

Valid Credentials: General Rules

Introduction

This document is designed to assist districts in implementing the requirements and in ensuring that PreK-12 educators are assigned to classes they are validly credentialed to teach. It identifies the credentials required for teaching specific courses. Teachers are to hold one of the credentials identified in this document for each course they teach.

Elementary Credentials

Courses in the elementary grade range, other than PE, do not appear in this document, because a general rule for elementary credentials applies to all such courses. The general rule for elementary credentials (i.e., Kindergarten-Primary (KP), Kindergarten-Elementary (KE), Elementary (EL), Early Childhood (EC), endorsements extending the grade range of EC credentials) allows the teachers who hold these credentials to teach any course within the relevant grade range. An exception to this rule is for those initially hired on or after July 1, 2013, to teach physical education. These teachers must be licensed in PE and are included in this document.

Community School Courses

Courses that are taught at a community school, with the exception of special education courses, can be taught by an educator who holds any issued teaching credential other than a Short Term Substitute license.

Special Education

For courses with student populations SE or SP, any teacher holding an education of the handicapped certificate (EH) or an intervention specialist license (IL or ES) can teach students—at the grade levels for which the teacher is certificated or licensed—with any disability.*

*Exceptions:

1. Any SE or SP course that is comprised of all hearing impaired students must be taught by someone certificated or licensed to teach hearing impaired students. This includes the following:
 - EH 196010, 196015, 196070 (grades K-12)
 - IL 196116 (grades P-12)
2. Any SE or SP course that is comprised of all visually impaired students must be taught by someone certificated or licensed to teach visually impaired students. This includes the following:
 - EH 196110 (grades K-12)
 - IL 196109 (grades P-12)

