CTE Self-Study Report

Manufacturing Technology

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Self-study

> *Self-study is the first step in the career and technical education approval process. The self-study review is required for all existing programs and new programs seeking approval. Its purpose is to bring together partners to review the CTE program, propose relevant modifications, and evaluate the degree to which the program meets the policy requirements approved by the Board of Regents on February 6, 2001.*

Self-study review will include:

- Curriculum review
- Benchmarks for student performance and student assessment
- Teacher certification and highly-qualified status of instructional staff
- Work-based learning opportunities
- Teacher and student schedules
- Resources, including staff, facilities, and equipment
- Accessibility for all students
- Work skills employability profile
- Professional development plans
- Projected number of students to be served

Source: http://www.p12.nysed.gov/cte/ctepolicy/guide.html

Return to TOC

SCSD Manufacturing Technology Program Employment Outlook

Manufacturing Occupations

Employment in production occupations is projected to show little or no change, with a loss of about 39,000 jobs from 2020 to 2030. Technological advancements are expected to continue to replace many of the manufacturing workers that make up a large share of the production occupations. Fewer workers are expected to be needed in the manufacturing sector as many processes have become computer-controlled.

The median annual wage for production occupations was $37,440 in May 2020, which was lower than the median annual wage for all occupations of $41,950.

New York State Employment Outlook

Occupational Title	SOC Code	Employment, 2020	Projected Employment, 2030	Change, 2020-30	
				Percent	Numeric
Machinists	51-4041	363,000	391,800	8	29,700
Tool and die makers	51-4111	62,300	63,300	2	900
Cutting, punching, and press machine setters, operators, and tenders, metal and plastic	51-4031	182,000	177,500	-2	-4500
Drilling and boring machine tool setters, operators, and tenders, metal and plastic	51-4032	9,100	77,700	-15	-1,400
Grinding, lapping, polishing, and buffing machine tool setters, operators, and tenders, metal and plastic	51-4033	69,400	67,100	-3	-2,300
Lathe and turning machine tool setters, operators, and tenders, metal and plastic	51-4034	23,700	22,700	-4	-1,000
Molding, coremaking, and casting machine setters, operators, and tenders, metal and plastic	51-4072	157,700	148,200	-6	-9,600
Welding, soldering, and brazing machine setters, operators, and tenders	51-4122	35,100	34,700	-1	-300
Computer numerically controlled tool operators	51-9161	158,400	154,500	-2	-3,900
Computer numerically controlled tool programmers	51-9162	27,100	34,500	27	7,400
Aircraft structure, surfaces, rigging, and systems assemblers	51-2011	37,800	31,700	-16	-6,000

Electrical, electronic, and electromechanical assemblers, except coil winders, tapers, and finishers	51-2028	284,800	304,400	7	19,500
Engine and other machine assemblers	51-2031	43,700	38,500	-12	-5,100
Structural metal fabricators and fitters	51-2041	70,000	62,000	-11	-8,000
Miscellaneous assemblers and fabricators	51-2090	1,262,800	1,178,200	-7	-84,600

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, on the Internet at *https://www.bls.gov/ooh/ visited February 16, 2022)*

A. Curriculum Review

> *The curriculum review is a step in the self-study process. It is an opportunity for members of the self-study team to evaluate the proposed curriculum for completeness in terms of the knowledge, skills, and competencies required in the program field. The team reviews the curriculum to ensure that course content in the career and technical education program meets State Education Department regulations, contributes to achievement of state and industry standards, and prepares students for successful completion of a technical assessment. Approved curriculum content is nonduplicative, challenging, organized along a continuum of difficulty, and free of bias.*
>
> *CTE program approval does not constitute Department approval or endorsement of proprietary curriculum or related curriculum products. Program approval indicates only that a school district or BOCES has provided the Department with assurances that the curriculum review has been completed.*

Process

- The school district or BOCES identifies the faculty members and other individuals who will be involved in conducting the curriculum review
- The school district or BOCES determines the procedures used in completing the curriculum review
- Reviewers confirm that CTE program content aligns with state CDOS standards, relevant state academic standards, and related business and industry standards
- Reviewers confirm that CTE program content includes integrated or specialized units of credit
- Reviewers confirm that the CTE program meets unit of credit and other distributive requirements

Documentation

Documentation of the curriculum review is maintained by the school district or BOCES and is updated whenever modifications are made to the approved CTE program. Recommendations from curricular review should be included in the self-study report and reviewed by the external committee.

Resources
New York State graduation requirements
http://www.emsc.nysed.gov/part100/pages/1005.html

Syracuse City School District
Career and Technical Education Program
Manufacturing Technology and Pre-Apprenticeship Program

Pathway Overview

Career Field

Manufacturing jobs are growing at the fastest rate in 23 years. Manufacturers are paying high hourly wages and highly valued benefits. They use tools and machines to make engines, computers, aircraft, ships, boats, toys, electronic devices, control panels, and more. Computer-controlled machine tools are used to produce precision metal parts, instruments, and tools. Apprenticeships focus on training for a specific career as students learn the trade by actually doing the job. Apprentices gain hands-on experience and have the opportunity to apply job skills while getting paid.

Career Pathway Opportunities

- Assembler
- Automation Technician
- CNC Operator
- Forklift Operator
- Injection Molding Technician
- Machinist
- Maintenance Mechanic
- Material Handler
- Mechanical Technician
- Metal and Plastic Machine Operator
- Milling Machine Operator
- Quality Assurance Auditor
- Quality Control Inspector
- Tool and Die Maker
- Testing Technician

Program

The Manufacturing Technology and Pre-Apprenticeship program will prepare students at the high school level to be considered as first in line for a Registered Apprenticeship as an Industrial Manufacturing Technician. Students will receive over 600 hours of classroom instruction in addition to at least 100 hours of on-the-job training in the manufacturing field of their choice. Students will receive assistance in matching up their interests and skills to a specific manufacturing career and will learn basic technical and career readiness skills that will prepare them for full apprenticeship. Students will participate in a variety of work-based learning activities including professional career coaching from one of over 45 local business partners, workplace visits, job shadowing, part-time school year and full-time summer internships, and paid pre-apprenticeship positions, with transportation arranged by SCSD.

Certification

- Regents Diploma with CTE Technical Endorsement
- OSHA Safety Certification
- Eligibility to take employer-based Manufacturing Skill Standards Council (MSSC) Certified Product Technician (CPT) Assessments in Safety, Quality Practices and Measurement, Manufacturing Processes and Production, and Maintenance Awareness.
- Other Relevant Certifications

Program Benefits

- Paid internship while attaining High School Diploma.
- Potential for a full paid apprenticeship immediately upon graduation.
- Increased academic success.
- Possible college tuition assistance from employers.
- Learning valuable skills and experience in a chosen industry.
- Participation in summer enrichment and additional educational resources.

Integrated Academics

1 CTE Integrated ELA Credit
1 CTE Integrated Math Credit

Equipment and Supplies

- **School will provide:** Textbook, up-to-date shop tools, supplies and safety equipment, transportation for all program-related activities
- **Student will provide:** Work boots or safety shoes (steel/composite toe preferred), long work pants.

Competencies

This Pathway curriculum includes eleven competencies identified in collaboration with the Manufacturers Association of Central New York and representatives of local business and industry.

For each topic within the competencies, the level at which each learning target is introduced is indicated by a ✓.

