

## CTE Course Description and Standards Crosswalk

### Course Information

Course Name	Technical Drafting 3
Course Number	86030
Number of High School Credits	.5
Sequence or CTEPS (You must first have the Sequence or CTEPS entered into the EED-CTE system.)	Architect, Cabinetry, Carpenter, Pre-Engineering, Welder
Date of district Course Revision	September 2014

### Career & Technical Student Organization (CTSO)

CTSO embedded in this sequence	SkillsUSA
--------------------------------	-----------

### Occupational Standards

Source of Occupational Standards	National CAD Standards Version#6 (NCS) / SkillsUSA
Names/Numbers of Occupational Standards	National CAD Standards #6 Mod 0-8 (NCS) Technical Drafting (TD)1-12

### Registration Information

Course Description (brief paragraph – as shown in your student handbook or course list)	Technical Drafting 3 introduces and develops 3-D modeling skills. Emphasis is in welding, cams, gears, surface developments and intersections. This course would be helpful for a student who is exploring careers in construction, electricity, electronics, computers, welding, or machining. Students wanting careers in engineering design, automotive design, civil design, or 3-D modeling would also be interested in the class.
Instructional Topic Headings (please separate each heading by a semi-colon)	Introduction to Advanced Drafting Tools and Techniques; Advanced CAD Techniques; Basic Descriptive Geometry; Threads and Fasteners; Electricity and Electronic Engineering Symbols; Welding Symbols; Mechanical Engineering Symbols; Civil Engineering Drawings and Symbols; Data Storage and Transfer in a Group Environment; Careers in Drafting and Design; School to Work Internships; Encourage Career and Technical Student Organization (CTSO) Involvement

### Summative Assessments and Standards

Technical Skills Assessment (TSA)	SkillsUSA (TD)
Course addresses:	Technical Drafting
New Alaska ELA and Math Standards	Yes
Alaska Cultural Standards	Yes
All Aspects of Industry (AAI)	Yes
Core Technical Standards	Yes
Employability Standards	Yes

### Employability Standards

Source of Employability Standards	State of Alaska
-----------------------------------	-----------------

### Tech Prep

Current Tech Prep Articulation Agreement? (Y/N)	Yes – With combo of Tech Drafting 4
---	-------------------------------------

**DISTRICT NAME: Mat-Su Borough School District**

Date of Current Agreement	12/2014
Postsecondary Institution Name	University of Alaska – Anchorage
Postsecondary Course Name	Fundamentals of CAD for Building Construction
Postsecondary Course Number	AET 101
# of Postsecondary Credits	4

DISTRICT NAME: Mat-Su Borough School District

## Additional CTE Course Information

Author	
Course developed by	Ray Jensen, Tom Lord, Paul Moma, Revised by: Justin Aulie, Bryan Kirby, Chris Taylor, Brad Drake, Bryan Kirby, Ray Jensen
Course adapted from	Technical Drafting 3
Date of previous course revision	June 2006
Course Delivery Model	
Is the course brokered through another institution or agency? (Y/N)	N

Standards Alignment
---------------------

Student Performance Standards (Learner Outcomes or Knowledge & Skill Statements)	Specific Occupational Skills Standard	Common Technical Core Standards	New Alaska ENG/LA Standards	New Alaska Math Standards	Alaska Cultural Standards	Employability/ Career Readiness Standards	All Aspects of Industry/ Systems	Assessment
Utilize advanced drafting and design tools such as AutoCAD drafting programs, and plotters/printers.	TD1.0 & 2.0	AC-DES 6	RST9-12; 10	GCO 2	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Develop layout templates for use with various drawing activities.	NCS 1.3 NCS 4.2 TD 1.0	AC 2, 6 AC-DES 6, 7	RST 9-10; 7, 10	GCO 12 NQ 2,3 SID 2, 3	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Have a working knowledge of advanced and user defined menu options available with the CAD program the student is using.	NCS 1 TD 1.0	AC 3, 6 AC-DES 6	SL 9-10; 5, 6 L 11-12; 6	SID 2, 3, 5	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Utilize the advantages of advanced CAD functions to solve design problems.	NCS 4.0 TD 1.0	AC 3, 6 AC-DES 6	RST 11-12; 7 L 9 – 12;	SID 7 AREI 1	B1, 4	A2	Planning Mgmt Technical	SkillsUSA TD Assessment

L:\CTE\CTE\_OFFICE\Curriculum\2013 Review\Drafting\New Crosswalks\TechDraft3.docx