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176000 - Gas Metal Arc Welding	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CT - Career Technical (4-12)	170375 - Automation and Robotics		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommuncations		4 - 12
	CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12	
CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12	
CT - Career Technical (4-12)	171650 - Energy Science		4 - 12	
CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12	
CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176000 - Gas Metal Arc Welding	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12
	CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12
	CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12
	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommunications		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	171503 - Electronics		4 - 12
CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12	
CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12	
CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12	
CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12	
CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176000 - Gas Metal Arc Welding	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	VO - Vocational Education	170600 - Business Machine Maintenance		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	070302 - Practical Nurse		
	VO - Vocational Education	171002 - Electrical Trades		
	VO - Vocational Education	079950 - Practical Nurse Coordinator		
	VO - Vocational Education	070410 - Fitness Aide		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	070912 - Pharmacy Assisting		
	VO - Vocational Education	070203 - Medical Lab Assisting		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	010100 - Agriscience		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	172303 - Manufacturing Occupations		
VO - Vocational Education	171900 - Graphic Occupations			
VO - Vocational Education	172000 - Chemical Laboratory Assisting			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176000 - Gas Metal Arc Welding	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	171504 - Telecommuncations		
176001 - Shielded Metal Arc Welding	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommuncations		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12	
CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176001 - Shielded Metal Arc Welding	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12
	CW - Career Technical Workforce Development	171503 - Electronics		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommuncations		4 - 12
	CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12
CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12	
CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12	
CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12	
CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12	
CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176001 - Shielded Metal Arc Welding	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12
	DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171801 - Engineering Technology		
VO - Vocational Education	171802 - Manufacturing Engineering Technology			
VO - Vocational Education	171002 - Electrical Trades			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176001 - Shielded Metal Arc Welding	VO - Vocational Education	171504 - Telecommunications		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	170600 - Business Machine Maintenance		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	079950 - Practical Nurse Coordinator		
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	070410 - Fitness Aide		
	VO - Vocational Education	070912 - Pharmacy Assisting		
	VO - Vocational Education	070203 - Medical Lab Assisting		
	VO - Vocational Education	010100 - Agriscience		
VO - Vocational Education	070302 - Practical Nurse			
176002 - Flux Core Arc Welding	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176002 - Flux Core Arc Welding	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommuncations		4 - 12
	CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12
	CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12
CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12	
CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12	
CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12	
CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12	
CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176002 - Flux Core Arc Welding	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	171503 - Electronics		4 - 12
	CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
	CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12
	CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12
	CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommuncations		4 - 12
	DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12	
SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12	
VO - Vocational Education	173601 - Millwork and Cabinet Making			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176002 - Flux Core Arc Welding	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	171504 - Telecommuncations		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	171002 - Electrical Trades		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	170600 - Business Machine Maintenance		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	070410 - Fitness Aide		
	VO - Vocational Education	010100 - Agriscience		
	VO - Vocational Education	070912 - Pharmacy Assisting		
VO - Vocational Education	070302 - Practical Nurse			
VO - Vocational Education	079950 - Practical Nurse Coordinator			
VO - Vocational Education	070203 - Medical Lab Assisting			
176003 - Gas Tungsten Arc Welding	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176003 - Gas Tungsten Arc Welding	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommunications		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12
	CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12
	CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12
	CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12	
CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12	
CW - Career Technical Workforce Development	171503 - Electronics		4 - 12	
CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12	
CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176003 - Gas Tungsten Arc Welding	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommuncations		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12
	CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
	CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12
	CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
HS - High School (7-12)	130200 - Biological Science		7 - 12	
HS - High School (7-12)	110000 - Mathematics		7 - 12	
HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12	
HS - High School (7-12)	130000 - Comprehensive Science		7 - 12	
HS - High School (7-12)	101315 - Industrial Technology		7 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176003 - Gas Tungsten Arc Welding	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	171504 - Telecommuncations		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	171002 - Electrical Trades		
	VO - Vocational Education	170600 - Business Machine Maintenance		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
VO - Vocational Education	160610 - Technology Education			
VO - Vocational Education	070302 - Practical Nurse			
VO - Vocational Education	010100 - Agriscience			
VO - Vocational Education	070203 - Medical Lab Assisting			
VO - Vocational Education	070912 - Pharmacy Assisting			
VO - Vocational Education	079950 - Practical Nurse Coordinator			
VO - Vocational Education	070410 - Fitness Aide			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176004 - Machine Tools	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	171815 - Engineering Technologies-PLTW		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommunications		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12	
CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12	
CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12	
CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12	
