currently used in industry.

**Instructional Materials:** The proposed program will be allocated a budget from the general fund. Associated materials fees paid by the students are listed below. The fees allow WSUTech to pay for students' versions of CAD software, machining, and welding supplies as well as specialized third-party online content designed for manufacturing and aviation coursework.

Course #	Course Title	Associated Materials Fees
TFF 110	Tap and Die	132.00
TFF 115	Hand and Power Tools for Aerospace Tooling	147.00
TFF 120	Metrology	115.00
TFF 125	Tooling Capstone	180.00
TFF 135	Direct & Alternating Current	0.0
TFF 150	Fixture Construction	300.00
TFF 155	Tooling and Fixture Fabrication Capstone	300.00
AER 106	Aerospace Manufacturing Tooling Orientation	92.00
AER 150	Assembly Overview I	174.00
AVC 103	Geometric Dimensioning & Tolerancing	20.00
AVC 104	Quality Control Concepts	30.00
AVC 107	Fundamentals for Aerospace Manufacturing	31.00
AVC 110	Safety/OSHA 10	90.00
CWG 105	Welding Safety & Orientation	500.00
CWG 110	Welding Applications	453.00
MCD 101	Introduction to CAD I	46.00
MCD 102	Introduction to CAD II	46.00
MCD 106	Precision Measuring	87.00
MMG 113	Print Reading	125.00
MMG 115	Machining I	455.00
MMG 126	Machining II	86.00
PDV 105	Blueprint for Personal Success	\$30.00
	General Education 15 credits	\$0.0

Provide detail on **CA-1a form**.

See Appendix G

Describe any grants or outside funding sources that will be used for the initial startup of the new program and to sustain the proposed program.

See Appendix H JIST Grant

See Appendix I – JIST Grant time extension.

- As indicated earlier in this document, the proposed Tooling and Fixture Fabrication program is a collaborative effort between WSUTech and Textron Aviation. The program will begin with a pilot cohort of 15 apprentices from Textron Aviation. The project partners expect the program to grow into a fully recognized Tooling Apprenticeship with multiple aerospace companies supplying job training. The program development is financially supported by a Jobs for Innovation Industry Skills Training (JIIIST) grant from the Kansas Department of Commerce. In this partnership, Textron will hire the apprentices, support their salary while in the program, and pay the tuition/fees for the coursework at WSUTech. Additionally, Textron will pay 15 mentors' compensation to work with the apprentices while they are on the job. The grant will supply funding for curriculum development and equipment for the WSUTech Tooling lab.

Item	JIST Funding	Matching Funds	Total	Notes
Apprenticeship Wages		\$146,966	\$146,966	Textron Aviation will hire 15 apprentices at \$17.01/hour for 16 hours/week for 36 weeks. This match is for wages accrued while in class at WSUTech
Mentoring		\$449,193	\$449,193	Textron Aviation will assign 15 Mentors in Textron' Tooling department to assist Tooling apprentices throughout their apprenticeship. Calculated at \$12,477/week for 36 weeks.
Curriculum Development	\$4,500.00			Textron Aviation – Stipend (\$500/hour for 9 credit hours) for SME review and development of Metrology and Fixture Building courses.
Educational Training		\$94,440.00	\$94,440.00	Textron Aviation will pay tuition &

				fees for 15 apprentices for 2 semesters of program – valued at \$6,296/student
Equipment	\$122,270		\$122,270	Faro Laser Tracker and Tracker accessories Softer for Spatial Analyzer
Total	\$126,770	\$690,599	\$817,369.00	

**Program Review and Assessment**

Describe the institution’s program review cycle.

The Tooling and Fixture Fabrication program will go through the same assessment and program review processes that are used for all other programs throughout the college. The program outcomes are housed and mapped to courses within the college curriculum management systems known as WIDS (Worldwide Instructional Design) Students are regularly evaluated throughout the program for mastery of knowledge and technical skills. Assessment tools include written exams, demonstrations, projects, and other evaluation techniques. Program Assessment Plans (OAP’s) and Analysis (OAP/Analysis) are completed on an annual basis and house in the WIDS system. This process is completed by the faculty and facilitated by the Director of Assessment. Data from WIDS is compiled and utilized by the programs to identify their strengths and challenges. They are also used to verify student learning and plan for future instructional improvements. The faculty will then make curricular revisions as indicated by data. In the case of a non-aligned program, this would include changes to outcomes, competencies, content, instruction, resources, and other curricular activities. Supplemental data is also collected through student course and program evaluations, student satisfaction surveys, student and employer assessment surveys, and graduate placement statistics.

A program Industry Advocate Team (IAT) will annually review program content, admission requirements, equipment, program outcomes, objectives, and competencies, and receive information regarding program performance yearly. Information from these meetings will guide faculty regarding industry needs and provide assurance that the knowledge and skills they are teaching is what is needed by industry. In addition, any state aligned curriculum approved by KBOR will be implemented.

Each program conducts a formal review to ensure that its objectives and competencies are being achieved, and that there is a level of accountability in place. These reviews take place on a three-year cycle. The program review considers all the information produced about the program and brings it together in one evaluation. The program review allows programs and departments to identify their strengths, pinpoint areas for improvement, and discuss other resources that impact their area. The structure of program review is very much like program self-study. Each program review is made up of six major components: program information, curriculum, advisory committee, resources, program outcomes, and summary. For each area, faculty are required to describe or provide feedback on specific aspects, providing data and/or support documentation when available. Faculty complete the program review documentation and submits it to the appropriate Dean for review. After any necessary adjustments are completed the program review is submitted to the Program Review Committee which is made up of the Academic Vice

Presidents and the Director of Assessment. After reviewing the documentation, the Program Review Committee meets with program leadership to identify a course of action to improve the program based on recommendations within the program review, from the Vice President and the rest of the faculty.

### **Program Approval at the Institution Level**

Provide copies of the minutes at which the new program was approved from the following groups:

See Appendix J – L

- Program Advisory Committee - Meeting Minutes December 1, 2020  
*(including a list of the business and industry members)*
- WSUTech Faculty Senate – Meeting Minutes December 12, 2020
- WSUTech Board of Trustees – Meeting Minutes December 17, 2020  
*(including a list of all Board members and indicate those in attendance at the approval meeting)*

Submit the completed application and supporting documents to the following:

Director of Workforce Development  
Kansas Board of Regents  
1000 SW Jackson St., Suite 520  
Topeka, Kansas 66612-1368





**Collaboration Agreement between  
Wichita State University Campus of Applied Sciences and Technology (WSU Tech)  
and**

This Memorandum of Understanding (MOU) sets forth the terms and understanding between Wichita State University Campus of Applied Sciences and Technology (WSU Tech) and to provide support and opportunities for the programs outlined in this document to publicly support WSU Tech students.

**Background**

This MOU serves as notification that \_\_\_\_\_ recognizes a need to develop a talent pool in this industry for specific program(s). This partnership outlines opportunities for the organization to support WSU Tech. The opportunities are listed below in their entirety and include membership on the Industry Advocate Team, hosting Applied Learning Opportunities, and providing Guaranteed Interviews and/or other aspects of support designed to increase the workforce by removing barriers for individuals being trained to enter the pipeline.

**Purpose**

This MOU will establish the role of and scope of agreed involvement for in regard to aforementioned programs. Involvement and participation is defined by supporting the goals set out below and providing use of the company logo for outreach, coordination, and retention campaigns/ events for enriching, sourcing, and securing a viable talent pipeline.

Support will be accomplished by \_\_\_\_\_ undertaking the following activities in these critical areas. (Please check which areas you wish to participate in.)

**Business/IndustryPartnerwill:**

Provide a guaranteed interview opportunity to graduates of the following program(s): \_\_\_\_\_ at one of WSU Tech Campuses or at industry partner facility.

Engage in Industry Advocate Team meetings twice a year to provide industry expertise in curriculum guidance, focus groups on retention and recruitment for students.

Provide up to date job descriptions, credential requirements, and application instructions for positions you are actively recruiting for.

Provide constructive feedback to interviewed graduates as appropriate.

Provide information regarding hiring requirements, trends, or changes in requirements to WSU Tech.

Donate to WSU Tech labs (i.e. metal or other materials, tools, machinery, etc.)

Refer denied applicants to further training at WSU Tech.

Actively host students in applied learning activities such as apprenticeships, internships or independent study options for this program(s).



### **Reporting of Outcomes**

Reports and evaluation of program effectiveness and adherence to the agreement will be ongoing and communicated to employer partners annually. Any student hired will require the following reporting: date of hire, hourly wage, status of employment 30, 60, 90 days after initial hire, and if no longer employed, the reason for separation.

Additional data may be requested to comply with associated grant requirements.

### **Funding**

This MOU is not a commitment of funds; however, WSU Tech personnel are available to discuss scholarship opportunities to help business partners grow their own workforce as well as social media marketing and asset donations.

### **Duration**

This MOU is at will and may be modified by mutual consent of authorized officials from WSU Tech and [redacted]. This MOU shall become effective upon signature by the authorized officials from WSU Tech and [redacted] and will remain in effect until modified or terminated by any one of the partners by mutual consent.

Your generosity and collaboration for the students of WSU Tech is greatly appreciated and we are honored to have you as a supporter and partner!

### **Notice of Nondiscrimination**

The WSU TECH Board of Directors supports and complies with Title VI and Title VII of the Civil Rights Act of 1964 as amended, Section 504 of the Rehabilitation Act of 1973 and Amendments, The Americans with Disabilities Act, Title IX and all requirements imposed by or pursuant to the regulations of the Department of Health and Human Services and the Department of Education. It is the policy of the Board of Directors that no person in the United States (on the grounds of race, color, religion, sex, national origin, ancestry or disability) shall be excluded from participation in, denied the benefit of or otherwise subjected to discrimination under any program or activity of, or employment with WSU Tech. Persons with inquiries may contact the Human Resources Director at 4004 N. Webb Road Wichita, KS 67226 or by phone at 316.677-9500.

### **Legal Citation**

Opportunities in Applied education and job placement at WSU TECH are available to all students regardless of race, color, national origin, sex or disability in compliance with Title VI:34 CFR 100.3(b) Guidelines VII-A, Title IX: 34 CFR 106.31(d), Section 504: CFR 104.4(b)





This Memorandum of Understanding (MOU) sets forth the terms and understanding between WSU Tech and \_\_\_\_\_ to provide the above checked services for the \_\_\_\_\_ programs to publicly support WSU Tech students.

**Contact Information and Signatures**

Company Name:  
Partner Representative Name:  
Position Title:  
Address:  
Telephone:  
Signature \_\_\_\_\_  
Date:

**WSU Tech**  
WSU Tech Representative Name: Megan Madasz  
Position: Director of Industry & Workforce Collaboration  
Address: 301 S. Grove Wichita, KS 67211  
Telephone: 316.677.1876  
E-mail: mmadasz@wsutech.edu  
Signature \_\_\_\_\_  
Date:





**Collaboration Agreement between  
Wichita State University Campus of Applied Sciences and Technology (WSU Tech)  
and Textron Aviation**

This Memorandum of Understanding (MOU) sets forth the terms and understanding between Wichita State University Campus of Applied Sciences and Technology (WSU Tech) and Textron Aviation to provide support and opportunities for the programs outlined in this document to publicly support WSU Tech students.

**Background**

This MOU serves as notification that Textron Aviation recognizes a need to develop a talent pool in this industry for specific program(s). This partnership outlines opportunities for the organization to support WSU Tech. The opportunities are listed below in their entirety and include membership on the Industry Advocate Team, hosting Applied Learning Opportunities, and providing Guaranteed Interviews and/or other aspects of support designed to increase the workforce by removing barriers for individuals being trained to enter the pipeline.

**Purpose**

This MOU will establish the role of and scope of agreed involvement for Textron Aviation in regard to aforementioned programs. Involvement and participation is defined by supporting the goals set out below and providing use of the company logo for outreach, coordination, and retention campaigns/ events for enriching, sourcing, and securing a viable talent pipeline.

Support will be accomplished by Textron Aviation undertaking the following activities in these critical areas. (Please check which areas you wish to participate in.)

**Business/Industry Partner will:**

- Provide a guaranteed interview opportunity to graduates of the following program(s):  
Tooling and Fixture Fabrication at one of WSU Tech Campuses or at industry partner facility.
- Engage in Industry Advocate Team meetings twice a year to provide industry expertise in curriculum guidance, focus groups on retention and recruitment for students.
- Provide up to date job descriptions, credential requirements, and application instructions for positions you are actively recruiting for.
- Provide constructive feedback to interviewed graduates as appropriate.
- Provide information regarding hiring requirements, trends, or changes in requirements to WSU Tech.
- Donate to WSU Tech labs (i.e. metal or other materials, tools, machinery, etc.)
- Refer denied applicants to further training at WSU Tech.
- Actively host students in applied learning activities such as apprenticeships, internships or independent study options for this program(s).



