RIGOROUS PROGRAM OF STUDY / COURSE SEQUENCE

High School	Sunflower High School	CLUSTER:	Manufacturing	
College/University	Kansas Technical College or Community College	Pathway:	Production (Drafting / Welding)	

Colle	College/University Kansas Technical College or Community College			Pathway: Production (Drafting / Welding)			
EDUCATION LEVELS	GRADE	English/ Language Arts	Math	Science	Social Studies/ Sciences	Career and Technical Courses and/ or Degree Major Courses for Pathway	Other Required Courses, Other Electives, Recommended Electives, Learner Activities
	8	English	Math	Science	Social Studies	Intro to Industrial Technology (38001)	Career & Life Planning (22207) Computer Applications (10004)
	Pre-Test/Interest Inventories: ACT PLAN / EXPLORE / KS State Assessment for Math & Reading						
	9	Freshman English; Freshman English Honors	Algebra; Geometry; Geometry Honors	Earth Science; Biology	Geography	Introduction to Welding (13207)	Boys P.E.; Girls P.E.; World Language CTSO - SkillsUSA
	Pre-Test/Intere	st Inventories: Kansas C	areer Pipeline (www.kans	ascareerpipeline.org) / IC3 C	omputer Certification		
۲,	10	ELD 2; Sophomore English Honors	Geometry; Algebra II; Honors Algebra II	Biology; Chemistry; Honors Chemistry	American History Survey; ELL American History Survey; Honors American History Survey	Drafting / CAD (21107) Advanced Production Blueprint Reading (39108)	Boys P.E.; Girls P.E.; World Language CTSO - SkillsUSA
DAI	Assessments/0	redentials Offered: KS S	tate Assessment for Math	& Reading			
SECONDARY	11	Junior English/Communicatio ns; Jr Eng/Comm Honors	Algebra II; Trigonometry & Analysis	Chemistry; Physics	World History; ELL World History; Honors World History	Adv. Drafting / CAD (21150) Production Welding Processes I (39207)	Chorus/Band; Theatre CTSO - SkillsUSA
Assessments/Credentials Offered: OSHA 10 Hour General Safety Certification / ACT Work Keys (Kansas WorkReady! Certificate)					e)		
	12	Sr. Comp. 3_4; Sr. Literature 3_4; College Prep Eng; A.P. Coll. Prep Eng	Trigonometry & Analysis; Calculus	Physics	American Government; ELL American Government	Production Welding Processes II (39208) Research & Design for Manufacturing (13998)	Chorus/Band; Theatre CTSO - SkillsUSA
	Assessments/C	redentials Offered: AWS					
		T	Articulated / Dual Cred	it courses may be offered at	either the Secondary or Postsec	ondary levels with credit awarded at both levels.	
	Year 13 1st Semester	Public Speaking English Comp. I				DR100 Basic CAD WE101 Welding Safety WE102 Welding Blueprint Reading	Success Seminar/College Orientation CTSO - SkillsUSA
ARY	Year 13 2 nd Semester					WE103 Oxy-fuel Welding WE104 Shielded Metal Arc Welding	Microcomputer Applications CTSO - SkillsUSA
ON	Assessments/0	Assessments/Credentials/Certificates/Degrees Offered: AWS Level I Certification					
POSTSECONDARY	Year 14 1st Semester		College Algebra Applied Algebra		General Psychology	WE201 Gas Metal Arc Welding (GMAW) WE202 Gas Tungsten Arc Welding I	Prin. Of Supervision OR Small Business Management CTSO - SkillsUSA
	Year 14 2 nd Semester					WE203 Special Processes WE210 Industrial Welding TR125 Application of Industrial Practices	General Education Elective (3 cr.) CTSO - SkillsUSA
	Assessments/Credentials/Certificates/Degrees Offered: AWS Level II Certification / AAS Welding						

Year 15			Continue Courses in the Area of Specialization	
Year 16				Complete Manufacturing Major (4 Year Degree Program)

SAMPLE OCCUPATIONS RELATING TO MANUFACTURING PRODUCTION				
Occupations Requiring High School Diploma	Occupations Requiring Certifications,	Occupations Requiring Bachelor's Degree		
	Associate Degree, Registered Apprenticeship			
*Entry-Level Welder	*Welders, Cutters, & Brazers	Industrial Production Managers		
*Packers & Packagers	Sheet Metal Workers	Manufacturing Engineers		
*Hoist & Winch Operators	Tool & Die Makers	Civil Engineers		
*Assemblers & Fabricators	Millwrights	Electrical Engineers		
*Shipping, Receiving & Traffic Clerks	Machinists	Purchasing Agents		
*Laborers & Freight, Stock, and Material Movers/ Material	Computer-Controlled Machine Tool Operators	Industrial Engineers		
Handlers				
	Industrial Engineering Technicians	Logisticians		
	Mechanical Engineering Technicians			
	*Civil Engineering Technicians			
	*Manufacturing Technicians			
	Transportation, Storage & Distribution Managers			
	First-Line Supervisors			

^{*}Indicates occupations specific to coursework for this RPOS.

Secondary Level Course Descriptions:

38001 Intro to Industrial Technology - An introductory level course designed to instruct students in the basic skills necessary to all occupations in the Construction, Manufacturing & Transportation areas. **13207** Intro to Welding - An introductory level course designed to instruct students in the basic skills of welding.

21107 Drafting/CAD - Provides students with the knowledge and skills needed to utilize CAD design and software.

39108 Advanced Production Blueprint Reading - Provides students with the knowledge and skills to interpret the variety of drawings used in production occupations including multi-view drawings, computer models and dimensioning.

21150 Advanced Drafting/CAD - An advanced level course that provides students with the knowledge and skills needed to utilize CAD design and software.

39207 Production Welding Processes I - A comprehensive course designed to provide students with knowledge and skills in basic welding theories and terminology, to perform Oxy-fuel and Arc Welding activities in the F & H positions, and to perform Non-destructive testing activities.

39208 Production Welding Processes II - An application level course designed to instruct students in the knowledge and skills needed for solving fabrication problems, to weld joints in the V & OH positions, and perform Plasma cutting.

13998 Research & Design for Manufacturing - An advanced level course providing students with workbased experience, supported by classroom attendance and discussion, within their area of study.

Postsecondary Level Course Descriptions (Grade 13):

WE101 Welding Safety – Job/site safety and precautions for job/site hazards; uses of personal protective equipment (PPE); safety equipment and procedures related to safe work practices and environment; fire prevention and protection techniques; and Hazardous Communications (HazCom) including Material Safety Data Sheets (MSDS).

WE102 Welding Blueprint Reading- Identification of basic lines, views, and abbreviations used in blueprints; interpretation of basic 3D sketches using orthographic projection and blueprints; solution of applicable mathematical equations; use of basic measuring tools; interpretation of scale ratios on a blueprint; identification of basic welding joints and structural shapes; interpretation of Bill of Materials; and identification of standard AWS weld symbols.

WE103 Oxy-fuel Welding - Principles and application of oxy-fuel welding processes, equipment and safety; methods of producing and handling industrial gases.

WE104 Shielded Metal Arc Welding I – The Shielded Metal Arc Welding process (SMAW); safe and correct set up of the SMAW workstation; SMAW electrode classifications associated with base metals and joint criteria; proper electrode selection and use based on metal types and thicknesses; weld beads with selected electrodes in the flat and horizontal positions; basic SMAW welds on selected weld joints; and visual inspection of welds.