CT - Career Technical (4-12)	170380 - Manufacturing Operations		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176004 - Machine Tools	CT - Career Technical (4-12)	170375 - Automation and Robotics		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommuncations		4 - 12
	CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12
	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	170375 - Automation and Robotics		4 - 12
	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12
	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12	
CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12	
CW - Career Technical Workforce Development	171503 - Electronics		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176004 - Machine Tools	CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12
	CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12
	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	171815 - Engineering Technologies-PLTW		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	171504 - Telecommuncations		
VO - Vocational Education	171503 - Electronics			
VO - Vocational Education	171403 - Motor Repair			
VO - Vocational Education	171402 - Power Transmission			
VO - Vocational Education	171300 - Drafting Occupations			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176004 - Machine Tools	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	079950 - Practical Nurse Coordinator		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	070912 - Pharmacy Assisting		
	VO - Vocational Education	070410 - Fitness Aide		
	VO - Vocational Education	070302 - Practical Nurse		
	VO - Vocational Education	070203 - Medical Lab Assisting		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	010100 - Agriscience		
	VO - Vocational Education	170380 - Manufacturing Operations		
	VO - Vocational Education	171002 - Electrical Trades		
176005 - Machining with Industrial Lathes	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176005 - Machining with Industrial Lathes	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommuncations		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12
	CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12	
CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12	
CW - Career Technical Workforce Development	171504 - Telecommuncations		4 - 12	
CW - Career Technical Workforce Development	171503 - Electronics		4 - 12	
CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176005 - Machining with Industrial Lathes	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12
	CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
	CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12
	CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12
	DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
VO - Vocational Education	172304 - Heavy Metal Fabrication			
VO - Vocational Education	172302 - Precision Machining			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176005 - Machining with Industrial Lathes	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	171504 - Telecommuncations		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	171002 - Electrical Trades		
	VO - Vocational Education	170600 - Business Machine Maintenance		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	079950 - Practical Nurse Coordinator		
	VO - Vocational Education	070912 - Pharmacy Assisting		
	VO - Vocational Education	070410 - Fitness Aide		
	VO - Vocational Education	070302 - Practical Nurse		
	VO - Vocational Education	070203 - Medical Lab Assisting		
VO - Vocational Education	010100 - Agriscience			
176006 - Machining with Industrial Milling Machines	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176006 - Machining with Industrial Milling Machines	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommuncations		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12
	CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12
	CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12
	CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12	
CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12	
CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12	
CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12	
CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176006 - Machining with Industrial Milling Machines	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommuncations		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	171503 - Electronics		4 - 12
	CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12
	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12
	CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
	CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12
	CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12
	DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12	
SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12	
SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176006 - Machining with Industrial Milling Machines	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	171504 - Telecommuncations		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	171002 - Electrical Trades		
	VO - Vocational Education	170600 - Business Machine Maintenance		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	079950 - Practical Nurse Coordinator		
	VO - Vocational Education	070912 - Pharmacy Assisting		
	VO - Vocational Education	070410 - Fitness Aide		
VO - Vocational Education	070302 - Practical Nurse			
VO - Vocational Education	070203 - Medical Lab Assisting			
VO - Vocational Education	010100 - Agriscience			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176007 - Computer Numerical Control Technology with Industrial Mills and Lathes	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommuncations		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12	
CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12	
CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12	
CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12	
CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176007 - Computer Numerical Control Technology with Industrial Mills and Lathes	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12
	CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommunications		4 - 12
	CW - Career Technical Workforce Development	171503 - Electronics		4 - 12
	CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12
	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12
	CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12
	CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12	
CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12	
CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12	
DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176007 - Computer Numerical Control Technology with Industrial Mills and Lathes	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	171504 - Telecommuncations		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	171002 - Electrical Trades		
VO - Vocational Education	170600 - Business Machine Maintenance			
VO - Vocational Education	170375 - Automation and Robotics			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176007 - Computer Numerical Control Technology with Industrial Mills and Lathes	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	079950 - Practical Nurse Coordinator		
	VO - Vocational Education	070912 - Pharmacy Assisting		
	VO - Vocational Education	070410 - Fitness Aide		
	VO - Vocational Education	070302 - Practical Nurse		
	VO - Vocational Education	070203 - Medical Lab Assisting		
	VO - Vocational Education	010100 - Agriscience		
176008 - Manufacturing Capstone	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12	
CT - Career Technical (4-12)	171650 - Energy Science		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176008 - Manufacturing Capstone	CT - Career Technical (4-12)	171504 - Telecommunications		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12
	CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12
	CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12
	CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
	CT - Career Technical (4-12)	010100 - Agriscience		4 - 12
	CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommunications		4 - 12
	CW - Career Technical Workforce Development	171503 - Electronics		4 - 12
	CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12
	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12	
CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12	
CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12	
CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12	
CW - Career Technical Workforce Development	170375 - Automation and Robotics		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176008 - Manufacturing Capstone	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
	CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12
	CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12
	CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12
	DS (K-12) - Designated Subject (Grades K-12)	132160 - Physical Science/Physics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132150 - Physical Science/Chemistry		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132040 - Earth Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132030 - Life Sciences		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	132010 - Integrated Science		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	110094 - Integrated Mathematics		KG - 12
	DS (K-12) - Designated Subject (Grades K-12)	101315 - Industrial Technology		KG - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
VO - Vocational Education	171801 - Engineering Technology			
VO - Vocational Education	171504 - Telecommuncations			
VO - Vocational Education	171503 - Electronics			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176008 - Manufacturing Capstone	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	171002 - Electrical Trades		
	VO - Vocational Education	170600 - Business Machine Maintenance		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	079950 - Practical Nurse Coordinator		
	VO - Vocational Education	070912 - Pharmacy Assisting		
	VO - Vocational Education	070410 - Fitness Aide		
	VO - Vocational Education	070302 - Practical Nurse		
	VO - Vocational Education	070203 - Medical Lab Assisting		
	VO - Vocational Education	010100 - Agriscience		
176009 - Welding Technologies	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132150 - Physical Science/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132046 - Earth Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132045 - Earth Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132040 - Earth Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132036 - Life Sci/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132035 - Life Sci/Physics		7 - 12
	AD - Adolescence to Young Adult (7-12)	132034 - Life Sciences/Earth		7 - 12
	AD - Adolescence to Young Adult (7-12)	132030 - Life Sciences		7 - 12
	AD - Adolescence to Young Adult (7-12)	132020 - Physical Science/Physics/Chemistry		7 - 12
	AD - Adolescence to Young Adult (7-12)	132010 - Integrated Science		7 - 12
	AD - Adolescence to Young Adult (7-12)	110094 - Integrated Mathematics		7 - 12
	AD - Adolescence to Young Adult (7-12)	101315 - Industrial Technology		7 - 12
	CH - Comprehensive High School (7-12)	130410 - Earth Science (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130322 - Physics (9-12)		9 - 12
	CH - Comprehensive High School (7-12)	130312 - Chemistry (9-12)		7 - 12
	CH - Comprehensive High School (7-12)	130302 - Physics		7 - 12
	CH - Comprehensive High School (7-12)	130300 - Physical Science		7 - 12
	CH - Comprehensive High School (7-12)	130205 - Biological Science (9-12)		7 - 12
	CT - Career Technical (4-12)	173601 - Millwork and Cabinet Making		4 - 12
	CT - Career Technical (4-12)	173100 - Power Equipment Technology		4 - 12
	CT - Career Technical (4-12)	172700 - Plastics Occupations		4 - 12
	CT - Career Technical (4-12)	172307 - Tool and Die Making		4 - 12
	CT - Career Technical (4-12)	172305 - Sheet Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172304 - Heavy Metal Fabrication		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176009 - Welding Technologies	CT - Career Technical (4-12)	172004 - Industrial Lab Assisting		4 - 12
	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171900 - Graphic Occupations		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommuncations		4 - 12
	CT - Career Technical (4-12)	171403 - Motor Repair		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	171200 - Medium/Heavy Truck Technician		4 - 12
	CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12
	CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12
	CT - Career Technical (4-12)	170802 - Marine Maintenance		4 - 12
	CT - Career Technical (4-12)	171815 - Engineering Technologies-PLTW		4 - 12
	CT - Career Technical (4-12)	170801 - Maritime Occupations		4 - 12
	CT - Career Technical (4-12)	170600 - Business Machine Maintenance		4 - 12
	CT - Career Technical (4-12)	170403 - Ground Operations		4 - 12
	CT - Career Technical (4-12)	170401 - Aircraft Maintenance		4 - 12
	CT - Career Technical (4-12)	170400 - Aviation Occupations		4 - 12
	CT - Career Technical (4-12)	170380 - Manufacturing Operations		4 - 12
	CT - Career Technical (4-12)	170375 - Automation and Robotics		4 - 12
	CT - Career Technical (4-12)	170303 - Auto Specialization		4 - 12
	CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12
	CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12
	CT - Career Technical (4-12)	170302 - Automotive Technology		4 - 12
	CT - Career Technical (4-12)	170301 - Auto Collision Repair		4 - 12
	CT - Career Technical (4-12)	170200 - Appliance Repair		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	079950 - Practical Nurse Coordinator		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CT - Career Technical (4-12)	070912 - Pharmacy Assisting		4 - 12
	CT - Career Technical (4-12)	070410 - Fitness Aide		4 - 12
	CT - Career Technical (4-12)	070302 - Practical Nurse		4 - 12
	CT - Career Technical (4-12)	070203 - Medical Lab Assisting		4 - 12
CT - Career Technical (4-12)	010300 - Agricultural Industrial Equipment		4 - 12	
CT - Career Technical (4-12)	010100 - Agriscience		4 - 12	
CW - Career Technical Workforce Development	173601 - Millwork and Cabinet Making		4 - 12	
CW - Career Technical Workforce Development	173100 - Power Equipment Technology		4 - 12	
CW - Career Technical Workforce Development	172700 - Plastics Occupations		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176009 - Welding Technologies	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172305 - Sheet Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172304 - Heavy Metal Fabrication		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	172004 - Industrial Lab Assisting		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12
	CW - Career Technical Workforce Development	171503 - Electronics		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommuncations		4 - 12
	CW - Career Technical Workforce Development	171403 - Motor Repair		4 - 12
	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	171200 - Medium/Heavy Truck Technician		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12
	CW - Career Technical Workforce Development	171900 - Graphic Occupations		4 - 12
	CW - Career Technical Workforce Development	170802 - Marine Maintenance		4 - 12
	CW - Career Technical Workforce Development	170801 - Maritime Occupations		4 - 12
	CW - Career Technical Workforce Development	170600 - Business Machine Maintenance		4 - 12
	CW - Career Technical Workforce Development	170403 - Ground Operations		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	170401 - Aircraft Maintenance		4 - 12
	CW - Career Technical Workforce Development	170400 - Aviation Occupations		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	170375 - Automation and Robotics		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	170303 - Auto Specialization		4 - 12
	CW - Career Technical Workforce Development	170302 - Automotive Technology		4 - 12
	CW - Career Technical Workforce Development	170301 - Auto Collision Repair		4 - 12
	CW - Career Technical Workforce Development	170200 - Appliance Repair		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	079950 - Practical Nurse Coordinator		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	070912 - Pharmacy Assisting		4 - 12
CW - Career Technical Workforce Development	070410 - Fitness Aide		4 - 12	
CW - Career Technical Workforce Development	070302 - Practical Nurse		4 - 12	
CW - Career Technical Workforce Development	070203 - Medical Lab Assisting		4 - 12	
CW - Career Technical Workforce Development	010300 - Agricultural Industrial Equipment		PS - 12	
	DS (4-12) - Designated Subject (4-12)	132160 - Physical Science/Physics		4 - 12