### **Reporting of Outcomes**

Reports and evaluation of program effectiveness and adherence to the agreement will be ongoing and communicated to employer partners annually. Any student hired will require the following reporting: date of hire, hourly wage, status of employment 30, 60, 90 days after initial hire, and if no longer employed, the reason for separation.

Additional data may be requested to comply with associated grant requirements.

### **Funding**

This MOU is not a commitment of funds; however, WSU Tech personnel are available to discuss scholarship opportunities to help business partners grow their own workforce as well as social media marketing and asset donations.

### **Duration**

This MOU is at will and may be modified by mutual consent of authorized officials from WSU Tech and Textron Aviation. This MOU shall become effective upon signature by the authorized officials from WSU Tech and Textron Aviation and will remain in effect until modified or terminated by any one of the partners by mutual consent.

Your generosity and collaboration for the students of WSU Tech is greatly appreciated and we are honored to have you as a supporter and partner!

### **Notice of Nondiscrimination**

The WSU TECH Board of Directors supports and complies with Title VI and Title VII of the Civil Rights Act of 1964 as amended, Section 504 of the Rehabilitation Act of 1973 and Amendments, The Americans with Disabilities Act, Title IX and all requirements imposed by or pursuant to the regulations of the Department of Health and Human Services and the Department of Education. It is the policy of the Board of Directors that no person in the United States (on the grounds of race, color, religion, sex, national origin, ancestry or disability) shall be excluded from participation in, denied the benefit of or otherwise subjected to discrimination under any program or activity of, or employment with WSU Tech. Persons with inquiries may contact the Human Resources Director at 4004 N. Webb Road Wichita, KS 67226 or by phone at 316.677-9500.

### **Legal Citation**

Opportunities in Applied education and job placement at WSU TECH are available to all students regardless of race, color, national origin, sex or disability in compliance with Title VI:34 CFR 100.3(b) Guidelines VII-A, Title IX: 34 CFR 106.31(d), Section 504: CFR 104.4(b)





This Memorandum of Understanding (MOU) sets forth the terms and understanding between WSU Tech and Textron Aviation to provide the above checked services for the Tooling and Fixture Fabrication programs to publicly support WSU Tech students.

**Contact Information and Signatures**

Company Name: Textron Aviation  
Partner Representative Name: Maqqie Topping  
Position Title: Sr. VP, HR & Communications  
Address: 1 Cessna Blvd., Wichita, KS 67211  
Telephone: 316.517.1287  
Signature \_\_\_\_\_  
Date: 12/7/20

**WSU Tech**  
WSU Tech Representative Name: Megan Madasz  
Position: Director of Industry & Workforce Collaboration  
Address: 301 S. Grove Wichita, KS 67211  
Telephone: 316.677.1876  
E-mail: mmadasz@wsutech.edu  
Signature \_\_\_\_\_ Bruce W. Fritz  
Date: 12/7/20





**Collaboration Agreement between  
Wichita State University Campus of Applied Sciences and Technology (WSU Tech)  
and Derby Public Schools, USD 260**

This Memorandum of Understanding (MOU) sets forth the terms and understanding between Wichita State University Campus of Applied Sciences and Technology (WSU Tech) and Derby Public Schools, USD 260 to provide support and opportunities for the programs outlined in this document to publicly support WSU Tech students.

**Background**

This MOU serves as notification that Derby Public Schools, USD 260 recognizes a need to develop a talent pool in this industry for specific program(s). This partnership outlines opportunities for the organization to support WSU Tech. The opportunities are listed below in their entirety and include membership on the Industry Advocate Team, hosting Applied Learning Opportunities, and providing Guaranteed Interviews and/or other aspects of support designed to increase the workforce by removing barriers for individuals being trained to enter the pipeline.

**Purpose**

This MOU will establish the role of and scope of agreed involvement for Derby Public Schools, USD 260 in regard to aforementioned programs. Involvement and participation is defined by supporting the goals set out below and providing use of the company logo for outreach, coordination, and retention campaigns/ events for enriching, sourcing, and securing a viable talent pipeline.

Support will be accomplished by Derby Public Schools, USD 260 undertaking the following activities in these critical areas. (Please check which areas you wish to participate in.)

**Business/IndustryPartnerwill:**

- Provide a guaranteed interview opportunity to graduates of the following program(s):  
Tooling and Fixture Fabrication TFF at one of WSU Tech Campuses or at industry partner facility.
- Engage in Industry Advocate Team meetings twice a year to provide industry expertise in curriculum guidance, focus groups on retention and recruitment for students.
- Provide up to date job descriptions, credential requirements, and application instructions for positions you are actively recruiting for.
- Provide constructive feedback to interviewed graduates as appropriate.
- Provide information regarding hiring requirements, trends, or changes in requirements to WSU Tech.
- Donate to WSU Tech labs (i.e. metal or other materials, tools, machinery, etc.)
- Refer denied applicants to further training at WSU Tech.
- Actively host students in applied learning activities such as apprenticeships, internships or independent study options for this program(s).



### **Reporting of Outcomes**

Reports and evaluation of program effectiveness and adherence to the agreement will be ongoing and communicated to employer partners annually. Any student hired will require the following reporting: date of hire, hourly wage, status of employment 30, 60, 90 days after initial hire, and if no longer employed, the reason for separation.

Additional data may be requested to comply with associated grant requirements.

### **Funding**

This MOU is not a commitment of funds; however, WSU Tech personnel are available to discuss scholarship opportunities to help business partners grow their own workforce as well as social media marketing and asset donations.

### **Duration**

This MOU is at will and may be modified by mutual consent of authorized officials from WSU Tech and Derby Public Schools, USD 260. This MOU shall become effective upon signature by the authorized officials from WSU Tech and Derby Public Schools, USD 260 and will remain in effect until modified or terminated by any one of the partners by mutual consent.

Your generosity and collaboration for the students of WSU Tech is greatly appreciated and we are honored to have you as a supporter and partner!

### **Notice of Nondiscrimination**

The WSU TECH Board of Directors supports and complies with Title VI and Title VII of the Civil Rights Act of 1964 as amended, Section 504 of the Rehabilitation Act of 1973 and Amendments, The Americans with Disabilities Act, Title IX and all requirements imposed by or pursuant to the regulations of the Department of Health and Human Services and the Department of Education. It is the policy of the Board of Directors that no person in the United States (on the grounds of race, color, religion, sex, national origin, ancestry or disability) shall be excluded from participation in, denied the benefit of or otherwise subjected to discrimination under any program or activity of, or employment with WSU Tech. Persons with inquiries may contact the Human Resources Director at 4004 N. Webb Road Wichita, KS 67226 or by phone at 316.677-9500.

### **Legal Citation**

Opportunities in Applied education and job placement at WSU TECH are available to all students regardless of race, color, national origin, sex or disability in compliance with Title VI:34 CFR 100.3(b) Guidelines VII-A, Title IX: 34 CFR 106.31(d), Section 504: CFR 104.4(b)







This Memorandum of Understanding (MOU) sets forth the terms and understanding between WSU Tech and Derby Public Schools, USD 260 to provide the above checked services for the Tooling and Fixture Fabrication TFF programs to publicly support WSU Tech students.

### Contact Information and Signatures

Company Name: Derby Public Schools, USD 260

Partner Representative Name: Kelly Kitterman

Position Title: Instructional Coordinator

Address: Derby Administrative Center, 15

Telephone: (316) 788-8434

Signature Kelly Kitterman

Digitally signed by Kelly Kitterman  
Date: 2021.01.13 13:30:03 -06'00'

Date: 1/13/21

### **WSU Tech**

WSU Tech Representative Name: Megan Madasz

Position: Director of Industry & Workforce Collaboration

Address: 301 S. Grove Wichita, KS 67211

Telephone: 316.677.1876

E-mail: mmadasz@wsutech.edu

Signature Megan Madasz

Digitally signed by Megan Madasz  
Date: 2021.01.13 14:28:21 -06'00'

Date: 1/13/21





**Collaboration Agreement between  
Wichita State University Campus of Applied Sciences and Technology (WSU Tech)  
and Excel Industries**

This Memorandum of Understanding (MOU) sets forth the terms and understanding between Wichita State University Campus of Applied Sciences and Technology (WSU Tech) and Excel Industries to provide support and opportunities for the programs outlined in this document to publicly support WSU Tech students.

**Background**

This MOU serves as notification that Excel Industries \_\_\_\_\_ recognizes a need to develop a talent pool in this industry for specific program(s). This partnership outlines opportunities for the organization to support WSU Tech. The opportunities are listed below in their entirety and include membership on the Industry Advocate Team, hosting Applied Learning Opportunities, and providing Guaranteed Interviews and/or other aspects of support designed to increase the workforce by removing barriers for individuals being trained to enter the pipeline.

**Purpose**

This MOU will establish the role of and scope of agreed involvement for Excel Industries \_\_\_\_\_ in regard to aforementioned programs. Involvement and participation is defined by supporting the goals set out below and providing use of the company logo for outreach, coordination, and retention campaigns/ events for enriching, sourcing, and securing a viable talent pipeline.

Support will be accomplished by Excel Industries \_\_\_\_\_ undertaking the following activities in these critical areas. (Please check which areas you wish to participate in.)

**Business/IndustryPartnerwill:**

- Provide a guaranteed interview opportunity to graduates of the following program(s):  
Tooling and Fixture Fabrication TFF at one of WSU Tech Campuses or at industry partner facility.
- Engage in Industry Advocate Team meetings twice a year to provide industry expertise in curriculum guidance, focus groups on retention and recruitment for students.
- Provide up to date job descriptions, credential requirements, and application instructions for positions you are actively recruiting for.
- Provide constructive feedback to interviewed graduates as appropriate.
- Provide information regarding hiring requirements, trends, or changes in requirements to WSU Tech.
- Donate to WSU Tech labs (i.e. metal or other materials, tools, machinery, etc.)
- Refer denied applicants to further training at WSU Tech.
- Actively host students in applied learning activities such as apprenticeships, internships or independent study options for this program(s).



### **Reporting of Outcomes**

Reports and evaluation of program effectiveness and adherence to the agreement will be ongoing and communicated to employer partners annually. Any student hired will require the following reporting: date of hire, hourly wage, status of employment 30, 60, 90 days after initial hire, and if no longer employed, the reason for separation.

Additional data may be requested to comply with associated grant requirements.

### **Funding**

This MOU is not a commitment of funds; however, WSU Tech personnel are available to discuss scholarship opportunities to help business partners grow their own workforce as well as social media marketing and asset donations.

### **Duration**

This MOU is at will and may be modified by mutual consent of authorized officials from WSU Tech and Excel Industries. This MOU shall become effective upon signature by the authorized officials from WSU Tech and Excel Industries and will remain in effect until modified or terminated by any one of the partners by mutual consent.

Your generosity and collaboration for the students of WSU Tech is greatly appreciated and we are honored to have you as a supporter and partner!

### **Notice of Nondiscrimination**

The WSU TECH Board of Directors supports and complies with Title VI and Title VII of the Civil Rights Act of 1964 as amended, Section 504 of the Rehabilitation Act of 1973 and Amendments, The Americans with Disabilities Act, Title IX and all requirements imposed by or pursuant to the regulations of the Department of Health and Human Services and the Department of Education. It is the policy of the Board of Directors that no person in the United States (on the grounds of race, color, religion, sex, national origin, ancestry or disability) shall be excluded from participation in, denied the benefit of or otherwise subjected to discrimination under any program or activity of, or employment with WSU Tech. Persons with inquiries may contact the Human Resources Director at 4004 N. Webb Road Wichita, KS 67226 or by phone at 316.677-9500.

### **Legal Citation**

Opportunities in Applied education and job placement at WSU TECH are available to all students regardless of race, color, national origin, sex or disability in compliance with Title VI:34 CFR 100.3(b) Guidelines VII-A, Title IX: 34 CFR 106.31(d), Section 504: CFR 104.4(b)





This Memorandum of Understanding (MOU) sets forth the terms and understanding between WSU Tech and Excel Industries to provide the above checked services for the Tooling and Fixture Fabrication TFF programs to publicly support WSU Tech students.