The key learning targets are aligned with the Work Standards of the Manufacturing Skill Standards Council (MSSC) required for certification as a Certified Product Technician (CPT) in the areas of:

- Safety ➔ CPT-S
- Quality Practices and Measurement ➔ CPT-QPM
- Manufacturing Processes and Production ➔ CPT-MPP
- Maintenance Awareness ➔ CPT-MA

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competencies	Topics	
Career Readiness and Communication	• Communication Skills • Teamwork, Collaboration and Leadership Skills • Conflict Resolution Skills	• Positive Work Ethic • Career Exploration and Planning • Personal Finance
Safety	• General Safety • OSHA 10 • Personal Protective Equipment (PPE) • Lockout Tagout	• Machine Guarding • Hazardous Chemicals and Safety Data Sheets • Hand and Power Tool Safety
Mathematics	• Mathematical Computation • Algebra, Geometry and Trigonometry	• Statistics • Mathematics in Manufacturing
Measurement	• Measurement Fundamentals • Tolerance • Torque • Steel Rule	• Micrometer • Caliper • Height Gage • Go/No Go Gage
Print Reading	• Prints, Diagrams, and Schematics	• Assembly Drawings
Materials	• Properties of Materials • Metals	• Plastics and Polymers • Ceramics and Glass
Material Handling	• Fundamentals of Hydraulics and Pneumatics • Fork Lift/PIT (Power Industrial Truck) Operation	• Lifting and Moving Devices • Rigging
Foundations of Manufacturing	• Trends and Technologies in Manufacturing • Lean Manufacturing Principles • Six Sigma Principles	• Basic Mechanical Systems • Machine Care and Maintenance (TPM: Total Productive Maintenance)
Assembly	• Basic Tool Use • Fasteners	• Basic Assembly Skills • Quality Control
Manufacturing Processes	• Soldering • Welding • Fundamentals of Machine Tools • Drill Presses	• Milling Machines • Grinding Tools • Lathes • CNC (Computer Numerical Control) Tools
Electrical Systems	• Basic Electrical Components • Electrical Safety	• Electrical Measurement and Measuring Instruments • Electrical Testing and Troubleshooting

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Crosswalk to NYS Department of Labor Industrial Manufacturing Technician

INDUSTRIAL MANUFACTURING TECHNICIAN Appendix B: Related Instruction	PRE-APPRENTICESHIP CURRICULUM	
	Competencies	**Topics**
Safety, Health and the Workplace		
General Workplace Safety	Safety	General Safety
First Aid & CPR	Safety	General Safety
Personal Protective Equipment (PPE)	Safety	Personal Protective Equipment
Right-to-Know/Safety Data Sheets (SDS)	Safety	Hazardous Chemicals and Safety Data Sheets
Asbestos Awareness	Safety	Hazardous Chemicals and Safety Data Sheets
Lockout/Tagout (LO/TO)	Safety	Lockout Tagout
Sexual Harassment Prevention Training	Safety	General Safety
OSHA 10-Hour General Industry	Safety	OSHA 10
Trade Theory and Skills		
Quality Practices & Measurement Module	Measurement	Measurement Fundamentals
Computer Fundamentals	Career Readiness and Communication	Career Exploration and Planning
Technical Drawings	Print Reading	Prints, Diagrams and Schematics
Trade Math	Mathematics	Mathematics in Manufacturing
Geometrical Dimensioning & Tolerancing	Measurement	Tolerance
Metrology	Measurement	Measurement Fundamentals
Manufacturing Production & Processes Module	Manufacturing Processes	Fundamentals of Machine Tools
Maintenance Awareness Module	Foundations of Manufacturing	Machine Care and Maintenance
Lean Manufacturing	Foundations of Manufacturing	Lean Manufacturing Principles
Tools & Equipment: Proper Care & Use	Assembly	Basic Tool Use
Emerging Trends and Technologies in Manufacturing	Foundations of Manufacturing	Trends and Technologies in Manufacturing.
Workplace Communications	Career Readiness and Communication	Communication Skills
Welding	Manufacturing Processes	Welding
Fundamentals of Mechanical Concepts	Foundations of Manufacturing	Basic Mechanical Systems
Fundamentals of Hydraulics and Pneumatics	Material Handling	Fundamentals of Hydraulics and Pneumatics

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Career Readiness and Communication

Topics:

- **Communication Skills**
- **Teamwork, Collaboration and Leadership Skills**
- **Conflict Resolution Skills**
- **Positive Work Ethic**
- **Career Exploration and Planning**
- **Personal Finance**

Key Questions	• What is the best way to communicate ideas clearly and succinctly? • How does worker convey professionalism in the workplace? • What skills and preparation are needed to pursue a career in manufacturing technology? • Why are successful job-seeking skills required in a competitive marketplace? • What are the qualities of a team player? • How can an individual be fiscally responsible?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 1,2,3,4,6,7,8,9,10	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,3,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,3,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 1,2,4,5	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 1,2,4,5	**Math** 7.EE.3 F-LE.1 A-SSE.1b	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
COMMUNICATION SKILLS (CPT-S)				
• Use effective oral and written communication skills, including use of word processing programs and email.	✓			
• Provide and comprehend directions or instructions.	✓			
• Give and respond to oral and written reports or presentations.	✓			
• Participate in group or team discussions.	✓			
• Engage in effective conversations with coworkers, supervisors, and clients.	✓			
• Maintain a professional tone in all communications.	✓			
• Avoid use of personal electronic devices during work hours and remain focused on the task at hand.	✓			
TEAMWORK, COLLABORATION AND LEADERSHIP SKILLS (CPT-S)				
• Explain the importance of teamwork to the overall operation of the business.	✓			
• Communicate effectively with other team members using a variety of methods (verbal, written, electronic).	✓			
• Collaborate with team members to solve problems and improve processes.	✓			
• Consider the group's success and not just individual achievement.	✓			
• Look for ways to help team members and recognize them for their contributions.	✓			
• Let team members know what is needed to get the job done.	✓			

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Provide clear documentation of assignments, goals, and timelines.	✓			
• Accept personal responsibility for successes and challenges on the job.	✓			
CONFLICT RESOLUTION SKILLS				
• Analyze and compare conflict resolution styles and explore successful methods of dealing with conflict.	✓			
• Facilitate positive and rational discussion in a non-threatening environment.	✓			
• Demonstrate the importance of language and tone in conveying one's point of view and how to use re-phrasing techniques for effective communication.	✓			
• Explain how listening is a form of respect and a tool for successful conflict resolution.	✓			
• Develop the ability to set aside emotions and take responsibility for one's role in conflict.	✓			
• Collaborate and negotiate mutually acceptable solutions.	✓			
• Participate in Career Coaching sessions to improve employability skills.	✓			
POSITIVE WORK ETHIC				
• Accept personal responsibility for work quality.	✓			
• Exhibit professional practices, including good habits of personal hygiene and appropriate dress.	✓			
• Cooperate in a pleasant and polite manner with clients, coworkers, and supervisors.	✓			
• Take directions willingly and follow instructions precisely.	✓			
• Follow established practices and procedures with exactness.	✓			
• Work without constant supervision.	✓			
• Find tasks to perform on one's own.	✓			
• Complete assigned tasks with in a timely manner and with a high degree of workmanship.	✓			
• Exhibit willingness to learn.	✓			
• Exhibit interest in making the organization more effective and productive.	✓			
• Maintain work standards in the midst of change.	✓			
• Exhibit flexibility and adaptability.	✓			
• Explain the importance of satisfactory attendance to the overall operation of the business.	✓			
• Limit tardiness, early departures, and absences to legitimate and essential occasions.	✓			
• Negotiate anticipated absences according to company policy.	✓			
• Call in to notify the supervisor of unanticipated absences.	✓			
CAREER EXPLORATION AND PLANNING				
• Research opportunities in the manufacturing technology field.	✓			
• Prepare/update portfolio of current skills.	✓			
• Create resume and cover letter.	✓			
• Describe the components of a successful job application process.	✓			
• Summarize the basic organization and respective functions of a typical corporation, including administration, sales and marketing, engineering, manufacturing and production, quality assurance, and accounting.	✓			
• Communicate with employers through the job shadow and internship experiences.	✓			
PERSONAL FINANCE				
• Calculate, track, and evaluate income and spending.	✓			
• Evaluate savings and investment options to meet short- and long-term goals.	✓			
• Analyze the costs and benefits of various types of credit and debt.	✓			
• Identify and evaluate types of risk and insurance.	✓			