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176009 - Welding Technologies	DS (4-12) - Designated Subject (4-12)	132150 - Physical Science/Chemistry		4 - 12
	DS (4-12) - Designated Subject (4-12)	132040 - Earth Sciences		4 - 12
	DS (4-12) - Designated Subject (4-12)	132030 - Life Sciences		4 - 12
	DS (4-12) - Designated Subject (4-12)	132010 - Integrated Science		4 - 12
	DS (4-12) - Designated Subject (4-12)	110094 - Integrated Mathematics		4 - 12
	DS (4-12) - Designated Subject (4-12)	101315 - Industrial Technology		4 - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		KG - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		KG - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		KG - 12
	VO - Vocational Education	173100 - Power Equipment Technology		
	VO - Vocational Education	172700 - Plastics Occupations		
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172306 - Welding and Cutting		
	VO - Vocational Education	172305 - Sheet Metal Fabrication		
	VO - Vocational Education	172304 - Heavy Metal Fabrication		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	172004 - Industrial Lab Assisting		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171900 - Graphic Occupations		
	VO - Vocational Education	171808 - Engineering Technologies-Process		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	171403 - Motor Repair		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	171200 - Medium/Heavy Truck Technician		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
VO - Vocational Education	171002 - Electrical Trades			
VO - Vocational Education	171504 - Telecommuncations			
VO - Vocational Education	171815 - Engineering Technologies-PLTW			