### Contact Information and Signatures

Company Name: Excel Industries  
Partner Representative Name: Kurt Riffel  
Position Title: Tooling Manager  
Address:  
Telephone: 620-327-1274  
Signature Kurt Riffel  
Date: 1/27/21

Digitally signed by Kurt Riffel  
Date: 2021.01.27 12:10:18 -06'00'

**WSU Tech**  
WSU Tech Representative Name: Megan Madasz  
Position: Director of Industry & Workforce Collaboration  
Address: 301 S. Grove Wichita, KS 67211  
Telephone: 316.677.1876  
E-mail: mmadasz@wsutech.edu  
Signature Bruce W. Fritz  
Date: 1/27/21

Digitally signed by Bruce W. Fritz  
Date: 2021.01.27 10:50:08 -06'00'





### Program Course List

Number	Title	Credit	R – Required E- Elective	Description	Pre/Co requisites	Course Information
TFF 110	Tap and Die	1	R	This course provides knowledge and technical skills on taps and dies. Topics include 60 degree thread form, common fastener thread series and markings on taps. The student will learn the process of hand tapping, the process of repairing a thread with a threading die and the process of installing a threaded insert.	AER 106 Aerospace Manufacturing Tooling Orientation	AER 111 Aerospace Manufacturing Technology
TFF 115	Hand and Power Tools for Aerospace Tooling	1	R	This course provides technical knowledge on hand power tools used by a toolmaker in the aerospace industry. The student will learn about die grinders, disco grinders and magnetic drills.	TFF 110 Tap & Die	AER 116 Aerospace Manufacturing Technology
TFF 120	Metrology	4	R	Students will learn the proper operation, field verification, and measuring techniques utilized in	MCD 106 Precision Measuring	New Course

				precision machining, manufacturing, and tooling in this course. The course will also expose the student to software applications used in the industry. Measuring instruments will be covered in Primary standards, Flexible Measuring Instruments, Support and Layout, Height Measuring Tools, and Laser Tracking and Romer Arm usage and software.		
<b>TFF 125</b>	<b>Tooling Capstone</b>	4	R	This course provides the specific technical knowledge and skills necessary to utilize hand and power tools to create a drill jig. This course emphasizes the importance of critical features, the process of permanent assembly and the role of toolmakers in the manufacturing environment.	TFF 115 Hand and Power Tools for Aerospace Tooling AER 150 Assembly Overview I	AER 126  Aerospace Manufacturing Technology
<b>TFF 135</b>	<b>Direct &amp; Alternating Current</b>	4	R	This course introduces direct current (DC) concepts and applications and the theory and application of varying sense wave voltages and current. Topics include: electrical principles and laws; batteries; DC test equipment; series, parallel and simple combination circuits; magnetism, AC wave generation, AC test equipment, inductance, capacitance, and basic transformers, and laboratory procedures and safety practices.	AVC 110 Safety/OS HA	IND 105  Industrial Automation
<b>TFF 150</b>	<b>Fixture Construction</b>	5	E – Experiential Learning Elective	In this course, students will have the opportunity to link classroom/lab theory with an experimental learning opportunity. Through direct observation, reflection and evaluation, students gain an insight into the internship site's work, mission, and audience, how these relate to their academic study, as		New Course

				well as the organization's position in the broader industry or field. Students will produce a critical reflection on their internship experience demonstrating how they have addressed specific learning goals.		
<b>TFF 155</b>	<b>Tooling and Fixture Fabrication Capstone</b>	5	E – Experiential Learning Elective	In this project-based course, students will apply the skills and knowledge acquired throughout the Tooling Fixture Fabrication program to a real-world project. In partnership with industry, students will fabricate a tooling fixture designed to meet the customer needs. Students will produce a critical reflection on their capstone experience demonstrating how they have addressed specific learning goals. A successful project will include a project presentation to faculty and fellow students.		New Course
<b>AER 106</b>	<b>Aerospace Manufacturing Tooling Orientation</b>	1	R	This course provides an overview of the Tooling safety hazards, traits employers value, various roles and responsibilities within advanced manufacturing teams and what elements are necessary to make a manufacturing company successful.	AVC103 Geometric Dimensioning & Tolerancing AVC104Q Quality Control Concepts AVC 107 Fundamentals for Aerospace Manufacturing AVC 110 Safety/OS HA 10	Aerospace Manufacturing Technology  AER 106

<b>AER 150</b>	<b>Assembly Overview I</b>	3	R	This course is designed to provide the student with a general overview of assembly techniques used in aviation. Working in a hands-on setting, students will learn the basics of aircraft assembly while focusing on inspection techniques. Students learn in an environment which combines interactive online delivery of theoretical content with hands on application in a state of the art assembly laboratory.	AVC 103 Geometric Dimensioning & Tolerancing AVC 104 Quality Control Concepts AVC 107 Fundamentals for Aerospace Manufacturing AVC 110 Safety/OSHA 10	Aerospace Manufacturing Technology  AER 150
<b>AVC 103</b>	<b>Geometric Dimensioning &amp; Tolerancing</b>	1	R	Provides an understanding of the basic terms and principles of Geometric Dimensioning and Tolerancing. The course provides students with the skills and knowledge necessary to identify GD&T symbols and how to interpret those symbols. This course is taught using and interactive on line environment.		Aerospace Manufacturing Technology  AVC 103
<b>AVC 104</b>	<b>Quality Control Concepts</b>	1	R	This course covers quality assurance principles including the history of the quality movement, group problem solving, data collection, control charts, statistical methods such as statistical process control (SPC), process capability studies, and the concepts associated with lean manufacturing.		Aerospace Manufacturing Technology  AVC 104
<b>AVC 107</b>	<b>Fundamentals for Aerospace Manufacturing</b>	1	R	This course provides an overview of the materials and processes used in manufacturing high performance, lightweight, and reliable structures for aerospace products. Emphasis is placed on process evaluation		Aerospace Manufacturing Technology  AVC 107



				techniques that can be extrapolated to other system areas such as new products and new technology. Instruction will take place using an interactive on line environment.		
<b>AVC 110</b>	<b>Safety/OSH A 10</b>	1	R	The 10- Hour General Industry Outreach training Program is intended to provide entry-level general industry workers broad awareness on recognizing and preventing hazards on a general industry site. The training covers a variety of safety and health hazards which a worker may encounter at a general industry site. OSHA recommends this training as an orientation to occupational safety and health. Workers must receive additional training on hazards specific to their job. Training will emphasize hazard identification, avoidance, control and prevention, not OSHA standards. Instructional time will be a minimum of 10 hours.		Aerospace Manufacturing Technology  AVC 110
<b>CED 115</b>	<b>Computer Applications</b>	3	R – AAS Only	This course introduces students to the fundamental concepts and operations necessary to use computers. Emphasis is placed on basic functions and familiarity with computer use. Topics include: computer terminology, introduction to the windows environment, introduction to networking, introduction to word processing, introduction to spreadsheets, and introduction to databases.		
<b>CWG 105</b>	<b>Welding Safety &amp; Orientation</b>	1	R	The primary purpose of this course is to introduce and familiarize new students with the use and safety		Welding Technology

				precautions to consider when using welding related equipment. The equipment in WSU Tech's welding lab compares to what is currently used by Industry. This course will enable a person who has never before used the equipment to set up and use it in an appropriate manner at an entry level and, doing so, meet safety standards. A separate safety exam will be given at the end of demonstrating the use and hazards it presents. Before students can use any piece of equipment on their own, they have to attain a score of 100% on the safety exam. Equipment in the lab that is excluded from the safety training may only be used under direct supervision of an instructor who is within an arm's length away.		CWG 105
<b>CWG 110</b>	<b>Welding Applications</b>	4	R	In this course student will learn the basic elements of SMAW, GMAW and GTAW. Additionally, students learn the equipment, processes and skills associated with welding cutting equipment.	CWG 105 Welding Safety & Orientation	Welding Technology CWG 110
<b>ENG 101</b>	<b>Composition I</b>	3	R – AAS Only	This course is designed to improve the reading and writing skills of students. The emphasis is on fundamental principles of written English in structurally correct sentences, paragraphs and expository themes. Critical analysis of essays will be used to aid in developing the student's thinking, support of thesis and style. Students are introduced to the basic components of research by writing a documented essay in	ENG 030 English	

				Modern Language Association (MLA) style.		
<b>MCD 101</b>	<b>Introduction to CAD I</b>	3	R	<p>This course introduces computer-aided drafting (CAD) and examines the hardware that makes up a CAD workstation. It also covers the operating system (Microsoft Windows) that enables the equipment to function as a unit. The course shows how to use AutoCAD to set up drawings and construct lines, circles, arcs, other shapes, geometric constructions, and text. Students will use display and editing techniques as well to obtain information about their drawings and work with drawing files. This course also introduces recommended drafting standards for students to use for properly preparing drawings with AutoCAD. This course also examines dimensioning, blocks and attributes, section views, isometric drawings, multiview layouts, annotative objects, external references, and sheet sets. Students will learn how to use AutoCAD to dimension drawings, create section lines and graphic patterns, design symbols and attributes for multiple use, and create sheet sets. Student drawings will be plotted or printed. This course also covers recommended drafting standards and practices for students to use for properly preparing drawings with AutoCAD.</p>		Engineering Design Technology MCD 101
<b>MCD 102</b>	<b>Introduction to CAD II</b>	2	R	<p>This course is a continuation of Introduction to CAD I. All the skills taught</p>	MCD 101 Introduction to CAD I	Engineering Design Technology

				in Introduction to CAD I will be reinforced with projects.		MCD 102
<b>MCD 106</b>	<b>Precision Measuring</b>	2	R	This course is designed to assist multiple technical training disciplines with the proper operation, calibration, and measuring technique's required for utilizing precision measurement equipment effectively. Both SAE and metric measuring instruments will be covered; including steel rules, feeler gauges, precision straight edge, calipers, inside and outside micrometers, angle measurement, small hole gauges, telescoping gauges and dial indicators.	MCD 104 Blueprint Reading for Drafting Or AVC 112 Blueprint Reading or MMG 113 Print Reading	Engineering Design Technology  MCD 106
<b>MMG 113</b>	<b>Print Reading</b>	3	R	Student will learn to identify basic lines, views, and abbreviations used in blueprints, interpret basic 2 D sketches using orthographic projections and blueprints, determine dimensions of features of simple parts, sketch simple parts with dimensional measurements, determine dimensions of a multi-feature part, interpret GDT symbols, frames and datums.		Machining Technology  MMG 113
<b>MMG 115</b>	<b>Machining I</b>	3	R	Students will learn to conduct job hazard analysis for conventional mills and lathes, develop math skills for machine tool operations, perform preventive maintenance and housekeeping on conventional mills and lathes, select work holding devices for mills, lathes and other machine tools, calculate feeds and speeds, remove material using milling and turning processes, align milling head, use a vertical mill to center drill, drill and ream	AVC 110 Safety/ OSHA 10	Machining Technology  MMG 115

				holes, change tools and tool holders on milling machines, and maintain saws and grinders.		
<b>MMG 126</b>	<b>Machining II</b>	3	R	Students learn to perform basic trigonometric functions, and perform other procedures such as I.D. boring and facing operations, planning a sequence for machining operations, aligning work pieces, use work holding devices, jigs and fixtures, performing threading operations on lathes, machining keyways on a vertical mill, inspecting and dressing grinding wheels, performing O.D. & I.D. threading operations, performing O.D. & I.D. tapering operations, machining parts using milling cutters and milling machines, and tapping holes on a vertical mill.	MMG 115 Machining I	Machining Technology  MMG 126
<b>PDV 105</b>	<b>Blueprint for Personal Success</b>	2	R	The professional world is full of challenging situations, including conflicting personalities, miscommunication, and cultural differences. In this course, students will learn about typical workplace etiquette protocols, communication standards, and cultural awareness strategies in order to navigate these common obstacles. This course will prepare students by educating them on the importance of establishing and maintaining their professional image in the workplace. Whether students are working on the manufacturing floor, in a medical facility or in a professional office setting practicing professional etiquette will help ensure that their occupational		

				environment is positive and productive. Students will integrate internal attitudes with external behaviors so that their personal attributes reflect the expectations of their future employers. The course provides a study of human relations and professional development in today's rapidly changing world. The course prepares students for living and working in a complex society through a focus on professionalism, work ethic, teamwork (collaboration) and oral communication. Topics include: Goal Setting, Entry Level Leadership, Communication, Teamwork and Diversity, Career Management, Lifestyle Design, and Disruption in Industry.		
	<b>Communication Electives</b>		One course from list below required AAS			
<b>SPH 101</b>	<b>Public Speaking</b>	3	E	Covers fundamental basics to all good private and public speaking experiences and elements in voice production and improvement, bodily movement, confidence, poise and understanding of all types of public speeches. Required of all transfer curricula.		
<b>SPH 111</b>	<b>Interpersonal Communications</b>	3	E	Improves individual communication skills. By understanding the elements of effective communication, students are able to create environments that bring out the best in themselves and others. In addition, students learn how to better turn ideas and feelings into words, how to listen more		