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Safety

Topics:

- **General Safety**
- **OSHA 10**
- **Personal Protective Equipment (PPE)**
- **Lockout Tagout**
- **Machine Guarding**
- **Hazardous Chemicals and Safety Data Sheets**
- **Hand and Power Tool Safety**

Key Questions	• Why is safety important in the manufacturing industry? • How does a professional avoid injury? • What rules MUST be followed in order to ensure operator safety when working with machinery?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 1,2,3,4,5,7,8,9,11	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 3,5	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 2,4,5	**Math**	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
GENERAL SAFETY				
• Identify types and sources of workplace hazards common to various manufacturing settings and their consequences. (CPT-S)	✓			
• Describe the importance of compliance with safety standards including work site organization and cleanliness and explain how it affects overall production. (CPT-S)	✓			
• Identify general shop safety rules and procedures. (CPT-S)	✓			
• Perform safety and environmental inspections. (CPT-S)	✓			
• Complete a basic safety test before using any tools or shop equipment. (CPT-S)	✓			
• Identify marked safety areas. (CPT-S)	✓			
• Define and identify the various types of hot work and hot work hazards and describe a three-step approach to hot work safety.	✓			
• Identify important safety issues associated with steam and hot water boilers.				
• Identify common fire hazards in the manufacturing workplace. (CPT-S)	✓			
• Describe techniques for fire prevention. (CPT-S)	✓			
• Identify the location and the types of fire extinguishers and other fire safety equipment and demonstrate procedures for using fire extinguishers and other fire safety equipment. (CPT-S)	✓			
• Identify the location and use of eye wash stations. (CPT-S)	✓			
• Identify the location of the posted evacuation routes. (CPT-S)	✓			
• Perform emergency drills and participate in emergency teams. (CPT-S)	✓			
• Utilize proper ventilation procedures for working within the shop area. (CPT-S)	✓			

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Identify and interpret universal signs and symbols to ensure safety at job sites. (CPT-S)	✓			
• Summarize Right-to-Know regulations including hazardous materials and blood-borne pathogens. (CPT-S)	✓			
• Describe and follow safety procedures for lifting heavy objects, including safe lift operation. (CPT-S)	✓			
• Actively participate in improving safety conditions. (CPT-S)	✓			
• Communicate potential or actual safety concerns to peers and supervisors. (CPT-S)	✓			
• Report injuries, accidents, and incidents to peers and supervisors. (CPT-S)	✓			
• Identify a space as a "confined space" or a "permit-required confined space" based on OSHA definitions and identify the hazards of confined space entry and the related safety considerations. (CPT-S)	✓			
• Identify and explain how to avoid struck-by and caught-in-between hazards. (CPT-S)	✓			
• Describe first aid procedures for work-site accidents. (CPT-S)	✓			
• Obtain First Aid and CPR Certification.	✓			
• Participate in a minimum of 3 hours of Sexual Harassment Prevention Training.	✓			
OSHA 10				
• Complete the OSHA 10-hour Construction Training Course. (CPT-S)	✓			
• Explain OSHA regulations that apply to the manufacturing facility. (CPT-S)	✓			
• Comply with all organizational and OSHA safety policies and procedures. (CPT-S)	✓			
• Describe the safe work requirements for elevated work, including fall protection guidelines and OSHA regulations. (CPT-S)	✓			
PERSONAL PROTECTIVE EQUIPMENT (PPE)				
• Identify and describe the proper use of personal protective equipment (PPE) to protect workers from bodily injury. (CPT-S)	✓			
• Identify potential respiratory hazards and the basic respirators used to protect workers against those hazards. (CPT-S)	✓			
• Inspect and use PPE properly, including safety glasses, gloves, safety shoes, hearing protection, hard hats, and respiratory protection. (CPT-S)	✓			
• Comply with the required use of personal protective equipment (PPE) including safety glasses, ear protection, gloves, and shoes. (CPT-S)	✓			
• Select appropriate personal protective equipment and use according to manufacturer rules and regulations. (CPT-S)	✓			
LOCKOUT TAGOUT				
• Describe the hazards associated with the accidental release of energy. (CPT-S)	✓			
• Describe the different types of energy found in the work environment. (CPT-S)	✓			
• Explain the purpose of Lockout Tagout procedures. (CPT-S)	✓			
• List the steps in a Lockout Tagout procedure. (CPT-S)	✓			
• Describe safe work practices during Lockout Tagout procedures. (CPT-S)	✓			
• Explain proper start up procedures. (CPT-S)	✓			
MACHINE GUARDING				
• Describe at least two causes of machine accidents. (CPT-S)	✓			
• List three requirements for machine safeguards. (CPT-S)	✓			
• List five machinery parts that pose hazards when unguarded or improperly guarded. (CPT-S)	✓			
• List at least five types of machine guards. (CPT-S)	✓			
• List at least three types of devices used to safeguard machines. (CPT-S)	✓			
• Describe a situation that requires guarding a machine or part in order to prevent injury or accident. (CPT-S)	✓			
HAZARDOUS CHEMICALS AND SAFETY DATA SHEETS				
• Identify and demonstrate safe use, storage, and disposal of chemicals. (CPT-S)	✓			
• Identify various exposure hazards commonly found on job sites including solvents, toxic vapors, batteries, and acids. (CPT-S)	✓			
• Participate in an asbestos awareness course which includes the definition of asbestos, the types and physical characteristics of asbestos, its uses and applications, the health effects and procedures to follow in case of exposure.	✓			
• Describe the location, purpose and contents of a Safety Data Sheet (SDS). (CPT-S)	✓			
• Demonstrate procedures for using respiratory protection and eye wash stations. (CPT-S)	✓			
HAND AND POWER TOOL SAFETY				

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
• Identify and explain the safe use of various types of hand tools. (CPT-S)	✓			
• Identify and explain the safe use various types of power tools. (CPT-S)	✓			
• Analyze and describe the effects of unsafe tool applications for workers. (CPT-S)	✓			
• Analyze potential safety issues and make recommendations for their prevention. (CPT-S)	✓			
• Explain the importance of selecting the right tools for specific tasks. (CPT-S)	✓			
• Select and demonstrate proper tool use for project completion in compliance with all safety manuals, standards and regulations. (CPT-S)	✓			
• Demonstrate proper cleaning, storage, and maintenance of all tools. (CPT-S)	✓			

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Mathematics

Topics:

- **Mathematical Computation**
- **Algebra, Geometry and Trigonometry**
- **Statistics**
- **Mathematics in the Workplace**

