



Tooling and Fixture Fabrication

Student Learning Outcomes

- 1 Communication - The student will demonstrate the ability to communicate effectively using written and/or oral communication.
- 2 Information Literacy - The student will recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.
- 3 Problem Solving - The student will demonstrate the ability to analyze information and solve problems.
- 4 Workplace Skills - Demonstrates a mastery of workplace skills/soft skills, exhibits initiative, adapts to varied situations

Program Outcomes

- 1 Obtain general industry OSHA 10 card and apply safety principles in a work environment to minimize hazards and prevent losses to productivity.
- 2 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.
- 3 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.
- 4 Analyze, through various methodologies, the quality and functionality of built tools, jigs, and fixtures to meet specifications, tolerances, and standards appropriate to their application.

Fall

Course #	Course Title	Credits	Function
TFF 110	Tap and Die	1	Technical Studies
TFF 112	Print Reading	3	Technical Studies
TFF 115	Hand and Power Tools for Aerospace Tooling	1	Technical Studies
TFF 117	Precision Measuring	2	Technical Studies
AER 106	Aerospace Manufacturing Tooling Orientation	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
AVC 150	Human Factors	1	Technical Studies
AVC 170	Conflict Resolution	1	Technical Studies

Spring

Course #	Course Title	Credits	Function
TFF 130	Machining I	3	Technical Studies
TFF 140	Machining II	3	Technical Studies
ENG 101	Composition I*	3	General Studies
	Humanities Elective*	3	General Studies

Summer

Course #	Course Title	Credits	Function
TFF 108	Welding Safety & Orientation	1	Technical Studies
TFF 118	Welding Applications	4	Technical Studies
MTH	Math Elective*	3	General Studies

Fall

Course #	Course Title	Credits	Function
TFF 114	Introduction to CAD I	3	Technical Studies
AVC 103	Geometric Dimensioning & Tolerancing	1	Technical Studies
CAT 101	CATIA Part Design & Sketcher	4	Technical Studies
	Social Science Elective*	3	General Studies
	Communication Elective*	3	General Studies

Spring

Course #	Course Title	Credits	Function
TFF 120	Metrology	4	Technical Studies
TFF 125	Tooling Capstone	4	Technical Studies
TFF 135	Direct & Alternating Current	4	Technical Studies
TFF	Experiential Learning Elective**	5	Elective
AER 150	Assembly Overview I	3	Technical Studies

** Experiential Learning Electives

Course #	Course Title	Credits	Function
TFF 150	Fixture Construction		Elective
TFF 155	Tooling and Fixture Fabrication Capstone		Elective

* Kansas Systemwide General Education

Technical Certificate, Tooling and Fixture Fabrication

Total Credits: 52

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TFF 115	Hand and Power Tools for Aerospace Tooling	1	Technical Studies
TFF 117	Precision Measuring	2	Technical Studies
AER 106	Aerospace Manufacturing Tooling Orientation	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
AVC 150	Human Factors	1	Technical Studies
AVC 170	Conflict Resolution	1	Technical Studies

Spring

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TFF 125	Tooling Capstone	4	Technical Studies
TFF 135	Direct & Alternating Current	4	Technical Studies
TFF	Experiential Learning Elective**	5	Elective
AER 150	Assembly Overview I	3	Technical Studies

****Experiential Learning Electives**

Course #	Course Title	Credits	Function
TFF 150	Fixture Construction		Elective
TFF 155	Tooling and Fixture Fabrication Capstone		Elective