				effectively, respond more appropriately to what others have said and, most important of all, how to maintain and develop good interpersonal relationships with their families, their peers and fellow workers. Emphasis is placed on small-group activities, interviewing skills and verbal and non-verbal communication.		
	<b>Math Electives</b>		One course from list below required AAS			
<b>MTH 101</b>	<b>Intermediate Algebra</b>	3	E	This course will provide students with the algebraic skills necessary to begin understanding abstract mathematical concepts that involve arithmetic and algebraic manipulation, equations and inequalities, graphs, analysis of equations and graphs, and real-world applications.	MTH 095 Beginning Algebra with Review OR appropriate placement test score	
<b>MTH 112</b>	<b>College Algebra</b>	3	E	This course will enable the student to use and interpret the mathematical symbols and notation relating to functions. The student will analyze the graphs of various mathematical functions with the assistance of a graphing utility, including polynomial, rational, root, absolute value, logarithmic and exponential functions, and solve related equations and inequalities, including systems of equations and inequalities. The student will use both graphical analysis and equation solving in the context of word problems. Topics include: Equations	MTH 101 or MTH 102 or MTH 105 or appropriate placement score	

				and Inequalities; Functions and Graphs; Polynomial and Rational Functions; Exponential and Logarithmic Functions; Systems of Equations and Inequalities; Matrices and Determinants. The learning outcomes and competencies detailed in this outline meet, or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Project for this course, as approved by the Kansas Board of Regents (Transfers as MAT 1010).		
	<b>Social Sciences Electives</b>		One course from list below required AAS			
<b>ECO 105</b>	<b>Principles of Macroeconomics</b>	3	E	This course explores the fundamental aspects of the United States economy including growth, fiscal and monetary policies, unemployment, inflation, national debt, money and the Federal Reserve System. National and international policy topics are discussed.	EdReady GMID - Score of 39 or higher	
<b>ECO 110</b>	<b>Principles of Microeconomics</b>	3	E	Attention will be given to the methods of producing the goods and services that our economy provides. The following areas are explored: supply, demand, pricing, scarcity, business firms and business anti-trust and public interest, incomes, wages and salaries, income distribution, taxes, and tax reform.	EdReady GMID - Score of 39 or higher	
<b>POL 101</b>	<b>American Government</b>	3	E	A general study of the development, structure and functions of the American National Government. Topics to be studied include		



				an introduction to government, principles of constitutionalism and federalism, political parties and political behavior, the Presidency, congress, the judiciary and the federal bureaucracy, Of specific emphasis is an analysis of decision-making in government, public participation and influence in government as well as a study of specific problems concerning the operation of the federal government.		
<b>PSY 101</b>	<b>General Psychology</b>	3	E	A general introduction to the scientific study of behavior and mental processes to enable students to apply the knowledge they gain about the history of psychology, psychological perspectives, biological bases of behavior, sensation and perception, learning, cognition, intelligence, motivation, development, personality, psychological disorders and treatments of disorders, social psychology and critical thinking skills to enhance the quality of his/her life as he/she interacts with others and the environment.		
<b>PSY 110</b>	<b>Child Psychology</b>	3	E	This course is a scientific study of child behavior and development from the prenatal period through adolescence. This includes special emphasis in topics of physical development, cognitive and language development, social-emotional development and attachment, socialization, and practical applications of discipline and child rearing.	PSY 101 General Psychology	

<b>PSY 120</b>	<b>Developmental Psychology</b>	3	E	A study of individual development from conception through death to enable students to apply the knowledge they gain about the general areas of biological, neurological, physical, cognitive, social, emotional and personality development at each stage of life to enhance more meaningful interactions with others and better understanding of his/herself.	PSY 101 General Psychology	
<b>SOC 101</b>	<b>Principles of Sociology</b>	3	E	An introductory study of human society to acquaint students with the influence and patterns of individual and group interaction by exploring the development, characteristics, and functioning of human groups; the relationships between groups, and group influences on individual behavior.	N/A	
<b>SOC 115</b>	<b>Social Problems</b>	3	E	This course will examine the major problems of contemporary society, the social causes, potential solutions, and impact on public policy utilizing sociological theories and perspectives. Students will acquire an understanding of unique issues such as, inequality, crime, deviance, violence, substance abuse, and problems within socialization institutions.	SOC 101 Introduction to Sociology	
<b>SOC 125</b>	<b>Community Health Worker I</b>	3	E	Community Health Workers connect with their communities providing health care outreach and education, client-centered counseling, case management and client/community based advocacy. This course is designed to	N/A	

				<p>introduce students to the basic skills and knowledge required to be an effective Community Health Worker. In this scenario based learning environment students will be exposed to their role as community advocates, public health issues in the US, and cultural humility. Faculty and students will engage in interactive scenarios to introduce and reinforce topics such as client centered counseling, care management and client interview techniques.</p>		
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## TFF Tooling and Fixture Fabrication

### Program Configurations

#### AAS Tooling and Fixture Fabrication

#### Credits

Technical Studies	48
General Studies	17
Elective	
<b>Total Credits</b>	<b>65</b>

#### Semester 1

Course #	Course Title	Credits	Function
AVC 110	Safety/OSHA 10	1	Technical Studies
AVC 103	Geometric Dimensioning & Tolerancing	1	Technical Studies

AVC 104	<b>Quality Control Concepts</b>	1	Technical Studies
AVC 107	<b>Fundamentals for Aerospace Manufacturing</b>	1	Technical Studies
AER 106	<b>Aerospace Manufacturing Tooling Orientation</b>	1	Technical Studies
MCD 106	<b>Precision Measuring</b>	2	Technical Studies
MMG 113	<b>Print Reading</b>	3	Technical Studies
CED 115	<b>Computer Applications</b>	3	General Studies
PDV 105	<b>Blueprint for Personal Success</b>	2	General Studies

### Semester 2

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
TFF 115	<b>Hand and Power Tools for Aerospace Tooling</b>	1	Technical Studies
TFF 110	<b>Tap and Die</b>	1	Technical Studies
TFF 125	<b>Tooling Capstone</b>	4	Technical Studies
AER 150	<b>Assembly Overview I</b>	3	Technical Studies
ENG 101	<b>Composition I</b>	3	General Studies
	<b>Communication Elective</b>	3	General Studies

### Semester 3

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
CWG 105	<b>Welding Safety &amp; Orientation</b>	1	Technical Studies
CWG 110	<b>Welding Applications</b>	4	Technical Studies
MMG 115	<b>Machining I</b>	3	Technical Studies
MMG 126	<b>Machining II</b>	3	Technical Studies
	<b>Math Elective</b>	3	General Studies
	<b>Social Science Elective</b>	3	General Studies

### Semester 4

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
TFF 135	<b>Direct &amp; Alternating Current</b>	4	Technical Studies

TFF 120	<b>Metrology</b>	4	Technical Studies
MCD 101	<b>Introduction to CAD I</b>	3	Technical Studies
MCD 102	<b>Introduction to CAD II</b>	2	Technical Studies
TFF	<b>Experiential Learning Elective – 5 credits</b>	5	Technical Studies

### **Experiential Learning Electives**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
TFF 150	<b>Fixture Construction</b>		Elective
TFF 155	<b>Tooling and Fixture Fabrication Capstone</b>		Elective

## TC Tooling and Fixture Fabrication

### Credits

Technical Studies	48
General Studies	2
Elective	
<b>Total Credits</b>	<b>50</b>

### Semester 1

Course #	Course Title	Credits	Function
AER 106	Aerospace Manufacturing Tooling Orientation	1	Technical Studies
AVC 103	Geometric Dimensioning & Tolerancing	1	Technical Studies
AVC 104	Quality Control Concepts	1	Technical Studies
AVC 107	Fundamentals for Aerospace Manufacturing	1	Technical Studies
AVC 110	Safety/OSHA 10	1	Technical Studies
MCD 106	Precision Measuring	2	Technical Studies
MMG 113	Print Reading	3	Technical Studies
TFF 115	Hand and Power Tools for Aerospace Tooling	1	Technical Studies
TFF 110	Tap and Die	1	Technical Studies
TFF 125	Tooling Capstone	4	Technical Studies
AER 150	Assembly Overview I	3	Technical Studies
PDV 105	Blueprint for Personal Success	2	General Studies

### Semester 2

Course #	Course Title	Credits	Function
TFF 135	Direct & Alternating Current	4	Technical Studies
CWG 105	Welding Safety & Orientation	1	Technical Studies
CWG 110	Welding Applications	4	Technical Studies

MMG 115	<b>Machining I</b>	3	Technical Studies
MMG 126	<b>Machining II</b>	3	Technical Studies
TFF 120	<b>Metrology</b>	4	Technical Studies
MCD 101	<b>Introduction to CAD I</b>	3	Technical Studies
MCD 102	<b>Introduction to CAD II</b>	2	Technical Studies
TFF	<b>Experiential Learning Elective – 5 credits</b>	5	Technical Studies

### Experiential Learning Electives

Course #	Course Title	Credits	Function
TFF 150	<b>Fixture Construction</b>		Elective
TFF 155	<b>Tooling and Fixture Fabrication Capstone</b>		Elective

### TC Tooling and Fixture Fabrication TC-TOOL\_FIX TOFF Type

### Outcomes

### Credits

Technical Studies	48
General Studies	2
Elective	
<b>Total Credits</b>	<b>50</b>

### AY 20/21

Course #	Course Title	Credits	Function
TFF 110	<b>Tap and Die</b>	1	Technical Studies
TFF 115	<b>Hand and Power Tools for Aerospace Tooling</b>	1	Technical Studies
TFF 120	<b>Metrology</b>	4	Technical Studies



TFF 125	<b>Tooling Capstone</b>	4	Technical Studies
TFF 135	<b>Direct &amp; Alternating Current</b>	4	Technical Studies
TFF	<b>Experiential Learning Elective - 5 Credits</b>	5	Technical Studies
AER 106	<b>Aerospace Manufacturing Tooling Orientation</b>	1	Technical Studies
AER 150	<b>Assembly Overview I</b>	3	Technical Studies
AVC 103	<b>Geometric Dimensioning &amp; Tolerancing</b>	1	Technical Studies
AVC 104	<b>Quality Control Concepts</b>	1	Technical Studies
AVC 107	<b>Fundamentals for Aerospace Manufacturing</b>	1	Technical Studies
AVC 110	<b>Safety/OSHA 10</b>	1	Technical Studies
CWG 105	<b>Welding Safety &amp; Orientation</b>	1	Technical Studies
CWG 110	<b>Welding Applications</b>	4	Technical Studies
MCD 101	<b>Introduction to CAD I</b>	3	Technical Studies
MCD 102	<b>Introduction to CAD II</b>	2	Technical Studies
MCD 106	<b>Precision Measuring</b>	2	Technical Studies
MMG 113	<b>Print Reading</b>	3	Technical Studies
MMG 115	<b>Machining I</b>	3	Technical Studies
MMG 126	<b>Machining II</b>	3	Technical Studies
PDV 105	<b>Blueprint for Personal Success</b>	2	General Studies

### **Experiential Learning Electives**

<b>Course #</b>	<b>Course Title</b>	<b>Credits</b>	<b>Function</b>
TFF 150	<b>Fixture Construction</b>		Elective
TFF 155	<b>Tooling And Fixture Fabrication Capstone</b>		Elective

Institution: Wichita State University Campus of Applied Sciences and Technology  
 Proposed Program: Tooling and Fixture Fabrication

<u>PROGRAM SUSTAINABILITY COSTS (Second and Third Years)</u>				
<b>Part I. Program Enrollment</b>		Second and Third Years		
Please state how many students/credit hours are expected during the first two years of the program?				
		Full-Time	Part-Time	
A. Headcount:		--30		
<b>Part II. Ongoing Program Costs</b>		First Two Years		
A. Faculty		Existing:	New:	Funding Source:
Full-time	#	\$	\$	
Part-time	# 1 # 4	\$20,000	\$46,080	Direct Industry Support for 1 new part time faculty member 5% of 4 existing faculty members salaries from non-Tooling departments funded by program budgets.
		Amount	Funding Source	
B. Equipment required for program.		\$ 0.0		
C. Tools and/or supplies required for the program.		\$ 0.0		
D. Instructional Supplies and Materials		\$ 6870.00	Student Fees	
E. Facility requirements, including facility modifications and/or classroom renovations.		\$ 0.0		
F. Technology and/or Software		\$		
G. Other ( <i>Please identify; add lines as required</i> )				
<b>Total for Program Sustainability</b>		72,950		