Key Questions	• Why is knowledge of mathematics important in manufacturing technology? • How do math skills relate to specific manufacturing processes?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 2,4,6,7,8,9	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 2,6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 1,3	**Math** 5.NF.1,2,3,4 5.MD.3,4 6.RP.3 a,b,c,d 5.NBT.1,3,4,5,6,7 6.NBT.5 7.NS.1,2 A.REI.1 6.G.1 7.G.4,6 G-SRT.6,8 G-CO.1 G-GMD.1,3 G-MG.1,2 G-C.2 S-ID.1,2,3,4 S-IC.1 7.SP.1,2,3,4,5,6,7 7.EE.3 8.F.2 8.G.7,9 F-IF.4	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
MATHEMATICAL COMPUTATION				
• Identify whole numbers and their place values.	✓			
• Add, subtract, multiply and divide whole numbers with and without a calculator.	✓			
• Practice rounding and estimating.	✓			

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Describe integers and negative numbers.	✓			
• Solve addition and subtraction problems with negative integers.	✓			
• Explain the rules for multiplying and dividing with negative integers.	✓			
• Explain the parts of a fraction.	✓			
• Add, subtract, multiply, and divide fractions.	✓			
• Define equivalent fractions and show how to find lowest common denominators.	✓			
• Describe improper fractions and demonstrate how to change an improper fraction to a mixed number.	✓			
• Describe decimals and their place values.	✓			
• Explain how to round a decimal.	✓			
• Add, subtract, multiply, and divide decimals.	✓			
• Define percent.	✓			
• Use appropriate formulas to calculate percentages.	✓			
• Convert between decimals, fractions, and percentages.	✓			
• Apply formulas to determine ratios, fractions, and proportion measures.	✓			
ALGEBRA, GEOMETRY AND TRIGONOMETRY				
• List the correct order of mathematical operations.		✓		
• Read and interpret tables, graphs and charts.		✓		
• Apply formulas to solve problems.		✓		
• Identify the basic shapes used in the manufacturing industry and their characteristics.		✓		
• Explain and demonstrate how to calculate perimeter and area of two-dimensional shapes.		✓		
• Define perpendicular, parallel, and plane.		✓		
• Explain and demonstrate how to calculate volume of three-dimensional shapes.		✓		
• Use mathematical formulas to determine area and volume of various structures.		✓		
• Identify the parts of an angle.		✓		
• Identify various types of angles.		✓		
• Identify the major parts of a triangle.		✓		
• Define the Pythagorean Theorem.		✓		
• Define the three trigonometric ratios for a right triangle.		✓		
• Find missing right triangle information using the Pythagorean Theorem.		✓		
• Find missing right triangle information using the trigonometric ratios.		✓		
• Identify the major parts of a circle.		✓		
• Identify uses for circular dimensions.		✓		
STATISTICS				
• Define statistics and variation and describe how they are related.			✓	
• Describe probability and its relationship to sample size.			✓	
• Define random sampling.			✓	
• Explain how to find the mean of a set of values.			✓	
• Define median and mode.			✓	
• Explain the bell-shaped curve.			✓	
• Describe the types of bell-shaped curves.			✓	
• Define standard deviation.			✓	
• Describe the relationship between standard deviation and the bell-shaped curve.			✓	
• Describe the relationship between standard deviation and probability.			✓	
MATHEMATICS IN MANUFACTURING				
• Describe the importance of mathematics for manufacturing employees.	✓			

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
• Use basic math functions to complete workplace tasks.	✓			
• Determine the correct math application for specific manufacturing situations.	✓			
• Define Statistical Process Control (SPC).				✓
• Describe variation in manufacturing processes including patterns and measures of variation.				✓
• Monitor and control variation with variable and attribute control charts.				✓

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Measurement

Topics:

- **Measurement Fundamentals**
- **Tolerance**
- **Torque**
- **Steel Rule**
- **Micrometer**
- **Caliper**
- **Height Gage**
- **Go/No Go Gage**

Key Questions	• Why is it important to understand different measurement systems? • Why is accuracy important?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 2,6,7,8,9,11	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 1,3	**Math** N-Q.1,3 5.MD.1,2 5.NBT.3 7.EE.3 5.NF.1,2	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
MEASUREMENT FUNDAMENTALS				
• Determine the appropriate unit of measure for a task.	✓			
• Recognize and use standard units of length, weight, volume, and temperature. (CPT-QPM)	✓			
• Identify and convert units of length, weight, volume, and temperature. (CPT-QPM)	✓			
• Convert inches to decimal equivalents in feet.	✓			
• Convert fractions of inches to decimal equivalents in inches.	✓			
• Convert between standard and metric units. (CPT-QPM)	✓			
• Demonstrate the proper selection, use, and care of precision measurement equipment typically found in a manufacturing environment. (CPT-QPM)	✓			
• Identify basic semi-precision measuring tools and describe their major applications.	✓			
• Demonstrate proper reading of semi-precision measuring tools to their finest graduation.	✓			
• Identify precision measuring tools and describe their major applications.	✓			
• Demonstrate accurate reading of precision measuring tools to their finest graduation.	✓			
• Justify the use of a particular measuring tool based on tool and part characteristics.	✓			
• Describe factors affecting accurate measurement (dirt, temperature, improper measuring, tool calibration, etc.).	✓			

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Describe how measurement tool selection can contribute to part accuracy/inaccuracy.	✓			
• Distinguish between accuracy and precision.	✓			
• Describe the main purpose of calibration. (CPT-QPM)	✓			
• Identify the key factors that affect calibration. (CPT-QPM)	✓			
TOLERANCE				
• Identify why measurements are important in a manufacturing environment.	✓			
• Define tolerance.	✓			
• Identify how tolerance is determined.	✓			
• Describe the impact of tolerance on cost.	✓			
• Compare the tolerances that are possible in different machining operations.	✓			
• Identify advantages of different tolerance methods.	✓			
• Identify the relationship between dimensions and tolerance.	✓			
• Determine whether or not a selection of parts meet specifications.	✓			
TORQUE				
• Define torque and explain its importance in manufacturing.		✓		
• Describe methods for applying torque.		✓		
• Describe the effects of overtightening and undertightening.		✓		
• Describe methods for measuring torque and the factors that can affect torque accuracy.		✓		
• Explain how torque is calculated.		✓		
• Describe methods for inspecting bolted joints.		✓		
• Run torque checks on bolts.		✓		
• Explain the importance of inspecting torque tools.		✓		
STEEL RULE				
• Identify and describe the function of the steel rule. (CPT-QPM)	✓			
• Use a steel rule to make accurate linear measurements, both metric and inch. (CPT-QPM)	✓			
• Take measurements with a steel rule to nearest 1/16”. (CPT-QPM)	✓			
• Accurately record the measurements taken with a steel rule. (CPT-QPM)	✓			
• Add and subtract steel rule measure readings. (CPT-QPM)	✓			
MICROMETER				
• Identify and describe the function of the micrometer. (CPT-QPM)	✓			
• Identify commonly used micrometers. (CPT-QPM)	✓			
• Calibrate a micrometer. (CPT-QPM)	✓			
• Take measurements with a micrometer within the designed accuracy of the tool. (CPT-QPM)	✓			
• Accurately record the measurements taken with a micrometer. (CPT-QPM)	✓			
CALIPER				
• Identify and describe the function of calipers. (CPT-QPM)	✓			
• Take accurate measurements with a dial or digital caliper within the designed accuracy of the tool. (CPT-QPM)	✓			
• Accurately record the measurements taken with a caliper. (CPT-QPM)	✓			
HEIGHT GAGE				
• Identify and describe the function of a height gage.		✓		
• Take accurate measurements with a height gage within the designed accuracy of the tool.		✓		
• Accurately record the measurements taken with a height gage.		✓		
GO/NO GO GAGE				
• Identify and describe the function of a go/no go gage.		✓		
• Describe go/no-go gaging with plug gages.		✓		