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176009 - Welding Technologies	VO - Vocational Education	170802 - Marine Maintenance		
	VO - Vocational Education	170801 - Maritime Occupations		
	VO - Vocational Education	170600 - Business Machine Maintenance		
	VO - Vocational Education	170403 - Ground Operations		
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	170401 - Aircraft Maintenance		
	VO - Vocational Education	170400 - Aviation Occupations		
	VO - Vocational Education	170380 - Manufacturing Operations		
	VO - Vocational Education	170375 - Automation and Robotics		
	VO - Vocational Education	170303 - Auto Specialization		
	VO - Vocational Education	170302 - Automotive Technology		
	VO - Vocational Education	170301 - Auto Collision Repair		
	VO - Vocational Education	170200 - Appliance Repair		
	VO - Vocational Education	173601 - Millwork and Cabinet Making		
	VO - Vocational Education	170100 - Air Conditioning and Heating		
	VO - Vocational Education	160610 - Technology Education		
	VO - Vocational Education	079950 - Practical Nurse Coordinator		
	VO - Vocational Education	070912 - Pharmacy Assisting		
	VO - Vocational Education	070410 - Fitness Aide		
	176010 - Principles of Manufacturing	AD - Adolescence to Young Adult (7-12)	132160 - Physical Science/Physics	
AD - Adolescence to Young Adult (7-12)		132150 - Physical Science/Chemistry		7 - 12
AD - Adolescence to Young Adult (7-12)		132046 - Earth Sci/Chemistry		7 - 12
AD - Adolescence to Young Adult (7-12)		132045 - Earth Sci/Physics		7 - 12
AD - Adolescence to Young Adult (7-12)		132040 - Earth Sciences		7 - 12
AD - Adolescence to Young Adult (7-12)		132036 - Life Sci/Chemistry		7 - 12
AD - Adolescence to Young Adult (7-12)		132035 - Life Sci/Physics		7 - 12
AD - Adolescence to Young Adult (7-12)		132034 - Life Sciences/Earth		7 - 12
AD - Adolescence to Young Adult (7-12)		132030 - Life Sciences		7 - 12
AD - Adolescence to Young Adult (7-12)		132020 - Physical Science/Physics/Chemistry		7 - 12
AD - Adolescence to Young Adult (7-12)		132010 - Integrated Science		7 - 12
AD - Adolescence to Young Adult (7-12)		110094 - Integrated Mathematics		7 - 12
AD - Adolescence to Young Adult (7-12)		101315 - Industrial Technology		7 - 12
CH - Comprehensive High School (7-12)		130410 - Earth Science (9-12)		7 - 12
CH - Comprehensive High School (7-12)		130322 - Physics (9-12)		9 - 12
CH - Comprehensive High School (7-12)		130312 - Chemistry (9-12)		7 - 12
CH - Comprehensive High School (7-12)		130302 - Physics		7 - 12
CH - Comprehensive High School (7-12)		130300 - Physical Science		7 - 12
CH - Comprehensive High School (7-12)		130205 - Biological Science (9-12)		7 - 12
CT - Career Technical (4-12)		172307 - Tool and Die Making		4 - 12
CT - Career Technical (4-12)	172306 - Welding and Cutting		4 - 12	
CT - Career Technical (4-12)	172302 - Precision Machining		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176010 - Principles of Manufacturing	CT - Career Technical (4-12)	172000 - Chemical Laboratory Assisting		4 - 12
	CT - Career Technical (4-12)	171815 - Engineering Technologies-PLTW		4 - 12
	CT - Career Technical (4-12)	171808 - Engineering Technologies-Process		4 - 12
	CT - Career Technical (4-12)	171807 - Engineering Technologies-Design		4 - 12
	CT - Career Technical (4-12)	171802 - Manufacturing Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171809 - Engineering Technologies-Product/Service		4 - 12
	CT - Career Technical (4-12)	172303 - Manufacturing Occupations		4 - 12
	CT - Career Technical (4-12)	171801 - Engineering Technology		4 - 12
	CT - Career Technical (4-12)	171650 - Energy Science		4 - 12
	CT - Career Technical (4-12)	171504 - Telecommuncations		4 - 12
	CT - Career Technical (4-12)	171503 - Electronics		4 - 12
	CT - Career Technical (4-12)	171402 - Power Transmission		4 - 12
	CT - Career Technical (4-12)	171300 - Drafting Occupations		4 - 12
	CT - Career Technical (4-12)	171012 - Industrial Maintenance and Repair		4 - 12
	CT - Career Technical (4-12)	171002 - Electrical Trades		4 - 12
	CT - Career Technical (4-12)	170380 - Manufacturing Operations		4 - 12
	CT - Career Technical (4-12)	170375 - Automation and Robotics		4 - 12
	CT - Career Technical (4-12)	170100 - Air Conditioning and Heating		4 - 12
	CT - Career Technical (4-12)	160610 - Technology Education		4 - 12
	CT - Career Technical (4-12)	074850 - Biotechnology		4 - 12
	CW - Career Technical Workforce Development	172306 - Welding and Cutting		4 - 12
	CW - Career Technical Workforce Development	172303 - Manufacturing Occupations		4 - 12
	CW - Career Technical Workforce Development	172302 - Precision Machining		4 - 12
	CW - Career Technical Workforce Development	172000 - Chemical Laboratory Assisting		4 - 12
	CW - Career Technical Workforce Development	171815 - Engineering Technologies-PLTW		4 - 12
	CW - Career Technical Workforce Development	171809 - Engineering Technologies-Product/Service		4 - 12
	CW - Career Technical Workforce Development	171808 - Engineering Technologies-Process		4 - 12
	CW - Career Technical Workforce Development	171807 - Engineering Technologies-Design		4 - 12
	CW - Career Technical Workforce Development	171802 - Manufacturing Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171801 - Engineering Technology		4 - 12
	CW - Career Technical Workforce Development	171650 - Energy Science		4 - 12
	CW - Career Technical Workforce Development	172307 - Tool and Die Making		4 - 12
	CW - Career Technical Workforce Development	171504 - Telecommuncations		4 - 12
	CW - Career Technical Workforce Development	171503 - Electronics		4 - 12
	CW - Career Technical Workforce Development	171402 - Power Transmission		4 - 12
	CW - Career Technical Workforce Development	171300 - Drafting Occupations		4 - 12
	CW - Career Technical Workforce Development	171012 - Industrial Maintenance and Repair		4 - 12
	CW - Career Technical Workforce Development	171002 - Electrical Trades		4 - 12
	CW - Career Technical Workforce Development	170380 - Manufacturing Operations		4 - 12
	CW - Career Technical Workforce Development	170375 - Automation and Robotics		4 - 12
	CW - Career Technical Workforce Development	170100 - Air Conditioning and Heating		4 - 12
	CW - Career Technical Workforce Development	074850 - Biotechnology		4 - 12
DS (4-12) - Designated Subject (4-12)	132160 - Physical Science/Physics		4 - 12	
DS (4-12) - Designated Subject (4-12)	132150 - Physical Science/Chemistry		4 - 12	
DS (4-12) - Designated Subject (4-12)	132040 - Earth Sciences		4 - 12	