Form #05-13-028

Alaska Department of Education and Early Development

**DISTRICT NAME: Mat-Su Borough School District**

<b>Student Performance Standards (Learner Outcomes or Knowledge &amp; Skill Statements)</b>	<b>Specific Occupational Skills Standard</b>	<b>Common Technical Core Standards</b>	<b>New Alaska ENG/LA Standards</b>	<b>New Alaska Math Standards</b>	<b>Alaska Cultural Standards</b>	<b>Employability/ Career Readiness Standards</b>	<b>All Aspects of Industry/ Systems</b>	<b>Assessment</b>
			6				Skills Technology	
Create user defined menus for specific types of drawings.	NCS 2 TD 9.0	AC 6 AC-DES 6	RST 9 – 12; 3 L 9 – 12; 6	SID 2, 5 NQ 2, 3	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Utilize interactive CAD databases.	NCS 3 TD 1.0	AC 3, 6 AC-DES 6	WHST 9 – 12; 8 RST 9-12; 3	NQ 2,3 SID 2, 3	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Dimension drawings using advanced appropriate symbols and tolerances.	NCS 4.2.8 TD 1.0	AC 3, 6 AC-DES 6	RST 9 – 12; 3	SID 2, 3 NQ 1, 2, 3	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Using the CAD program, perform basic descriptive geometry activities.	NCS 6.0 TD 3.0	AC 3, 6 AC-DES 6	RST 9-10 7	NQ 2, 3 GCO 1, 2, 6	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Determine the slope, grade, bearing, true length and point projection of a line.	NCS 4.0 TD 3.0	AC 3, 6 AC-CES 6	RST 9 – 10; 4, 7	SID 7 GCO 1	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Draw various threads and fasteners given the specifications for the thread or fasteners.	NCS 4.0 TD 6.2	AC 3, 6 AC-CES 6	RST 9-10; 4, 7 RST 9 – 12; 3	GCO 1,2,3 NQ 1,2,3	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Appropriately utilize electricity and electronic symbols on a working drawing.	NCS 6.4.18	AC 1, 3, 6	RST 9-12; 4		B1, 4	A2	Planning Mgmt	SkillsUSA TD Assessment

**DISTRICT NAME: Mat-Su Borough School District**

<b>Student Performance Standards (Learner Outcomes or Knowledge &amp; Skill Statements)</b>	<b>Specific Occupational Skills Standard</b>	<b>Common Technical Core Standards</b>	<b>New Alaska ENG/LA Standards</b>	<b>New Alaska Math Standards</b>	<b>Alaska Cultural Standards</b>	<b>Employability/ Career Readiness Standards</b>	<b>All Aspects of Industry/ Systems</b>	<b>Assessment</b>
	TD 9.0	AC-CES 6	RST 9 – 10; 7				Technical Skills Technology	
Develop an electricity/electronic symbol library.	NCS 6.0 TD 6.0	AC 1, 3, 6 AC-CES 6	RST 9-12; 4 RST 9 – 10; 7		B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Appropriately utilize welding symbols on a working drawing.	NCS 6.0 TD 6.0	AC 1, 3, 6 AC-CES 6	RST 9-12; 4 RST 9 – 10; 7		B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Develop a welding symbol library.	NCS 6.0 TD 6.0	AC 1, 3, 6 AC-CES 6	RST 9-12; 4 RST 9 – 10; 7		B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Appropriately utilize mechanical symbols on a working drawing.	NCS 6.0 TD 6.0	AC 1, 3, 6 AC-CES 6	RST 9-12; 4 RST 9 – 10; 7		B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Develop a mechanical symbol library.	NCS 6.0 TD 6.0	AC 1, 3, 6 AC-CES 6	RST 9-12; 4 RST 9 – 10; 7		B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Create surface developments.	NCS 4.4.1 TD 6.0	AC 3, 6 AC-CES 6	RST 9- 10;4 RST 9 – 10; 7	NQ 1 – 3 GCO 1, 2, 3	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment

**DISTRICT NAME: Mat-Su Borough School District**

<b>Student Performance Standards (Learner Outcomes or Knowledge &amp; Skill Statements)</b>	<b>Specific Occupational Skills Standard</b>	<b>Common Technical Core Standards</b>	<b>New Alaska ENG/LA Standards</b>	<b>New Alaska Math Standards</b>	<b>Alaska Cultural Standards</b>	<b>Employability/ Career Readiness Standards</b>	<b>All Aspects of Industry/ Systems</b>	<b>Assessment</b>
Draw irregular shapes and circles in 3-D modeling planes.	NCS 4.3.9 TD 6.0	AC 1, 3, 6 AC-CES 6	RST 9-10;4 RST 9 – 10; 7	NQ 1 – 3 GCO 1, 2, 3	B1, 4	A2	Planning Mgmt Technical Skills Technology	SkillsUSA TD Assessment
Follow professional ethics including software licensing, copyright and intellectual property laws in producing and monitoring web pages and sites.	EAP 1&2	AC 2, 3 AC-DES 4, 6	WHST 9 – 12; 8		B1, 3	A 1, 2, 6	Wk Habits Mgmt	SkillsUSA TD Assessment
Encourage CTSO involvement	EAP 1&2	AC 1, 3, 4, 5, 7	L 9-12; 6		C 4	A2,5	Technical Skills	Membership

### Instructional Resources

**List the major instructional resources used for this course: (websites, textbooks, essential equipment, reference materials, supplies)**

**Books and Resources**

Mechanical Drawing, French, Svenson, Helsel , McGraw Hill

Hands-On AutoCAD, Timothy Looney, Glenco

AutoCad 004

Exercise Workbook for Beginning AutoCAD , Cheryl Shrock, Shrock Publishing

**Resources:** Architectural Graphic Standards, Wiley, Ramsey-Sleeper, 8th Edition (or newest edition)

AutoCAD for Architecture, James E Fuller

Architecture Drafting and Design, Donald E. Hepler, Paul Wallach, Dana Hepler

Skills USA, <http://www.skillsusa.org/contests.html>

NAWIC - National Association of Women in Construct