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
• Measure with a go/no go gage and record the results.		✓		
• Distinguish between gaging and variable inspection.		✓		
• Select and use a use a go/no go gage to verify thread characteristics.		✓		

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Print Reading

Topics:

- **Prints, Diagrams, and Schematics**
- **Assembly Drawings**

Key Questions	• How do prints and drawings communicate project requirements? • Why is the ability to read and interpret plans and drawings a necessary skill to work in the manufacturing industry?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 2,4,8	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 1	**Math** N-Q.1,3 7.G.1 5.NBT.3 6.RP.3 7.EE.3	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
PRINTS, DIAGRAMS, AND SCHEMATICS				
• Identify the three basic elements of a print. (CPT-QPM)	✓			
• Describe the role prints play in the design and manufacturing process. (CPT-QPM)	✓			
• Interpret commonly used abbreviations and terminology. (CPT-QPM)	✓			
• Identify the types of dimensions. (CPT-QPM)	✓			
• Identify general note symbols and locate them on a print. (CPT-QPM)	✓			
• List the seven main steps in reading a print. (CPT-QPM)	✓			
• Determine tolerances associated with dimensions on a print. (CPT-QPM)		✓		
• Interpret electrical component drawings and schematics. (CPT-QPM)		✓		
• Interpret CNC programming diagram schematics. (CPT-QPM)			✓	
ASSEMBLY DRAWINGS				
• Identify and describe the purpose of assembly drawings. (CPT-QPM)		✓		
• Identify basic layout of drawings. (CPT-QPM)		✓		
• Identify types of lines within a drawing. (CPT-QPM)		✓		
• Identify item number symbols. (CPT-QPM)		✓		
• Identify general note symbols. (CPT-QPM)		✓		
• List the essential components found in the title block. (CPT-QPM)		✓		
• Locate bill of materials on a drawing. (CPT-QPM)		✓		
• List the components found in the revision block. (CPT-QPM)		✓		

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Materials

Topics:

- **Properties of Materials**
- **Metals**
- **Plastics/Polymers**
- **Ceramics/Glass**

Key Questions	• What forces affect a structure's ability to withstand stress? • What factors influence the strength and durability of a material? • What factors affect material selection for a specific manufacturing process?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 1,2,4,5,11	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 1,3,6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 2,3,5	**Math**	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
PROPERTIES OF MATERIALS				
• Identify four types of manufacturing materials and their common uses in manufacturing processes.	✓			
• Define physical, mechanical and chemical properties.	✓			
• Explain the physical properties of materials, including density, specific heat, melting and boiling point, thermal expansion and conductivity, electrical and magnetic properties.	✓			
• Describe how physical properties of materials relate to manufacturing applications.	✓			
• Explain the mechanical properties of materials, including strength, toughness, hardness, ductility, elasticity, fatigue and creep.	✓			
• Describe how mechanical properties of materials relate to manufacturing applications.	✓			
• Explain the chemical properties of materials, including oxidation, corrosion, flammability, and toxicity.	✓			
• Describe how chemical properties of materials relate to manufacturing applications.	✓			
METALS				
• Explain the classification system for metals.	✓			
• Describe the physical, mechanical and chemical properties of metals.	✓			
• Describe general characteristics for carbon steels, tool steels, stainless steels, structural steels, cast irons, aluminum, and other commonly used metals.	✓			
• Distinguish between pure metals and alloy metals.	✓			
• Describe superalloys and their properties.	✓			
• List examples of nonferrous metals.	✓			
• Identify and describe the differences between ferrous and nonferrous metals.	✓			
• Describe common uses of ferrous and nonferrous metals in manufacturing applications.	✓			
PLASTICS AND POLYMERS				
• Explain the classification system for plastics and polymers.		✓		

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Describe the physical, mechanical and chemical properties of plastics and polymers.		✓		
• Identify and describe the differences between different types of plastics and polymers.		✓		
• Contrast the advantages and disadvantages of plastics and polymers.		✓		
• Distinguish between natural and synthetic polymers.		✓		
• Describe common uses of plastics and polymers in manufacturing applications.		✓		
CERAMICS/GLASS				
• Explain the classification system for ceramics and glass.		✓		
• Describe the physical, mechanical and chemical properties of ceramics and glass.		✓		
• Identify and describe the differences between different types of ceramics and glass.		✓		
• Describe common uses of ceramics and glass in manufacturing applications.		✓		
• Describe common uses of ceramics and glass in manufacturing.		✓		

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Material Handling

Topics:

- **Fundamentals of Hydraulics and Pneumatics**
- **Fork Lift/PIT (Power Industrial Truck) Operation**
- **Lifting and Moving Devices**
- **Rigging**

Key Questions	• How does technology make work more efficient, effective and/or productive? • How does one choose and safely use appropriate tools and machines in the manufacture of a product?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 1,2,3,4,5,11,12	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 3,4,5,6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 2,5	**Math** 7.EE.3 6.RP.3	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
FUNDAMENTALS OF HYDRAULICS AND PNEUMATICS				
• Explain the meaning of fluid power.			✓	
• List the various applications of fluid power.			✓	
• Differentiate between fluid power and transport systems.			✓	
• List the advantages and disadvantages of fluid power.			✓	
• Explain the industrial applications of fluid power.			✓	
• List the basic components of the fluid power.			✓	
• List the basic components of the pneumatic systems.			✓	
• Differentiate between electrical, pneumatic and fluid power systems.			✓	
FORK LIFT/PIT OPERATION				
• Explain the differences between a forklift/PIT and an automobile.			✓	
• Explain the operation and limitation of fork lifts/PITs.			✓	
• Explain where to find operating instructions, warnings, and precautions for different types of trucks.			✓	
• Identify and describe truck controls and instrumentation, where they are located, what they do, and how they work.				✓
• Explain the importance of visibility, including restrictions due to loading.				✓
• Describe where to determine vehicle capacity and stability.				✓
• Describe fork and attachment adaptation, operation, and use limitations.				✓
• Describe the process of refueling and/or charging and recharging of batteries.				✓
• Explain operator responsibilities for vehicle inspection and maintenance.				✓
• Interpret and apply operating instructions, warnings, or precautions listed in the operator's manual.				✓
• Demonstrate safe engine or motor operation and steering and maneuvering.				✓
• Describe safe operation according to various workplace conditions, including surface conditions; load composition and stability; load manipulation,				✓

Key Learning Targets (Students will know and be able to)	1	2	3	4
stacking, and unstacking; pedestrian traffic; narrow, restricted or hazardous locations; ramps and other sloped surfaces; closed environments with insufficient ventilation; and other potentially hazardous environmental conditions that could affect safe operation.				
LIFTING AND MOVING DEVICES				
• Identify lifting and moving devices commonly used for material handling, including block and tackle, drums, winches, pallet jacks, skids and rollers, slings, hoists, lifting stands, overhead and gantry cranes, and derricks.			✓	
• Describe the safe operation of common lifting and moving devices.			✓	
• Describe the importance of lifting device safety in the workplace.			✓	
• Describe inspections required by OSHA for lifting devices.			✓	
• Distinguish between operational and rated load tests.			✓	
RIGGING				
• Describe the importance of rigging inspection and safety.				✓
• Describe the procedures for inspecting chains.				✓
• Describe best practices for chain handling and care.				✓
• Describe how to prevent wire rope failure.				✓
• Distinguish between abrasion, corrosion, and diameter reduction in wire rope.				✓
• Distinguish between crushing, shock loading, and high stranding in wire rope.				✓
• Distinguish between different types of breaks in wire rope.				✓
• Describe procedures for inspecting natural fiber rope.				✓
• Describe the types of defects that can occur in synthetic fiber rope.				✓
• Describe procedures for inspecting slings, hooks, and shackles.				✓

