RIGOROUS PROGRAM OF STUDY / COURSE SEQUENCE

High School **Sunflower High School** **CLUSTER:** Manufacturing

College/University **Kansas Technical College or Community College** Pathway: Production (Drafting / Design)

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
SECONDARY	8	English	Math	Science	Social Studies		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	Intro to Industrial Technology (38001) Production Blueprint Reading (21108)	Boys P.E.; Girls P.E.; World Language CTSO - SkillsUSA
	Pre-Test/Interest Inventories: Kansas Career Pipeline (www.kansascareerpipeline.org) / IC3 Computer Certification						
	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
	Assessments/Credentials Offered: KS State Assessment for Math & Reading						
	11	Junior English/Communications; Jr Eng/Comm Honors	Algebra II; Trigonometry & Analysis	Chemistry; Physics	World History; ELL World History; Honors World History	Adv. Drafting / CAD (21150)	Chorus/Band; Theatre CTSO - SkillsUSA
	Assessments/Credentials Offered: OSHA 10 Hour General Safety Certification / ACT Work Keys (Kansas WorkReady! Certificate)						
	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	Research & Design for Manufacturing (13998)	Chorus/Band; Theatre CTSO - SkillsUSA
	Assessments/Credentials Offered: AutoDesk / AutoCAD Certification						
	Articulated / Dual Credit courses may be offered at either the Secondary or Postsecondary levels with credit awarded at both levels.						
POSTSECONDARY	Year 13 1st Semester	English Comp. I				CAT101- CATIA Part Design & Sketcher CAT102- CATIA Drafting CAT105- CATIA Assembly Design	EMP100- Global Professional Standards CTSO - SkillsUSA
	Year 13 2nd Semester			General Physics I OR Physical Science		CAT110- CATIA Wireframe & Surfaces CAT115- CATIA Prismatic Machining	Computer Applications CTSO - SkillsUSA
	Assessments/Credentials/Certificates/Degrees Offered: CATIA Certification						
	Year 14 1st Semester		College Algebra Applied Algebra		General Psychology	MCD110- Principles of Tool Design MCD113- Technical Drafting MCD116- Intro to CAD	CTSO - SkillsUSA
	Year 14 2nd Semester	Public Speaking				MCD115- Machine Drafting & Design MCD121- Descriptive Geometry MCD124- Advanced AutoCAD	CTSO - SkillsUSA
	Assessments/Credentials/Certificates/Degrees Offered: AutoCAD Certification / AAS Degree in Mechanical Design Technology						

	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, Associate Degree, Registered Apprenticeship**	**Occupations Requiring Bachelor's Degree**
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 Handlers	Computer-Controlled Machine Tool Operators	*Industrial Engineers
	*Industrial Engineering Technicians	Logisticians
	*Mechanical Engineering Technicians	
	*Civil Engineering Technicians	
	*Manufacturing Engineering 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.

21108 Production Blueprint Reading - Provides students with the knowledge and ability to interpret the lines, symbols, and conventions of blueprints from a variety of industrial applications.

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.

13998 Research & Design for Manufacturing - An advanced level course that provides students with work-based experience, supported by classroom attendance and discussion, within their area of interest/study.

Postsecondary Level Course Descriptions (Grade 13):

CAT101- CATIA Part Design & Sketcher - Covers the creation of solid parts without complex contours. Students are introduced to the part environment of CATIA V5 and learn how to work between sketcher and parts design workbenches to create individual parts.

CAT102- CATIA Drafting - Covers the creation of engineering drawings. Students are introduced to the drafting environment of CATIA V5 and learn how to create drawings from parts and products.

CAT105- CATIA Assembly Design - Covers the use of multiple parts to create an assembly. It also covers the various analytical and navigation tools that are available within an assembly. Students are introduced to the product environment of CATIA V5 and learn how to work with multiple parts between the Assembly Design, digital mock-up (DMU) Space Analysis and DMU Navigator workbenches.

CAT110- CATIA Wireframe & Surfaces - Extension of the parts environment covers the use of wireframe and surface geometry to create complex contours. Cores concentrate on the tools available and how to integrate this geometry back into a solid part.

CAT115- CATIA Prismatic Machining - Covers the machining operations involved in three-axis milling. Students are introduced to the process environment of CATIA V5 and learn how to work between the process, part and product environments.