<u>IMPLEMENTATION COSTS</u>				
<b>Part I. Anticipated Enrollment</b>		Implementation Year		
Please state how many students/credit hours are expected during the initial year of the program?				
		Full-Time	Part-Time	
A. Headcount:		15 Students		
<b>Part II. Initial Budget</b>		Implementation Year		
A. Faculty		Existing:	New:	Funding Source:
Fulltime	#	\$	\$	
Part-time/Adjunct	# 1 # 4	\$ 10,000	\$ 23,040	Direct Industry Support for 1 part time faculty member 5% of 4 existing faculty members salaries from non-Tooling departments

		funded by program budgets.
	Amount	Funding Source
B. Equipment required for program.	\$ 122,270	JIST Grant
C. Tools and/or supplies required for the program.	\$ 20,395.00	JIST Grant
D. Instructional Supplies and Materials	\$ 4500.00 \$3,439.00	JIST Grant (curriculum dev) Student Fees – paid by the Textron per JIST Grant.
E. Facility requirements, including facility modifications and/or classroom renovations.	\$ 0.0	
F. Technology and/or Software	\$25,460	JIST Grant
G. Other ( <i>Please identify; add lines as required</i> )		
<b>Total for Implementation Year</b>	176,064	

Please indicate any additional support and/or funding for the proposed program:

The JIST Grant will provide tooling, software, and equipment needs through the first five years of the program. During the initial year of the proposed program, Textron Aviation will provide a member of their tooling department to be the instructor for all technical courses. This industry instructor will be supported by WSUTech instructors from 4 different programs across the manufacturing department on an as-needed basis. We estimate this support at 5% of the full-time instructor's workload. In the second and third year of the program, WSUTech will seek similar faculty support structures from other companies interested in sending employees to WSUTech for Tooling and Fabrication training.

Submit the completed application and supporting documents to the following:

Director of Workforce Development  
Kansas Board of Regents  
1000 SW Jackson St., Suite 520  
Topeka, Kansas 66612-1368

**APPLICATIONS DUE: NOVEMBER 22, 2019**

**PROJECT COVER PAGE**

Date of Application:

Community/Technical College Name:

Address:

Federal ID number:

WSU Tech  
4004 N Webb Rd  
Wichita, KS 67226  
20-1027060

Name of Training Project: ***Filling a Generational Skills Gap Utilizing an Industry-Led  
Apprenticeship Model***

Project address (if different from address above):

Contact person:

Title:

Telephone number:

Fax:

E-mail:

James Hall  
Dean, Aviation Technologies  
316-677-1852  
N/A  
jhall5@wsutech.edu

Company Name(s) [provide information for all involved]:

Address:

Contact person:

Textron Aviation  
2121 S Hoover Rd  
Wichita, KS 67209  
Michele Gifford

Occupations for Training:

Job titles and number of projected trainees:

Total number of trainees to be served in project cycle:

Industry credentials project trainees will receive:

Expected wage for project trainees:

Jig Builder/ Machine Tooling  
15  
OSHA 10, NC3 Precision  
Instruments (5 credentials  
within this), NC3 Advanced  
Measuring, NC3 Torque  
Certification  
\$17.01/ hour

Total Cost of Project:

Amount of Commerce funding requested:

Cost per trainee (Commerce dollars only):

Amount of matching funds:

\$169,770  
\$11,318  
\$690,599

**KANSAS DEPARTMENT OF COMMERCE  
Jobs for Innovative Industry Skills Training (JIIST)  
Competitive Grant Application**

**A. BUDGET NARRATIVE (20 points)**

**a. Project Line Item Budget**

<i>Item</i>	<i>Commerce funds requested</i>	<i>Non-state matching funds</i>	<i>Total cost</i>	<i>Notes (methodology)</i>
Instructor (Salary & Fringe)	\$43,000		\$43,000	WSU Tech instructor for Tooling Apprenticeship training
Apprenticeship Wages		\$146,966	\$146,966	Textron Aviation will hire 15 apprentices at \$17.01/ hour for 16 hours/ week for 36 weeks. This match is for wages accrued while in class at WSU Tech.
Mentoring		\$449,193	\$449,193	Textron Aviation will assign 15 mentors in Textron's Tooling department to assist Tooling apprentices throughout their apprenticeship. Calculated at \$12,477/week for 36 weeks.
Curriculum Development	\$4,500		\$4,500	Textron Aviation – Stipend (\$500/ hour for 9 credit hours) for SME review and development of <i>Metrology</i> and <i>Fixture Building</i> .
Educational Training		\$94,440	\$94,440	Textron Aviation will pay tuition & fees for 15 apprentices for first 2 semesters of program (duration of JIIST grant), valued at \$6,296/ student for 2 semesters.
Equipment	\$122,270		\$122,270	Faro Laser Tracker (\$76,415), required associated supplies and accessories for Tracker (\$20,395), Software for Spatial Analyzer (\$25,460) to match existing tools and software in place at Textron Aviation.
<b>TOTAL</b>	<b>\$169,770</b>	<b>\$690,599</b>	<b>\$860,369</b>	

**b. Project Budget Narrative**

Instructor – WSU Tech requests funding for an adjunct instructor to teach the Tooling curriculum for the Textron Aviation apprentices. Textron Aviation will assist WSU Tech in finding a qualified and experienced Tooling instructor to teach the courses. Request \$43,000 (salary and 30% fringe) for a 9-month Adjunct Faculty member. *Request 100% Kansas Department of Commerce funds.*

**KANSAS DEPARTMENT OF COMMERCE**  
**Jobs for Innovative Industry Skills Training (JIIST)**  
**Competitive Grant Application**

Mentoring – Textron Aviation will identify 15 mentors/ journeypersons to mentor the apprentices while at Textron Aviation during their apprenticeships. Each mentor/ journeyperson will be from a different division within the Tooling department and will acquaint the apprentice with Textron Aviation’s company, culture, job requirements and share knowledge and expertise. Each apprentice will rotate through the various divisions and all mentors so that they have a well-rounded knowledge of the department and company upon completion of the apprenticeship. Textron Aviation will provide 15 mentors for 8 hours per day for 3 days/ week for the duration of the apprenticeship. The valuation of their time to this program is \$449,193. *Kansas Department of Commerce funding is not requested for this item. 100% non-state matching funds.*

Apprenticeship Wages – Textron Aviation will select and hire 15 apprentices for the Tooling program. Each apprentice will be paid throughout their apprenticeship, including the 2 days per week that they will spend at WSU Tech receiving technical training. The wages that the apprentices will have while in training will be enough so that they do not have to have another job while in the apprenticeship and will also serve as an incentive to continue through the apprenticeship program. Textron Aviation will provide full-time wages to the apprentices, and the wages they are receiving while at WSU Tech for 2 days per week is considered matching funds for this program. The total valuation of their wages while in the WSU Tech Tooling program is \$146,966, calculated at \$17.01/ hour for 16 hours/ week for 36 weeks or 9 months (the duration of the grant). *Kansas Department of Commerce funding is not requested for this item. 100% non-state matching funds.*

Curriculum Development – WSU Tech requests funds for the development of 2 courses – *Metrology* (4 credit hours) and *Fixture Construction* (5 credit hours) – at a rate of \$500 per credit hour for a total of \$4,500. A stipend will be provided to an employee in Textron Aviation’s Tooling department for subject matter review and content development of curriculum that will meet industry requirements. *Request 100% Kansas Department of Commerce funds.*

Educational Training – Textron Aviation will cover the cost of the tuition & fees for all apprentices for the duration of the Tooling AAS degree. Since the program is scheduled to start in March 2020 and the JIIST grant ends in December 2020, the Tooling AAS program will have run two semesters during this time frame. The cost of the program for the first two semesters of the program is \$6,296, which totals \$94,440 for 15 apprentices. Textron Aviation will pay \$94,440 for tuition and fees for the WSU Tech Tooling program. *Kansas Department of Commerce funding is not requested for this item. 100% non-state matching funds.*

Equipment – The inclusion of these items ensures that the Tooling program is meeting industry standards and providing apprentices and future students with the training and knowledge of equipment and software used daily in aerospace manufacturing. Specifically, WSU Tech requests \$122,270 to purchase:

- *Faro Laser Tracker (\$76,415)* - FARO® Vantage Laser Trackers enable you to build and inspect products by measuring quickly, simply and precisely with exceptional portability. The Vantage platform offers comprehensive, large-volume 3D measurement up to 80 meters. The VantageS6 deliver 6 Degrees of Freedom (6DoF) measurement capabilities via the optional FARO 6Probe, enabling access to hidden areas and small features. The 6Probe is the industry’s most cost-effective 6DoF solution that meets the dynamic measurement and accuracy requirements of the most challenging applications. 6DoF and standard probing are enhanced by FARO ActiveSeek™, a feature to automatically locate and follow the active target. This price reflects a 15% Education discount. *Request 100% Kansas Department of Commerce funds.*
- *Required Accessories and Supplies for Laser Tracker (\$20,395)* – Required supplies and tools to accurately use Laser Tracker, which include: power cable, rolling stand, accuracy stand and vertices, mounting stand, and tooling kit. This price reflects a 15% Education discount. *Request 100% Kansas Department of Commerce funds.*

**KANSAS DEPARTMENT OF COMMERCE**  
**Jobs for Innovative Industry Skills Training (JIIST)**  
**Competitive Grant Application**

- *Spatial Analyzer (SA Ultimate), New River Kinematics (\$25,460) - SpatialAnalyzer® (SA) by New River Kinematics (NRK) is the essential measurement, alignment, and reporting software for all portable metrology instruments in large-scale manufacturing settings. There are two main SA software packages that address different precision measurement needs and goals. Both SA packages can simultaneously communicate with virtually any number and type of portable metrology instruments. Custom software solutions are also available for customers with unique metrology challenges. This price reflects a 15% Education discount. Request 100% Kansas Department of Commerce funds.*

The Return on Investment from Kansas Department of Commerce funding is \$11,318 (\$169,770/ 15 apprentices).

**B. DESCRIPTION OF PROJECT (30 points)**

Textron Aviation, the 3rd largest employer in the state of Kansas, has been a strong supporter of WSU Tech's aviation and manufacturing programs, even prior to its formation as a company from the acquisition and consolidation of Hawker-Beechcraft and Cessna Aviation. Currently, the Senior Vice President of Integrated Supply Chain is a member of WSU Tech's Governing Board. As Textron Aviation looked at the age and tenure of the current workforce in its Tooling department, they identified the need to create an apprentice and mentoring program to create a seamless transition from the soon-to-be retiring workforce to a new pipeline of skilled and qualified workers. For Textron Aviation to retain its competitive advantage in the industry, in terms of its speed, quality, and cost of being a vertically-integrated company, they knew they had to do the training locally and work with an educational partner that is adept at changing and meeting employers' needs. WSU Tech has and will continue to collaborate with Textron Aviation to develop a Tooling and Jig Fixture Building program to meet the technical needs of Textron Aviation. Because this is a unique program and all positions are covered by the local collective bargaining unit (IAMAW), Textron Aviation had to gain the approval from the Union. This has been done, and the time to move forward and enroll apprentices into the education training program has come. The new apprentices are covered by the agreement, but do not necessarily make them a union member.

In 2012, WSU Tech received a \$15 million grant from the US Department of Labor's Trade Adjustment Assistance Community College and Career Training (TAACCCT) program to develop the National Aviation Consortium. This consortium was comprised of five community colleges across the nation to develop standardized programs and curriculum to meet employer demands in the areas of entry-level aviation manufacturing. One program area of focus was Tooling, and the curriculum developed for this program was in collaboration between Edmonds Community College in Washington and Boeing. WSU Tech had previously tried to offer this program during the NAC timeframe though, at that time, there was not enough employer interest to necessitate operating the program. However, WSU Tech still retains the curriculum developed and will utilize this during the first two semesters of the Tooling Associate of Applied Studies degree program. There is currently no other Tooling program in place in the State of Kansas, nor in the larger region.