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Foundations of Manufacturing

Topics:

- **Trends and Technologies in Manufacturing**
- **Lean Manufacturing Principles**
- **Six Sigma Principles**
- **Basic Mechanical Systems**
- **Machine Care and Maintenance (TPM: Total Productive Maintenance)**

Key Questions	• What factors influence manufacturing processes and decisions? • What are some principles of effective manufacturing? • What is the importance of continually monitoring human-designed systems? • How can proper resource preparation be used to improve product quality and production efficiency?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 1,2,3,4,5,6,7,8,11,12	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 1,2,3,5,6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 1,2,3,4,5	**Math** 7.EE.3	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
TRENDS AND TECHNOLOGIES IN MANUFACTURING				
• Describe current trends in manufacturing.		✓		
• Research an emerging technology in manufacturing.		✓		
• Describe the effect of new trends and technologies on current manufacturing processes.		✓		
• Compare and give examples of additive manufacturing, subtractive manufacturing and continuous process control in manufacturing.		✓		
LEAN MANUFACTURING PRINCIPLES				
• Describe basic lean manufacturing principles.			✓	
• Research the general history of Lean Manufacturing and its development.			✓	
• Describe the importance of continuous improvement.			✓	
• Describe the necessity of employee involvement.			✓	
• Describe 8 types of waste exemplified by the acronym DOWNTIME: Defects, Overproduction, Waiting, Not utilizing people, Transportation, Inventory, Motion, Extra process.			✓	
• Distinguish between inspection and error detection.			✓	
• Describe how lean companies achieve continuous product flow.			✓	
• Explain the concept of “value-added work”.			✓	
• Explain the appropriate lean manufacturing practices to apply in response to a specific problem.			✓	
• Identify and explain each component of 5S/6S: Sort, Set in Order, Sweep, Standardize, Self-Discipline/Sustain, and Safety.			✓	
• Describe the purpose, challenges and advantages to implementing a 5S/6S program.			✓	
SIX SIGMA PRINCIPLES				
• Define Six Sigma.			✓	

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Research the general history of Six Sigma and Continuous Improvement.			✓	
• Describe how Six Sigma practitioners choose a target problem.			✓	
• List and explain the fundamentals of Six Sigma: DMAIC (Define, Measure, Analyze, Improve, Control), Defining a process, Basic metrics (Defects per Unit (DPU), Defects per Million Opportunities (DPMO), First Time Yield (FTY), Rolled Throughput Yield (RTY), Cycle Time), Pareto Analysis (80:20 rule), Critical Quality Characteristics (CTQs), and Cost of Poor Quality (COPQ).			✓	
• Develop basic skills in failure analysis, including creating and using cause/effect and Fishbone diagrams, and conducting “5 Whys” root failure analysis.			✓	
• Distinguish between Six Sigma and lean initiatives.			✓	
BASIC MECHANICAL SYSTEMS				
• Define work as a measure of energy transfer.		✓		
• Distinguish between potential and kinetic energy.		✓		
• Describe Newton's Laws of Motion.		✓		
• Describe and compare types of simple machines, including levers, wheels and axles, pulleys, inclined planes, wedges, screws, gears, and cams.		✓		
• Compare the effectiveness of simple machines in completing different types of work.		✓		
• Describe the factors affecting mechanical advantage.		✓		
• Describe gravity and its effect on machines.		✓		
• Describe friction and its effect on machines.		✓		
• Explain how mechanical systems are composed of simple machines.		✓		
• Describe how basic mechanical systems are used in a manufacturing setting.		✓		
MACHINE CARE AND MAINTENANCE (TPM: TOTAL PRODUCTIVE MAINTENANCE)				
• Identify and describe the principles of TPM: Total Productive Maintenance.		✓		
• Describe the role of safety in TPM.		✓		
• Describe how TPM is connected to other types of maintenance approaches.		✓		
• Distinguish between autonomous maintenance, planned maintenance, and quality maintenance.		✓		
• Maintain a clean and safe work environment by keeping work areas clean and cleaning machine and hand tools when work is completed. (CPT-MA)		✓		
• Put tools away when work is finished. (CPT-MA)		✓		
• Keep aisles clear of equipment and materials. (CPT-MA)		✓		
• Perform and document preventive maintenance as required. (CPT-MA)		✓		
• Keep storage rooms well organized and free of clutter. (CPT-MA)		✓		
• Check machines for signs of wear and replace worn parts. (CPT-MA)		✓		
• Test machine lubricants according to maintenance schedule. (CPT-MA)		✓		
• Add specified machine lubricant according to manufacturer’s recommendations. (CPT-MA)		✓		
• Guard against Foreign Object Debris (FOD) and particulates from contaminating the workspace or product. (CPT-MA)		✓		
• Recognize potential maintenance issues with basic production systems, including knowledge of when to inform maintenance personnel about problems. (CPT-MA)		✓		

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Assembly

Topics:

- **Basic Tool Use**
- **Fasteners**
- **Basic Assembly Skills**
- **Quality Control**

Key Questions	• What are the basic techniques and components used in assembly? • How does one choose and safely use appropriate tools and machines in the manufacture of a product? • How can quality control be implemented to foster total product quality? • How can proper resource preparation be used to improve product quality and production efficiency? • How does technology make work more efficient, effective and/or productive?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 1,2,4,6,8,11,12	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 2,3,5,6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 1,2,3,4,5	**Math**	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
BASIC TOOL USE				
• Identify common hand tools and describe their basic applications.	✓			
• Demonstrate proper use of hand tools.	✓			
• Select necessary work holding devices and hand tools as dictated by the size and shape of the part plus the machining to be done.	✓			
FASTENERS				
• Explain the importance of fastener selection.	✓			
• Recognize the basic parts of threaded fasteners.	✓			
• Describe how fasteners are identified.	✓			
• Describe how to determine a fastener's diameter, length and size.	✓			
• Describe common fastener materials.	✓			
• Identify the mechanical properties that are most important to threaded fasteners.	✓			
• Explain the common failure modes that threaded fasteners might encounter in service.		✓		
• Identify common fastener head, drive and thread styles.		✓		
• List common point styles.		✓		
• Identify and differentiate common bolt and screw types.		✓		
• Describe how to install a bolt.		✓		
• Describe the characteristics of a bolted joint.		✓		
• Interpret the head markings and specifications assigned to threaded fasteners and nuts.		✓		
• Identify nuts according to their strength grade.		✓		
• Describe common nuts and washers and the basic ways in which each are applied.		✓		