Manufacturing Technologies (Career-Technical)

SUBJECT	CREDENTIAL	TEACHING FIELD/ENDORSEMENT	ADDITIONAL TEACHING FIELD/ENDORSEMENT	GRADES
176010 - Principles of Manufacturing	DS (4-12) - Designated Subject (4-12)	132030 - Life Sciences		4 - 12
	DS (4-12) - Designated Subject (4-12)	132010 - Integrated Science		4 - 12
	DS (4-12) - Designated Subject (4-12)	110094 - Integrated Mathematics		4 - 12
	DS (4-12) - Designated Subject (4-12)	101315 - Industrial Technology		4 - 12
	HS - High School (7-12)	130400 - Earth Sciences		7 - 12
	HS - High School (7-12)	130302 - Physics		7 - 12
	HS - High School (7-12)	130301 - Chemistry		7 - 12
	HS - High School (7-12)	130200 - Biological Science		7 - 12
	HS - High School (7-12)	130000 - Comprehensive Science		7 - 12
	HS - High School (7-12)	110000 - Mathematics		7 - 12
	HS - High School (7-12)	102000 - Ind.Arts 7-12		7 - 12
	HS - High School (7-12)	101315 - Industrial Technology		7 - 12
	HS - High School (7-12)	100000 - Gen Ind Techn (Gen)		7 - 12
	SP - Special All Grades (K-12)	130302 - Physics		7 - 12
	SP - Special All Grades (K-12)	130301 - Chemistry		7 - 12
	SP - Special All Grades (K-12)	110000 - Mathematics		7 - 12
	SP - Special All Grades (K-12)	102000 - Ind.Arts 7-12		7 - 12
	SP - Special All Grades (K-12)	101320 - Industrial Technology		K - 12
	SP - Special All Grades (K-12)	101315 - Industrial Technology		7 - 12
	SP - Special All Grades (K-12)	100005 - Indust. Arts K-12		K - 12
	SP - Special All Grades (K-12)	100000 - Gen Ind Techn (Gen)		K - 12
	VO - Vocational Education	172307 - Tool and Die Making		
	VO - Vocational Education	172306 - Welding and Cutting		4 - 12
	VO - Vocational Education	172302 - Precision Machining		
	VO - Vocational Education	172000 - Chemical Laboratory Assisting		
	VO - Vocational Education	171815 - Engineering Technologies-PLTW		
	VO - Vocational Education	172303 - Manufacturing Occupations		
	VO - Vocational Education	171802 - Manufacturing Engineering Technology		
	VO - Vocational Education	171801 - Engineering Technology		
	VO - Vocational Education	171504 - Telecommuncations		
	VO - Vocational Education	171503 - Electronics		
	VO - Vocational Education	171402 - Power Transmission		
	VO - Vocational Education	171300 - Drafting Occupations		
	VO - Vocational Education	171012 - Industrial Maintenance and Repair		
	VO - Vocational Education	171002 - Electrical Trades		
	VO - Vocational Education	170380 - Manufacturing Operations		
VO - Vocational Education	170375 - Automation and Robotics			
VO - Vocational Education	170100 - Air Conditioning and Heating			
VO - Vocational Education	160610 - Technology Education		4 - 12	