In Sedgwick County, nearly half (45%) of those currently employed in Tooling are over the age of 55 years old (JobsEQ, Chmura Economics, 2019). There are currently 327 employed as Tool and Die Makers/ Jig and Fixture Builders in Sedgwick County, and there's an expected demand of 239 individuals needed in the next 10 years – equivalent to 73% of the current workforce. At Textron Aviation, the demographics of the current Tooling department are even more severe – 78% are currently or will be eligible to retire in the next 5 years and they forecast that 42% will retire in the next 5 years. For Jig Builders at Textron Aviation, 76% are currently or will become eligible for retirement in the next 5 years, and they forecast that 30% will retire in the next 5 years. These jobs are also high-wage and specialized jobs with the average Tool and Die Maker/ Jig and Fixture Builder earns \$68,900 annually. An entry-level worker earns \$42,000 and an experienced one earns over \$82,000.

**KANSAS DEPARTMENT OF COMMERCE**  
**Jobs for Innovative Industry Skills Training (JIIST)**  
**Competitive Grant Application**

As this is a pilot program, there will be 15 apprentices placed in the first cohort. Depending on the success of the first cohort, a second cohort will be run during 2020. With Textron Aviation facing a loss of approximately 50% of their workforce in tooling in the next 5 years, it's anticipated that they will continue to run this program until their Tooling workforce is sufficient enough to meet corporate demands. Because of similar demographics of the Sedgwick County Tooling workforce, WSU Tech expects Spirit AeroSystems and other aviation manufacturing companies in the area to follow Textron Aviation's lead and create Tooling apprenticeships. The Textron Aviation Tooling apprentices will be a mixture of incumbent employees who will be upskilled, and employees new to Textron Aviation. Both Textron Aviation and the IAMAW Union will collaborate to select the apprentices to be placed in the program.

The Tooling apprenticeship program will be structured so that apprentices will attend class 2 days per week, and work at Textron Aviation 3 days per week. Curriculum will be delivered in a traditional, face-to-face format with some content available online. The intent of the program is to be self-contained as the apprentices will be working adults. The first semester of courses will utilize the curriculum developed during the NAC grant. Subsequent courses will be developed in collaboration between Textron Aviation, as the subject matter expert, and WSU Tech's curriculum developers.

The Tooling apprenticeship program formulation at Textron Aviation will be:

- Textron Aviation will identify and hire all apprentices prior to the start of the Tooling program
- Textron Aviation will pay the WSU Tech Tooling tuition and fees for the apprentices
- Apprentices will receive a wage during the apprenticeship
- In accordance with an apprenticeship model, apprentices will receive a wage progression upon receiving and meeting milestones, as identified by Textron Aviation
- Each apprentice will be assigned to a Crew Lead/ Mentor within Textron Aviation's Tooling department. Throughout the apprenticeship program, apprentices will rotate through each Crew Leader/ Mentor with the goal of the apprentice learning about each specialty or job done within the department.

The Tooling Associates of Applied Studies, a 68-credit hour degree program, will be comprised of courses between technical studies and general education in order to provide the apprentice with the technical skills and knowledge to become a Tool & Jig Builder in Aerospace Manufacturing. The technical courses will cover skills across mechanical design, aviation/ aerospace manufacturing, welding, machining, and electronics. The inclusion of general education courses to fulfill the requirements of an AAS degree provides the apprentice the opportunity to continue their education into a Bachelor's Degree if desired. The table below outlines the course sequencing for the new Tooling AAS Degree.



**KANSAS DEPARTMENT OF COMMERCE  
Jobs for Innovative Industry Skills Training (JIIST)  
Competitive Grant Application**

SEMESTER 1		SEMESTER 2	
Course	Credit Hour	Course	Credit Hour
Aerospace Manufacturing Tooling Orientation	1	English Composition	3
OSHA 10/ Safety	1	Interpersonal Communication OR Public Speaking	3
Blueprint Reading	2	Hand & Power Tool for Aerospace Tooling	1
Precision Measuring	2	Tap & Die	1
Fundamentals Aerospace Manufacturing	1	Geometric Dimension & Tolerancing (GD&T)	1
Intermediate Algebra OR (new course) Quantitative Reasoning	3	Assembly Overview 1	3
Computer Applications	3	Tooling Capstone	4
Blueprint for Personal Success	2	Print Reading	1
<b>TOTAL</b>	<b>15</b>	<b>TOTAL</b>	<b>17</b>
SEMESTER 3		SEMESTER 4	
Course	Credit Hour	Course	Credit Hour
Physical Science OR General Physics	5	Principles of Sociology OR General Psychology	3
Quality Control Concepts	1	<b><i>Metrology</i></b>	<b>4</b>
Welding Safety	1	AC Electronics	2
Oxy Acetylene & Welding Cutting	2	AC Electronics Lab	2
Print Reading	1	<b><i>Fixture Construction</i></b>	<b>5</b>
Machining 1	3	Intro to CAD 2	2
Machining 2	3		
Intro to CAD 1	3		
<b>TOTAL</b>	<b>18</b>	<b>TOTAL</b>	<b>18</b>

The Tooling apprenticeship program is a true industry-driven program which is a direct result of the collaboration between WSU Tech’s Aviation Technologies Dean and Textron Aviation. As WSU Tech has been a long-time educational training provider and workforce pipeline for Textron Aviation, the creation of the Tooling apprenticeship program was a natural extension of their relationship. This program is being developed as an apprenticeship model with the possibility of turning into a Registered Apprenticeship program. The Tooling program is a unique program for the region and state, as there is not another program in the region. The current Tooling workforce has had long tenures with Textron Aviation and will be leaving at their retirement with a vast amount of technical and unique skills, as well as large amounts of tribal knowledge. The need to structure this program as a blend of an apprenticeship and mentorship between new apprentices and long-time Tooling employees provides a unique way to transfer both technical skills and tribal knowledges from one generation to the next.

This is a new program so there is no data to provide for the past performance of this or a related training program. Overall, WSU Tech has a very high placement rate with 86% of graduated working or continuing

**KANSAS DEPARTMENT OF COMMERCE**  
**Jobs for Innovative Industry Skills Training (JIIST)**  
**Competitive Grant Application**

in school the year after graduation (2018 placement data). The placement rate for students graduating from Aviation and Manufacturing programs are similar.

Tool and Jig Builders are primarily employed (74%) by the Aerospace Product and Parts Manufacturing industry. This industry employs 28,279 individuals in Sedgwick County across 105 employers, and the average worker in the industry makes \$82,566. The industry is highly concentrated for the area with a location quotient of 32.12, which indicates that the industry is 32 times more concentrated to the area compared to the nation. The industry produced \$6.5 billion in GDP in 2018 for Sedgwick County, comprising nearly 21% of the total GDP for Sedgwick County (JobsEQ, Chmura Economics, 2019). In the State, the Aerospace Product and Parts Manufacturing industry employs 32,286 individuals with an average wage of \$80,134. The industry also produced \$7.2 billion in GDP in 2018, accounting for 4.3% of the total GDP for Kansas (JobsEQ, Chmura Economics, 2019).

Tool and Jig Builders are central to keeping the Aerospace Product and Parts Manufacturing industry producing quality products, and in meeting production timelines. With nearly half of the current Tooling workforce eligible for retirement within the next 10 years, it is critical for the region that a Tooling program exist in order to retain the productiveness and quality of the industry. Textron Aviation is taking the initiative to aid WSU Tech in creating this program in order for it to continue to retain its competitiveness, and to retain its workforce in Wichita.

**C. ACTION PLAN (25 points)**

WSU Tech and Textron Aviation are working hand in hand to develop the entire program, which includes building upon what was previously developed during the NAC grant. Textron Aviation is assisting WSU Tech in developing the curriculum, creating equipment lists to purchase for the program, developing course competencies, and providing mentors/ journeypersons for the apprentices while at Textron Aviation.

As a WSU Tech industry partner, Textron Aviation has engaged with our students through: weekly on-campus interviews with students from manufacturing and maintenance programs; providing lunch and learn sessions on interview preparation to students; and hosting internship programs for students in the Aviation Maintenance (A&P) program.

Through meetings that occurred during the past couple of years, WSU Tech and Textron Aviation worked together to develop the Tooling apprenticeship program. The program will integrate the technical training requirements needed to become a Tool and Die Maker with the general education requirements from the Kansas Board of Regents to provide apprentices with a course structure that will result in an AAS in Tooling. Through the collaboration, WSU Tech and Textron Aviation have identified the program sequencing, equipment, software, and credentials to ensure apprentices are prepared for success at Textron Aviation. The third-party credentials that will be integrated into the Tooling program are:

- NC3 Precision Instruments
- NC3 Advanced Measuring
- OSHA 10
- NC3 Torque Certification

The format of the Tooling apprenticeship program is set-up to align with the needs of Textron Aviation. In direct support of this program, Textron Aviation will: identify and select apprentices; identify and select mentors/ journeypersons within the Tooling department; pay the apprentices throughout their time in the program; pay for the educational training of each apprentice; assist WSU Tech in curriculum development of *Metrology* and *Fixture Building*; identification of equipment and software needed for the program; and donation of additional equipment and supplies to the program.

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**Competitive Grant Application**

This program is not currently a Registered Apprenticeship; however, the program has been modeled to align with the requirements of a Registered Apprenticeship. With the assistance of the recently hired Apprenticeship Liaison Specialist at WSU Tech, Textron Aviation will identify the potential to develop this program into a Registered Apprenticeship. The State of Kansas requires that all Registered Apprenticeship models flow through the local workforce board, Workforce Alliance of South Central Kansas, and if the decision is made to move forward in making this a Registered Apprenticeship, Textron Aviation and WSU Tech will collaborate in support of this.

All apprentices will be identified, selected, and hired by Textron Aviation prior to starting the Tooling apprenticeship program. For the first time, Textron Aviation has required that the selected Tooling apprentice complete WorkKeys prior to starting the apprenticeship.

The Adjunct Faculty who will be hired for this program will have experience in Tooling, specifically in tool and jig making. The ideal candidate will also have knowledge of Textron Aviation’s processes and uniqueness of product and vertical integration of Tooling throughout the process of building the airplane. Textron Aviation will work with WSU Tech to identify the Adjunct Faculty member for this program.

Other personnel who will support this project are:

- WSU Tech personnel:
  - a. Jim Hall, Dean of Aviation Technologies. Mr. Hall will be responsible for supervision of Tooling Adjunct Faculty member; project oversight including: curriculum and course development; program roll-out; equipment acquisition; and, act as liaison between Textron Aviation and WSU Tech.
  - b. Catherine Bitting, Apprenticeship Liaison. Ms. Bitting will assist in the development of this program to a Registered Apprenticeship, if Textron Aviation desires to move forward on this becoming a Registered Apprenticeship program.
- Textron Aviation personnel:
  - a. Michele Gifford, Director of Workforce & Employee Development. Ms. Gifford will be responsible for the recruiting and hiring of the apprentices, and overall workforce planning.
  - b. David Arthur, Director of Tooling & Automation. Mr. Arthur will oversee the mentors/ journeypersons and apprentices while apprentices are at Textron Aviation, will be responsible for all apprentices while in the program, and assist in the identification of the subject matter expert for curriculum development and review.
  - c. Todd Zimmer, Labor Relations Manager. Mr. Zimmer will work and interact with the IAMAW and enforce the collective bargaining agreement on behalf of Textron Aviation.

The anticipated start for the first Tooling program cohort is March 2020. If the first cohort is showing success, a second cohort could be added by the end of 2020. The projected timeline for implementation is displayed in the table below.

Jan 1 – March 31 Quarter 1	Apr 1 – June 30 Quarter 2	July 1 – Sept 30 Quarter 3	Oct 1 – Dec 31 Quarter 4	Jan 1 – June 30 Follow-Up
Order Equipment	Apprenticeship class continues through training & mentoring	Apprenticeship class continues through training & mentoring	Apprenticeship class continues through training & mentoring	Apprenticeship class continues through training & mentoring

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**Jobs for Innovative Industry Skills Training (JIIST)**  
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Jan 1 – March 31 Quarter 1	Apr 1 – June 30 Quarter 2	July 1 – Sept 30 Quarter 3	Oct 1 – Dec 31 Quarter 4	Jan 1 – June 30 Follow-Up
Hire Adjunct Faculty Member	Evaluate course sequencing for General Education Courses	Finalize curriculum development & SME Review for Metrology & Fixture Building	Expand training to include Machining, Welding & CAD	Expand Curriculum to include metrology & AC
First Apprenticeship Class starts	Continue curriculum development for Metrology & Fixture Building	Expand training to include Machining, Welding & CAD	Second Cohort begins (if 1 <sup>st</sup> cohort working)	Capstone Fixture Project
Identify SME and begin curriculum development for Metrology & Fixture Building	Finalize Coursework for 3 <sup>rd</sup> Quarter Courses	Finalize Coursework for 4 <sup>th</sup> Quarter Courses	Modify apprenticeship model as needed, and in line with Textron Aviation’s requests	Modify apprenticeship model as needed, and in line with Textron Aviation’s requests
Finalize Coursework for 2 <sup>nd</sup> Quarter Courses	Modify apprenticeship model as needed, and in line with Textron Aviation’s requests	Modify apprenticeship model as needed, and in line with Textron Aviation’s requests		
	Identify the feasibility of making Tooling a Registered Apprenticeship model			

The Tooling program will be delivered through a blended training model with apprentices attending WSU Tech for training 2 days per week and working at Textron Aviation 3 days per week. The anticipated timeline for the Tooling Apprenticeship Program is: Monday – WSU Tech; Tuesday – Textron Aviation; Wednesday – Textron Aviation; Thursday – Textron Aviation; Friday – WSU Tech. The training program is expected to take 4 semesters, or roughly 2 years. Upon successful completion of the apprenticeship program and at the discretion of Textron Aviation, apprentices will move into a full-time position with Textron Aviation.

