

CTE Course Description and Standards Crosswalk

Course Information

Course Name	Hydraulic/Pneumatics
Course Number	86910
Number of High School Credits	1.0
Sequence or CTEPS (You must first have the Sequence or CTEPS entered into the EED-CTE system.)	Hydraulic/Pneumatics
Date of district Course Revision	December 2015

Career & Technical Student Organization (CTSO)

CTSO embedded in this sequence	Skills USA
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Occupational Standards

Source of Occupational Standards	Skills USA
Names/Numbers of Occupational Standards	Diesel Equipment Technology- 1-5

Registration Information

Course Description (brief paragraph – as shown in your student handbook or course list)	This course introduces students to fluid power systems. Students will learn the components, design, assembly and trouble shooting of both hydraulic and pneumatic systems.
Instructional Topic Headings (please separate each heading by a semi-colon)	Introduction to fluid power; fluid power systems; basic physical principles; fluid power standards and symbols; workplace safety and health; hydraulic fluid; source of hydraulic power; fluid storage and distribution; actuators; controlling hydraulic systems; accumulators; conditioning system fluids; applying hydraulic power; compressed air; source of pneumatic power; conditioning and distribution of compressed air; work performers of pneumatic systems; controlling a pneumatic system; applying pneumatic power.

Summative Assessments and Standards

Technical Skills Assessment (TSA)	Skills USA
Course addresses:	Diesel Equipment Technology
New Alaska ELA and Math Standards	Yes (Math Practice)
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
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Tech Prep

Current Tech Prep Articulation Agreement? (Y/N)	No
Date of Current Agreement	
Postsecondary Institution Name	
Postsecondary Course Name	
Postsecondary Course Number	

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# of Postsecondary Credits	
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Additional CTE Course Information

Author	
Course developed by	Levi Rollman, Ray DePriest
Course adapted from	
Date of previous course revision	N/A
Course Delivery Model	
Is the course brokered through another institution or agency? (Y/N)	No

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
Understand the definition of fluid power	DET1.0-1.1-1.2-1.3 DET2.0-2.14-2.32, DET3.0,3.1, DET4.1-4.2-4.3-4.4	TD-OPS 2,3 CRP2;	SL.9-10.1; SL.9-10.4; SL.11-12.4	MP1, MP2, MP5, MP6	A5, A7, B2, B4	A1, A2, A3, A6, A7	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Identify and describe the basic system components of a fluid power system	DET1.0-1.1-1.2-1.3 DET2.0-2.14-2.32, DET3.0,3.1, DET4.1-4.2-4.3-4.4	TD-OPS 1, 2, 3 TD-SYS 1, 2, 3	L.9-10.3.a; L.9-10.6; L.11-12.2.a-b; SL.11-12.6	MP1, MP2, MP4, MP5, MP6	B2, B4	A2, A5	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Identify and describe the structure of a fluid power system	DET1.0-1.1-1.2-1.3 DET2.0-2.14-2.32,	TD-OPS 1, 2, 3 TD-SYS 1, 2, 3	L.9-10.3.a; L.9-10.6; L.11-12.2.a-b	MP1, MP2, MP4, MP5, MP6	B2, B4	A2, A5, A6	Technical Production Skills, Principals of	Written, verbal, or demonstration test