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Describe identification markings for standard and metric fasteners.		✓		
BASIC ASSEMBLY SKILLS				
• Explain the steps in an assembly/production process. (CPT-MPP)			✓	
• Identify job assignments and team production goals. (CPT-MPP)			✓	
• Prepare work to be accomplished by studying assembly instructions, print specifications, and parts lists; gathering parts, subassemblies, tools, and materials. (CPT-MPP)			✓	
• Determine resources available for the production process. (CPT-MPP)			✓	
• Communicate production and material requirements and product specifications. (CPT-MPP)			✓	
• Set up equipment for the production process and position parts and subassemblies by using templates or reading measurements. (CPT-MPP)			✓	
• Assemble components by examining connections for correct fit; fastening parts and subassemblies. (CPT-MPP)			✓	
• Verify specifications by measuring completed component. (CPT-MPP)			✓	
• Document product and process compliance with requirements. (CPT-MPP)			✓	
• Resolve assembly problems by altering dimensions to meet specifications; notifying supervisor to obtain additional resources. (CPT-MPP)			✓	
• Keep equipment operational by completing preventive maintenance requirements; following manufacturer's instructions; troubleshooting malfunctions; calling for repairs. (CPT-MPP)			✓	
• Report problems in the assembly process and equipment faults to maintenance staff. (CPT-MPP)			✓	
• Maintain safe and clean working environment by complying with procedures, rules, and regulations. (CPT-MPP)			✓	
• Maintain supplies inventory by checking stock to determine inventory level; anticipating needed supplies; placing and expediting orders for supplies; verifying receipt of supplies. (CPT-MPP)			✓	
• Conserve resources by using equipment and supplies as needed to accomplish job results. (CPT-MPP)			✓	
• Coordinate work flow with team members and other work groups. (CPT-MPP)			✓	
• Prepare final product for shipping or distribution. (CPT-MPP)			✓	
QUALITY CONTROL				
• Describe “traceability”, quality stamps, and an employee’s role in accurately maintaining record of process and part compliance. (CPT-QPM)				✓
• Participate in periodic internal quality audit activities. (CPT-QPM)				✓
• Suggest continuous improvements. (CPT-QPM)				✓
• Monitor the production process and carry out basic testing and quality checks. (CPT-QPM)				✓
• Inspect materials and product/process at all stages to ensure they meet specifications. (CPT-QPM)				✓
• Document the results of quality tests by completing production and quality forms. (CPT-QPM)				✓
• Communicate quality problems. (CPT-QPM)				✓
• Take corrective actions to restore or maintain quality. (CPT-QPM)				✓
• Record process outcomes and trends. (CPT-QPM)				✓

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Manufacturing Processes

Topics:

- **Soldering**
- **Welding**
- **Fundamentals of Machine Tools**
- **Drill Presses**
- **Milling Machines**
- **Grinding Tools**
- **Lathes**
- **CNC (Computer Numerical Control) Tools**

Key Questions	• How can we take a material and alter it to create something useful that serves a specific purpose? • How does one choose and safely use appropriate tools and machines in the manufacture of a product? • How can proper resource preparation be used to improve product quality and production efficiency? • How does technology make work more efficient, effective and/or productive?

Assessment Evidence of Student Learning		**CCTC Standards**	**NYS Standards**	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 1,2,3,4,5,6,7,8,9,11,12	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	 11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 1,3,4,5,6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	 11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 2,3,5	**Math**	

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
SOLDERING				
• Define solder and soldering.			✓	
• List the advantages and disadvantages of soldering.			✓	
• Define flux and list the common types of flux.			✓	
• Compare and contrast manual soldering with machine soldering.			✓	
• List and describe important soldering tools and accessories.			✓	
• Describe basic soldering preparation and safety procedures.			✓	
• List the basic steps of hand soldering.			✓	
• Describe heat processes involved in soldering.			✓	
• Describe safety precautions for working with solder and a soldering iron.			✓	
• Describe ways to prevent fires while soldering.			✓	
• List different joint types.			✓	
• Distinguish between properly and improperly soldered joints.			✓	
• Obtain J-Standard Soldering Certification.			✓	✓
WELDING				
• Explain the parts and function of a shop welding outfit.			✓	✓

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Explain the safety features of shop welding outfit.			✓	✓
• Demonstrate the protective clothing and the safety precautions that must be used for shop welding.			✓	✓
• Demonstrate the steps required to assemble a shop welding outfit.			✓	✓
• Safely turn on and shut down shop welding outfit.			✓	✓
• Practice the five basic weld joints.			✓	✓
• Describe the types of welds that can be made on each joint.			✓	✓
• Explain the parts of a fillet weld and a groove weld.			✓	✓
• Practice a stringer bead and a weave bead.			✓	✓
• Practice the four welding positions.			✓	✓
• Describe the conditions for welding in the four welding positions.			✓	✓
FUNDAMENTALS OF MACHINE TOOLS				
• List and describe common machine tools used in an industrial setting.			✓	
• Summarize the history and development of machine tools.			✓	
• Explain the importance and use of measurement and calibration when using machine tools.			✓	
• Explain the importance of watching gauges, dials or other indicators to make sure a machine is working properly.			✓	
• Explain the importance of determining the kind of tools and equipment needed to do a job.			✓	
• Explain the importance of determining causes of operating errors and deciding what to do about it.			✓	
• Explain the importance of conducting tests and inspections of products, services or processes to evaluate quality or performance.			✓	
• Explain the importance of performing routine maintenance on equipment and determining when and what kind of maintenance is needed.			✓	
• Explain the purpose and use of the Machinery's Handbook.			✓	
• Observe appropriate safety rules pertaining to general machine shop practices.			✓	
• Explain the use of work holders in machine tool operation.			✓	
• Describe the development of computer-controlled machine tools.			✓	
DRILL PRESSES				
• Identify the different types of drill presses found in the machine shop and describe their major applications.			✓	
• Identify the standard drilling and reaming tools and describe their characteristics and major applications.			✓	
• Demonstrate the proper cleaning, and care of the drill press.			✓	
• Properly set up the drill press and demonstrate the selection of the most appropriate and sharp drilling tool(s).			✓	
• Demonstrate proper use of drilling machines.			✓	
• Use applicable reference material to accurately calculate speeds for assigned drill press operations.			✓	
MILLING MACHINES				
• Demonstrate proper use of vertical milling machine.			✓	
• Demonstrate the proper setup, operation, care, cleaning, and lubrication of the vertical milling machine.			✓	
• Correctly identify common cutters and explain their basic applications.			✓	
• Identify and demonstrate the proper use of all controls and adjustments on the vertical milling machine.			✓	
• Identify the common work holding devices and select the most appropriate device based on part shape and type of machining to be done.			✓	
• Select the proper cutter and work holding device and demonstrate their proper installation and setup for an assigned milling operation.			✓	
• Use applicable reference material to accurately calculate speeds and feeds for an assigned milling machine operation.			✓	
GRINDING TOOLS				
• Describe the benefits of grinding.			✓	
• Identify common types of grinding machines and describe the major differences and applications.			✓	
• Demonstrate proper use of grinding abrasive machines.			✓	
• Describe and demonstrate the proper cleaning, lubrication, and care of precision grinding machines.			✓	
• Explain the identification, selection and application of common grinding wheels.			✓	
• Describe the proper selection and application of grinding fluids.			✓	