This project aligns with WSU Tech’s strategic plan, specifically the goal to *Improve Internal Efficiencies & Meet Workforce Needs*, and within that goal to *Be Responsive and Flexible to Industry Needs*. This project also aligns with KBOR’s Foresight 2020 agenda to *Improve Economic Alignment* and the two aspirations within that goal:

- *Respond to business and industry expectations for graduates and ensure all technical programs meet expectations of quality*
- *Reduce workforce shortages in select high-demand fields by increasing the number of certificates and degrees awarded, including in science, technology, engineering, and mathematics (STEM) fields*

**D. SUSTAINABILITY PLAN (20 points)**

As apprentices will be employees of Textron Aviation through the duration of the training program, Textron Aviation and WSU Tech will remain highly integrated with one another throughout the program. Depending upon the success of the first cohort of apprentices, an Industry Advocate Team will be developed for

**KANSAS DEPARTMENT OF COMMERCE**  
**Jobs for Innovative Industry Skills Training (JIIST)**  
**Competitive Grant Application**

Tooling. The intent of this group is to ensure that the Tooling program remains relevant to industry demand and to expand the opportunity to additional employer partners. Given the nature of the skillset required to be a Tool & Die Maker, it is expected that the program will continue to operate as an apprenticeship.

Textron Aviation will hire and retain apprentices throughout the duration of the Tooling program, provided the apprentice follows the rules of the program and attendance. Those rules include: regular attendance of both education and work; passing all educational courses; meeting employee and apprenticeship standards, as set by Textron Aviation and WSU Tech. WSU Tech will provide the educational training of the Tooling program. WSU Tech will also assist Textron Aviation in turning the program into a Registered Apprenticeship model, if so desired.

Upon the success of the pilot Tooling apprenticeship program, future funding of the program will be generated by enrollment of future cohorts from both Textron Aviation and expansion to other employer partners. In line with traditional apprenticeships, employers will pay for the educational training of the apprentices. In order to build a pipeline of workers interested in Tooling, WSU Tech has a goal of creating a high school career pathway with the Tooling program.

There are no adverse impacts expected from the creation of the Tooling program. There are currently no Tooling programs offered to provide training and education. Labor market data indicates there will be large numbers of retirements from the current workforce, and the need to expand to other employer partners will be apparent.

**E. EVALUATION PLAN (5 points)**

WSU Tech will utilize student records to track enrollment, program progression, certifications earned, credit hours completed, and industry-recognized credentials earned. WSU Tech will coordinate with Textron Aviation to track wage increases and adherence to apprenticeship standards while working at Textron.

- Number of training participants served
  - a. 15 enrolled
- Number of college certificates earned and/or number of completers and/or number of credit hours earned
  - a. College Certifications: 10 certificates earned
  - b. Completers of the program: 70% of enrolled students
  - c. Number of Credit Hours earned: 310
- Number of industry recognized credentials earned
  - a. 40
- Number of trainees entering occupation related to training
  - a. 15
- Average wage or wage gain of training participants
  - a. Wage progression will commiserate with the IAMAW collective bargaining agreement currently set at \$0.26 per hour increase every 90 days.

References

- JobsEQ, Chmura Economics. (2019). *Industry Spotlight - Aerospace Product and Parts Manufacturing, Kansas*. Retrieved from [www.jobseq.com](http://www.jobseq.com).
- JobsEQ, Chmura Economics. (2019). *Industry Spotlight - Aerospace Product and Parts Manufacturing, Sedgwick County*. Retrieved from [www.jobseq.com](http://www.jobseq.com).
- JobsEQ, Chmura Economics. (2019). *Occupation Snapshot - Tool and Die Makers, Sedgwick County, 2019q2*. Retrieved from [www.jobseq.com](http://www.jobseq.com).

November 22, 2019

TO: Natalie Meugniot  
Program Manager  
KANSASWORKS State Board  
1000 SW Jackson St., Suite 100  
Topeka, KS 66612

RE: Industry Support Letter – JIIST Grant, WSU Tech

Dear Ms. Meugniot:

Textron Aviation supports WSU Tech's Jobs and Innovative Industry Skills Training (JIIST) grant application. Their application provides for workforce training of skills and competencies in high demand at Textron Aviation as we continue to seek qualified candidates to staff our Tooling & Automation department. Today, we currently lack sufficient qualified workers and we project our future demand will grow.

Textron Aviation will partner with WSU Tech by contributing:

- Subject Matter Experts to participate in WSU Tech's creation, integration, and/ or redesign of curriculum
- Curriculum to fill in the gaps identified through the integration process
- Subject Matter Experts to review developed curriculum, competencies and/ or lab projects to ensure alignment with industry demand
- Assist WSU Tech in identifying an instructor for the Tooling program
- Hire apprentices and send them through WSU Tech's Tooling program for their technical instruction throughout their apprenticeship program
- Payment for the educational training of all apprentices
- Provide mentors/ journeypersons to each apprentice while at Textron for further training throughout their apprenticeship

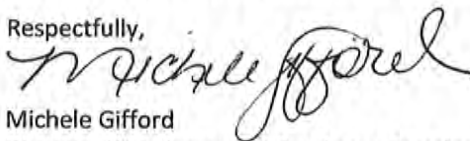
Our total contribution to this project is approximately \$690,599 based on commitment of:

- Payment of technical training in WSU Tech's Tooling program for apprentices which totals \$94,440. Calculated at \$6,296 for 2 semesters for 15 apprentices.
- Payment of apprenticeship wages while apprentices in WSU Tech's Tooling program which totals \$146,966. Calculated at \$17.01/ hour for 16 hours/ week for 36 weeks for 15 apprentices.
- Payment of journeyperson wages while apprentices in WSU Tech's Tooling program which totals \$449,193. Calculated at \$34.66/hour for 24 hours/week for 36 weeks for 15 journeypersons.

The need for qualified workers in Tooling is in high demand. Textron Aviation forecasts we will need 50 Tool and Die Makers/ Jig and Fixture Builders during the next 5 years as the current workforce retires. Partnering with WSU Tech on this project is imperative to filling our workforce development needs and maintaining the aerospace sector as a crown jewel of the Kansas economic engine.

We are pleased that the Kansas Department of Commerce has extended this opportunity WSU Tech and are excited to partner should they be granted this award.

Respectfully,



Michele Gifford  
Director, Workforce and Employee Development  
Textron Aviation

Dated: July 15, 2020

AMENDMENT TO  
JOBS AND INNOVATIVE INDUSTRY SKILLS TRAINING  
GRANT AGREEMENT NO. 20-05

This First Amendment is entered into by and between the Kansas Department of Commerce (hereinafter referred to as "Commerce") and Wichita State University Technical College (hereinafter referred to as "WSU Tech") to amend the "Jobs and Innovative Industry Skills Training Grant Agreement No. 20-05" dated (hereinafter referred to as the "Agreement").

**1. MODIFICATION OF SECTION II OF THE AGREEMENT.**

Section II of the Agreement is modified to read as follows:

**TERM.** The term of this Agreement shall be from January 1, 2020, through June 30, 2021. Grantee shall have a duty to provide reports, as set forth in Section VI.

**2. OTHER TERMS AND CONDITIONS.**

All other terms and conditions of the Agreement shall continue in full force and effect.

WSU Tech  
4004 North Webb Road  
Wichita, Kansas 66901  
Phone: (316) 677-1852

Kansas Department of Commerce  
1000 SW Jackson, Suite 100  
Topeka, Kansas 66612-1354  
Phone: (785) 296-1913

FEIN: 20-1027060

FEIN: 48-1124839

By: Shene Utash

By: Mike Beene

Mike Beene, Director, Employment Services

Date: 8/27/2020

Date: 8/27/2020



# Advisory Committee Meeting Minutes

WSU Tech  
 Tooling  
 December 1, 2020  
 Zoom

I. Attendees:

X	Bruce Fritz, WSU Tech	X	James Hall, WSU Tech	X	Michelle Gifford, Textron Aviation
X	Kelly Bielefeld, USD 259	X	Kelly Kitterman, USD 260	X	Doug Hayes, Cox Machine
X	Kurt Riffel, Excel	X	Pete Loecke, Spirit Aerosystems	X	Chad Springer, Spirit Aerosystems
X	Rich Koppelman, Spirit Aerosystems	X	Dennis Malone, Spirit Aerosystems	X	Steve Shavlik, Spirit Aerosystems

- II. Introductions were completed within the persons attending listed above.
- III. Statement of Proposed New Program: TFF - Tooling and Fixture Fabrication; Jim provided a detailed background of the program and the work with Textron Aviation to complete a comprehensive plan for students to work thru an apprenticeship specific for an individual employer. This program has been in the works for many years and finally will begin in the Spring 2021 semester with a group of students from Textron Aviation.
- IV. Review of Tooling and Fixture Fabrication Program Configurations – Document was shared and reviewed for the order of classes in which the students will proceed thru the program.
- V. Review of Tooling and Fixture Fabrication contributing Course Descriptions – individual courses were reviewed and what is covered within each course.
- VI. Questions and Discussion
  - a. Questions in regards to the use of this within the high school pathway and the hand and power tool class was discussed.
  - b. The number of cohorts was asked – we plan to start with 15 to complete with 10.
  - c. Textron is using a combination of internal applicants with aviation experience along with some external applicants with mechanical experience.
  - d. The discussion of the aptitude level required to be successful in this career path due to the skill sets needed. There is opportunity for a student to complete a 4 year program with tool design engineering should they choose to. This program sets the on the path for that option.



- VII. Obtain IAT Approval for the Tooling and Fixture Fabrication Program and its contributing curriculum. A vote was held in regards to the approval of the program to move forward. All approved via chat or raising of hand.
- VIII. Required IAT support through our MOU – the MOU document was sent out for completion to the attendees with a request to complete and email back.
- IX. Next meeting date/location
  - a. Spring 2021 – full CTE IAT meeting
  - b. If a face to face meeting is possible in the Spring for tours, etc. we will plan one at the time for this group.

Meeting Adjourned @ 3:57 p.m.

# WSU Faculty Senate Meeting,

December 9, 2020, 3:00 PM

## Agenda:

- Consideration and Approval of New and Changes to Existing Academic Programs

## Attendees:

- Joe Varrientos, Faculty Lead, Electronics Technology
- Chuck Kauffman, Faculty, Automotive Technology
- Scott Simpson, Faculty, Aircraft Maintenance Technology
- Pam Layman, Faculty, Mathematics
- Vrenda Pritchard, Lead Faculty, Allied Health
- Linda Sessions, Lead Faculty, Computer Technology
- Lauren Thornhill, Faculty, Health Science
- Roger Attebury, Faculty Lead, Welding
- Dawn Kealey, Director, Aviation Technologies
- Chris Wyant, Director, Robotics
- Bruce Fritz, Associate Dean, Manufacturing
- James Hall, Dean, Aviation and Manufacturing

## Opening:

- The regular meeting of the WATC Faculty Senate was called to order at 3:00 pm on December 9, 2020 on Zoom.

## Open Issues:

- None

## New Business

1. **New Certification Presentation – Aviation Maintenance Technology Program** (Jim Hall)
  - a. New Certification A for existing program.
  - b. Though questioning by faculty in attendance, no modifications to existing program needed. Created to offer additional exit point to existing program for students seeking employment in Aviation Maintenance.
  - c. **Vote:** Joe Varrientos motioned to approve the program as presented.
  - d. **Result:** Unanimous approval.
2. **New Program Presentation – Logistics & Supply Chain Management Program** (Jim Hall)
  - a. New Associate in Applied Science and Technical Certificate.
  - b. Though questioning by faculty in attendance, previously existing program delivery in partnership with Pima Community College. No changes to program as was delivered previously.
  - c. **Vote:** Joe Varrientos motioned to approve the program as presented.
  - d. **Result:** Unanimous approval.
3. **New Program Presentation – Tooling & Fixture Fabrication Program** (Jim Hall)
  - a. New Associate in Applied Science and Technical Certificate.
  - b. Though questioning by faculty in attendance, program development several years in development. Industry partners to provide facilities and much of instruction. Development funded in part by grant dollars.