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	DET3.0,3.1, DET4.1-4.2- 4.3-4.4						Technology	
Understand and describe the basic system operation of both hydraulic and pneumatics systems	DET1.0-1.1- 1.2-1.3 DET2.0-2.14- 2.32, DET3.0,3.1, DET4.1-4.2- 4.3-4.4	TD-OPS 1, 2, 3 TD-SYS 1,2,3	L.9-10.3.a; L.9-10.6; L.11- 12.2.a-b; L.11-12.1a- b	MP1, MP2, MP3, MP4, MP5, MP6	B2, B4	A2, A5	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Understand and apply basic physical principals of mechanics	DET1.0-1.1- 1.2-1.3-1.8- 1.9-1.13- 1.14-DET2.0, DET3.0	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.9-10.6; L.11- 12.2.a-b;	MP1, MP2, MP4, MP5, MP6,	A5, B2, B4	A1, A2, A3, A6, A7	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Understand and identify the most commonly used hydraulic fluids	DET1.0-1.1- 1.2-1.3 DET2.0-2.14- 2.32, DET3.0,3.1, DET4.1-4.2- 4.3-4.4	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.9-10.6; L.11-12.2.a-b;	MP1, MP2, MP5, MP7	A5, B2	A2, A5, A6	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Understand and describe the structure and operation of a basic pump.	DET1.0-1.1- 1.2-1.3 DET2.0-2.14- 2.32, DET3.0,3.1, DET4.1-4.2- 4.3-4.4	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.9-10.6; L.11- 12.2.a-b	MP1, MP2, MP4, MP5, MP6, MP7	A5, B2	A2, A5, A6, B1	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Understand and identify hydraulic fluid storage and distribution components	DET1.0-1.1- 1.2-1.3 DET2.0-2.14- 2.32, DET3.0,3.1,	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.9-10.6; L.11- 12.2.a-b;	MP1, MP2, MP4, MP5,	A5, B2	A2, A5, A6, B1	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test

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	DET4.1-4.2-4.3-4.4							
Understand and identify the components of a pneumatic system	DET1.0-1.1-1.2-1.3-1.8-1.9-1.13-1.14-DET2.0, DET3.0-3.1-	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.9-10.6; L.11-12.2.a-b; SL.11-12.1.a-d	MP1, MP2, MP5, MP7	A5, B2	A2, A5, A6, B1	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Understand and identify the work performers of pneumatic systems	DET1.0-1.1-1.2-1.3-1.8-1.9-1.13-1.14-DET2.0, DET3.0-3.1-	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.11-12.2.a-b; SL.11-12.1.a-d	MP1, MP2, MP5, MP7	A5, B2, B4	A1, A2, A3, A6, A7	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Understand and describe the application of pneumatic power.	DET1.0-1.1-1.2-1.3-1.8-1.9-1.13-1.14-DET2.0, DET3.0-3.1-	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.9-10.6; L.11-12.2.a-b; SL.11-12.1.a-d	MP1, MP2, MP5, MP7	A5, B2, B4	A2, A5, A6, B1	Technical Production Skills, Principals of Technology	Written, verbal, or demonstration test
Investigate Careers in fluid power, research job opportunities in Alaska.	DET5.0	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.9-10.6; L.11-12.2.a-b	MP1, MP2, MP3, MP5	A5, B2	A2, A5, A6, B1	Business Planning, Community Issues, Finance	Written, verbal, or demonstration test
Demonstrate safe use of tools and equipment in the workplace.	DET1.0-1.1-1.2-1.3-1.8-1.9-1.13-1.14-	TD-HSE 1&2; CRP6, CRP8	L.9-10.3.a; L.9-10.6; L.11-12.2.a-b	MP1, MP2, MP3, MP5	A5, B2	A1, A2, A6, A7	Personal Work Habits, Labor, Health Safety and the environment	Classroom observation
Participate in CTSO (SkillsUSA, HOSA, BPA) practicing leadership skills.	DET1.0-1.1-1.2-1.3	TD-OPS 1, 2, TD-SYS 1, 3 CRP2, CRP8	L.9-10.3.a; L.9-10.6	MP1, MP2, MP3	A5, B2, B4	A1, A2, A3, A4, A5, A6, A7, B1	Personal Work Habits, Labor, Management,	Placement and participation in

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							Community Issues	competition
Learn, model and develop employability skills (punctuality, work ethic, integrity, honesty, etc).	DET1.0-1.1-1.2-1.3-DET5.0	TD-OPS 1, 2, TD-SYS 1, 3 CRP2	L.9-10.3.a; L.9-10.6	MP1, MP2, MP3, MP5, MP6, MP7, MP8	B2, B4	A1, A2, A3, A4, A5, A6, A7, B1, B2, B3, B4	Personal Work Habits, Management, Labor	Classroom Observation

Instructional Resources

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

Fluid Power, Hydraulics and Pneumatics (2nd Ed. ISBN: 978-1-60525-931-4)