- c. **Vote:** Joe Varrientos motioned to approve the program as presented.
  - d. **Result:** Unanimous approval.
4. **New Program Presentation – Unmanned Aircraft Systems Program (Jim Hall)**
  - a. New Associate in Applied Science and Technical Certificate.
  - b. Though questioning by faculty in attendance, program is aligned as designed with FAA-CTI (College Training Initiative) program as WSU Tech is a charter member of the Unmanned Aircraft Systems Initiative. Program development has been done to model training paradigms with existing industries and training providers. Beyond Line-Of-Sight training planned through State of Kansas initiative. Planning some program delivery at high school campuses and training of high school faculty.
  - c. **Vote:** Joe Varrientos motioned to approve the program as presented.
  - d. **Result:** Unanimous approval.

#### Agenda for Next Meeting

- To be determined

#### Adjournment:

- Meeting was adjourned at 4:05 pm by Joe Varrientos. Time and date of next general meeting to be held during Faculty In-Service January 7, 2021.

Minutes submitted by: Joe Varrientos, Vice President, Faculty Senate

**WSU Tech Board of Trustees  
Board Minutes  
Thursday, December 17, 2020  
Virtual Board Meeting**

	<p>WSU Tech Board of Trustees met virtually through zoom at 3:00 p.m., on December 17, 2020.</p> <p><b>Present:</b> Meredith Olson, Lyndon Wells, Pete Meitzner, Matt Hesse, Cindy Claycomb, Patty Koehler, John O’Leary, Suzanne Scott, Doug Stark, John Pilla and Maggie Topping</p> <p><b>Absent:</b> None</p>
<b>Public Communications</b>	<p>All proper notifications have been sent out and we have no speakers signed up to speak under Public Communications</p> <p>No requests</p>
<b>Make A Difference Student Award – Justin Pfeifer</b>	<p>Michael D. Sengvilay, Shocker Pathway Was nominated by Lai-L Daugherty. Michael has been in cosmetology for the last 10 years and decided to start the two-year Dental Assistant program.</p>
<b>Consent agenda</b>	<p>a. <b>WSU Tech BOT Minutes:</b> Recommendation action: Approval of the WSU Tech Meeting Minutes for October 15, 2020 were provided to the Board electronically.</p> <p>The above consent agenda item(s) were considered and discussed and thereupon on motion of Board member John Pilla seconded by Suzanne Scott, the consent agenda item(s) were approved.</p> <p>Motion carried 11-0:</p>
<b>Reports of Officers</b>	<p><b>Financial Statement Review</b> – Marlo Dolezal Actuals are through November 30, 2020.</p> <p>Revenues are ahead of budget by approximately \$3.6M. This favorability is attributable to larger equipment items that were deferred from FY20 grant funds as work in process capitalized into FY21.</p> <p>\$3.9M in unbudgeted funding on a local, state, and federal level to combat the continued impacts of COVID-19.</p> <p>Total expenses through November are pacing comparable to budget. COVID-19 funding is expected to be utilized between now and early Spring, with most purchases being capitalized by year end.</p> <p>Cashflow has followed operating trends through the first quarter, but with higher inflows due to COVID funding. This will level out as the funds are utilized for the grant purchases. The majority of cash outflow will occur prior to February 2021.</p> <p>Reviewed/Discussed the COVID-19 Pandemic Funding Summary</p> <p><b>Letter of Intent</b> – Marlo Dolezal Discussed and reviewed Letter of Intent for lease of a portion of the building formerly known as The Henry’s Building. Douglas Market Development, LLC needs approval to finalize the lease and move forward. \$15K square feet located at 124 S. Broadway. \$12/SQ FT. Each renewal is subject to 1.5% annual increase in base rent. 10-year lease with five renewal options Douglas Market Development will build out. Building will be ready for classes August 22, 2021.</p>

Termination clause – WSU Tech shall be required to provide a minimum of 180 days written notice to Douglas Market Development

The above Letter of Intent was considered and discussed and thereupon on motion of Board member John O’Leary seconded by John Pilla, the Letter of Intent was approved

Motion carried 11-0:

**Enrollment Report** – Justin Pfeifer

Final Fall Comparison

Unduplicated headcount overall totals 1.9%

We were up in credit hours 0.04%

Spring 2021 Comparison

Adult credit hours down 6.6%

High School is down 27.7% anticipating this number to go up

Reviewed and discuss challenges and strengths

**Academic Affairs** – Scott Lucas

Several new programs – Aviation and Manufacturing AY 21 & 22 need approval

AMT General Technical Certificate

AMT General Technical Certificate – 20 credits

Certificate Option – August 2021

Entry semester into airframe and powerplant

Logistics & Supply Chain Management

Approved back in March 2018. Partnership with PIMA Community College

New degree options starting August 2021

Associates Degree – 62 credits

Technical credits – 32 credits

Fully online capable

There are courses in business, accounting, operations and general education.

Unmanned Aircraft Systems (Drones)

UAS Certification and skills apply across a wide range of career fields and industries; railways, energy, public sector, real estate, insurance, retail, logistics, corporate/personal farming.

WSU Tech UAS program will focus on getting students trained and certified in flying, data collection/ analysis, and presentation

Part 107 Licenses to Pilot “Drone” commercially

Certified training in software for GIS Systems

+200 hours of training time flying and planning UAS

UAS Technology is going to lead to major disruptions in the fields of Surveying, Agriculture, and Logistics.

Possible inclusion of Pilot’s license into program for Beyond Line of Sight UAS Flying. The game changer and disruptor for all things dealing with logistics

This program will be located at NCAT

Degree option – August 2021

Associates Degree – 61 Credits

Technical Certificate – 22 Credits

Tooling & Fixture Fabrication

A need for a skilled workforce to meet the demand for quality tool and fixture fabrication most tooling professionals are seasoned and highly skilled and retiring

The program designed to be part of an apprenticeship/applied learning program between WSU Tech and Textron. Part-time instructor provided by Textron.

	<p>This program will be located at NCAT  Degree option – August 2021  Associates Degree – 65 credits  Technical Certificate – 50 Credits</p> <p>Motion was made to proceed with above programs which were considered and discussed and thereupon on motion of Board member Matt Hesse seconded by Doug Stark, the above programs were approved</p> <p>Motion carried 11-0</p>
<b>President's Report</b>	<p>COVID Tracking  Positive employees – 23  Positive students – 108  Thank you to WSU MDL</p> <p>WSU President Search Committee  Sheree Utash has been asked to be on the board  First meeting is tomorrow  They hired a new company  It is a closed search</p> <p>Course Rate Success  Increase in our hybrid courses. We will be checking into this more</p> <p>Spirit Recovery Center  This program has been working real well  Thank you to the County. We used part of the \$970K for this center</p> <p>WSU Tech hired John and Lexi Michaels for our Culinary/Hospitality program. Sheree will be interviewed tomorrow. Sheree spoke with Kim Krull, Butler Community College. Still not sure what they are doing.</p> <p>Judy Mount was recognized as one of the Who Leads for HR</p> <p>Showed the videos for Sheree Utash and Andy McFayden</p> <p>Andy McFayden was one of the Sr. Marketer of Year  Showed the videos of Sheree Utash and Andy McFayden</p>
<b>Adjournment</b>	<p>At approximately 4:45 p.m., the meeting adjourned</p>

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**Approved:**      Signature

Dated

# Carl D. Perkins Funding Eligibility Request Form

Strengthening Career and Technical Education for the 21<sup>st</sup> Century Act

CA-1c Form (2020)

This application should be used for new programs (currently in the program approval process) or existing programs the institution would like reviewed for Carl D. Perkins funding eligibility.

## Program Eligibility

An “eligible recipient” is an eligible institution or consortium of eligible institutions qualified to receive a Perkins allocation.

An “eligible institution” is an institution of higher education that offers CTE programs and will use Perkins funds in support of CTE coursework that leads to technical skill proficiency or a recognized postsecondary credential, including an industry-recognized credential, a certificate, or an associate degree, which does not include a baccalaureate degree.

Any program receiving Perkins funds must be designated as a technical program by KBOR. Definition of a technical program may be found in state statute K.S.A. 72-1802. Criteria adopted by the Board of Regents may be found in their February 20, 2019 meeting packet.

Program Levels:

Educational Award Level	Credit Hours
SAPP	0-15
Certificate A	16-29
Certificate B	30-44
Certificate C	45-59
Associate of Applied Science	60-69

Stand-Alone Parent Programs (SAPPs) must meet the following criteria:

- Minimum of 8 credit hours
- Minimum of 80% tiered credit hours
- Maintain an average of 6 concentrators over the most recent consecutive 2-year period

Certificates and Associate of Applied Science degrees must meet the following criteria:

- Minimum of 51% tiered credit hours
- Maintain an average of 6 concentrators over the most recent consecutive 2-year period
- Comply with Program Alignment – *if applicable*

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Strengthening Career and Technical Education for the 21<sup>st</sup> Century Act

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Name of Institution	Wichita State University Campus of Applied Sciences and Technology
Name, title, phone, and email of person submitting the Perkins Eligibility application ( <i>contact person for the approval process</i> )	Dr Scott Lucas Vice President of Aviation, Manufacturing & Institutional Effectiveness <a href="mailto:Slucas@wsutech.edu">Slucas@wsutech.edu</a>
Name, title, phone, and email of the Perkins Coordinator	Lisa Myers- Perkins Coordinator 316 677 1970 <a href="mailto:Lmyers@wsutech.edu">Lmyers@wsutech.edu</a>
Program Name	Tooling and Fixture Fabrication
Program CIP Code	48.0507
Educational award levels <u>and</u> credit hours for the proposed request	AAS – 65 Credits Technical Certificate C – 50 Credits
Percentage of tiered credit hours for the educational level of this request	77%
Number of concentrators for the educational level	15
Does the program meet program alignment?	Not Applicable
Justification for conditional approval: ( <i>this section must reference information found within the Local Needs Assessment</i> )	<p>Tool and Die Makers (SOC Code 51-4111) apply their skills and knowledge to the operation of machine tools used in the formation of metal components and the fabrication of specialty tools, dies, jigs, and fixtures used in the cutting, working, and finishing of metal components. The Kansas Department of Labor's Long – Term Occupational Outlook indicates annual openings for graduates in this field in the South-Central region at 58 with 78 job openings annually statewide. Total projected openings between 2016 and 2026 are 582 in the South-Central Region and 777 statewide. During this period, all job openings are attributed to worker replacement from retirements or workers moving to another industry. Data from other sources (JobsEQ, Chumra Economics 2019) provides an even clearer picture of the need for the proposed Tooling Fixture and Fabrication Program at WSUTech. In Sedgwick County, the industry will need 239 new workers over the next ten years due to separation</p>



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	<p>demand, meaning replacing workers that retire or move to another sector. The Aerospace Industry, specifically the Aerospace Process and Parts Manufacturing industry sector, will need 71.9% of those new workers. With the remaining demand for new workers distributed primary across related sectors including Metalworking, Machinery Manufacturing, and Machine Shops.</p> <p>The Kansas Department of Labor's Long- Term Occupation Outlook Indicates a statewide annual median wage of \$ 63,747, with those wages rising to \$77 559 for an experienced employee. In the Southcentral region of Kansas, Tool and Die workers' median yearly salary is \$69 140.</p> <p>A more in-depth look at Sedgwick County data (JobsEQ) indicates the average mean annual wage for Tool and Die Makers was \$72,000, with the average salary for experienced workers listed at \$85,600.</p> <p>To qualify for the expected job openings in the Tool and Die Maker industry, successful candidates will need the specialized training provided by the proposed Tooling Fixture and Fabrication Program at WSUTech. The KS Long – Term Occupation outlook (2016 – 2026) indicates the typical education needed for entry into the field is a postsecondary non-degree award. The JobsEQ 2020 data supports and quantifies that information by indicating 32. 7 % of the Tool and Die sector's open positions require a minimum of some college, no degree, while 17.9% require an associate degree.</p>
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Signature of College Official \_\_\_\_\_



Date 2/5/2021

Signature of KBOR Official \_\_\_\_\_

Date \_\_\_\_\_