Key Learning Targets (Students will know and be able to)	1	2	3	4
• Describe common problems and solutions in surface grinding.			✓	
• Describe the importance of safety during grinding.			✓	
• Identify types of automatic protections built into grinding machines.			✓	
LATHES				
• Demonstrate proper use of metal lathes.			✓	
• Demonstrate the proper cleaning, lubrication, and care of the metal lathe.			✓	
• Identify and describe the sizes and applications of common types of metal cutting lathes.			✓	
• Identify common parts and demonstrate the proper use of all controls and adjustments on the lathe.			✓	
• Identify and demonstrate the proper installation and application of standard tools and tool holders for the lathe.			✓	
• Identify common work holding devices and demonstrate proper procedure for changing and installing them.			✓	
• Use appropriate reference material to accurately calculate relevant speeds and depths of cuts as required for an assigned application.			✓	
CNC (COMPUTER NUMERICAL CONTROL) TOOLS				
• Properly identify common types of CNC machines and describe their size and general applications.				✓
• Identify common CNC operations.				✓
• Identify common CNC machine control systems and describe their major differences and applications.				✓
• Demonstrate proper planning for CNC machining.				✓
• Describe proper cleaning, care lubrication and operation of CNC machines.				✓
• Read and interpret CNC prints and drawings.				✓
• Describe cutting fluids/coolants for CNC machining and their proper application.				✓

SCSD Manufacturing Technology and Pre-Apprenticeship Program Curriculum

Competency: Electrical Systems

Topics:

- **Basic Electrical Components**
- **Electrical Safety**
- **Electrical Measurement and Measuring Instruments**
- **Electrical Testing and Troubleshooting**

Key Questions
- How does one choose and safely use appropriate tools and machines in the manufacture of a product?

Assessment Evidence of Student Learning		CCTC Standards	NYS Standards	
Written • Assignments • Research Project • Quizzes and Tests • Self-Assessment	**Performance** • Team Process Assessment • Class Presentations • Safety Checklist • Procedure Checklist • Teacher Observation Checklist	**Career Ready Practices** CRP 1,2,4,6,7,8,11,12	**ELA** 9-10R 1,2,4,7,8,9 9-10W 2,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,4,5,6	11-12R 1,2,4,7,8,9 11-12W 2,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,4,5,6
		Cluster Standards MN 3,5,6	**Literacy** 9-10RST 1,2,4,7,9 9-10WHST 2,5,6,7	11-12RST 1,2,4,7,9 11-12WHST 2,5,6,7
		Pathway Standards MN-PRO 2,5	**Math** A-REI.1 A-CED.4 5.NF.1,2	

Key Learning Targets (Students will know and be able to)	1	2	3	4
BASIC ELECTRICAL COMPONENTS				
• Describe basic principles of electrical theory.	✓			
• Describe the atomic structure of matter.	✓			
• Describe the units of electrical charge, voltage, current, resistance, capacitance, and power.	✓			
• Describe the factors that affect the movement of electrical charges.	✓			
• Clearly distinguish between direct (DC) and alternating (AC) current.	✓			
• State Ohms Law and graph the relationships between current, resistance, and voltage in circuits.	✓			
• Describe the effect on current when changing voltage or resistance.	✓			
• Use formulas and basic mathematics to solve Ohms Law problems.	✓			
• State Watts Law and graph the relationships between voltage, current, and power in circuits.		✓		
• Describe the effect on power if voltage, current or resistance is changed.		✓		
• Use formulas and basic mathematics to solve Watts Law problems.		✓		
• Describe the purpose and use of the National Electric Code (NEC).		✓		
• Identify basic electrical tools.		✓		
• Explain the differences between 110v and 220v circuits.		✓		
• Identify different types of circuit breakers.		✓		
• Identify proper wire size and colors and proper wiring techniques.			✓	
• Identify common electrical components and describe their function, including resistor, capacitor, relay switch, transformer, diode, transistor, battery, AC power supply, terminal post, switch, light bulb, induction coil, light emitting diode, earth ground, and chassis ground.			✓	
ELECTRICAL SAFETY				
• Identify common electrical hazards and explain how to avoid or minimize them in the workplace.	✓			
• Explain OSHA safety requirements for working in the electrical industry.	✓			

Key Learning Targets (Students will know and be able to)	**1**	**2**	**3**	**4**
• Explain the importance of lockout/tagout and describe the procedure.	✓			
• Describe the use of PPE for electrical hazard protection including rubber protective equipment, protective apparel, and eye and face protection.	✓			
• Verify energized/de-energized circuits.	✓			
• Inspect a typical power cord and GFCI to ensure their serviceability.	✓			
• Describe conditions likely to affect severity of electrical shock.	✓			
• Describe electrical shock in terms of body resistance and burns.	✓			
• Describe steps for helping a shock victim.	✓			
• Explain the importance of the rules, regulations, and criteria for the installation of electrical equipment of National Electrical Code.	✓			
ELECTRICAL MEASUREMENT AND MEASURING INSTRUMENTS				
• Describe the proper configuration, handling, and storage of voltmeters, ammeters, Ohmmeters, and bench power supplies.		✓		
• Properly use electrical measuring instruments.		✓		
• Determine the values for electronic components from their markings and physical characteristics.		✓		
ELECTRICAL TESTING AND TROUBLESHOOTING				
• Troubleshoot electrical problems.			✓	
• Describe the operation of and procedures for testing resistors and capacitors in both a series and in a parallel circuit.			✓	

B. Teacher Certification

> *The self-study team reviews the teacher certification and training of the school or BOCES' instructional, paraprofessional, and support staff who deliver services within the CTE program seeking approval. New York State teacher certification review should include both CTE teachers and teachers of academic content within the proposed program.*

Process

Reviewers confirm that all CTE teachers hold appropriate New York State teacher certification for the program in which they will teach.
Reviewers confirm that all teachers of academic content hold appropriate New York State teacher certification for the program in which they will teach.
Reviewers confirm the appropriate NCLB highly-qualified status for the CTE teachers in programs offering academic credit.
Reviewers confirm that staff delivering instruction in programs where certification, licensure, or registration by an external entity have acquired the necessary credentials.

Reviewers confirm that professional development opportunities exist within the school district or BOCES for instructional, paraprofessional, and support staff to acquire and improve skills and knowledge related to instructional enhancement of the CTE program.

Documentation

Recommendations from the review of teacher certification should be included in the self-study report and reviewed by the external committee. A list of all teachers for the program and the New York State teacher certification(s) held by each must be attached to the Application for Career and Technical Education Program Approval.

Resources

New York State Office of Teaching Initiatives
http://www.highered.nysed.gov/tcert/certificate/certprocess.html

Source: http://www.p12.nysed.gov/cte/ctepolicy/guide.html

Search Results

Select	First Name	Last Name	MI	City	State	Registration Status
◉	JULIA	HALLQUIST	K	SYRACUSE	NY	Registered

View Detail

Certificate Information for New York State Teaching Certificate Holder

Certificate Title	Issue / Effective Date	Expiration Date	Status
Mathematics 7-12 Permanent Certificate	09/01/2005		Issued
School District Leader Internship Certificate	09/16/2014	08/28/2015	Expired
School Building Leader Internship Certificate	09/16/2014	08/28/2015	Expired
Mathematics 7-12 Provisional Certificate	09/01/2002	08/31/2007	Expired
School Building Leader Initial Certificate	10/09/2015	01/31/2021	Expired
School District Leader Professional Certificate	11/07/2015		Issued
Physics 7-12 Professional Certificate	09/01/2006		Issued
School Building Leader Initial Reissuance	01/15/2022	01/31/2027	Issued

◉	KEVIN	AHERN	R	SYRACUSE	NY	Not Registered

Certificate Information for New York State Teaching Certificate Holder

Certificate Title	Issue / Effective Date	Expiration Date	Status
English 7-12 Permanent Certificate	09/01/1995		Issued
English 7-12 CQ	09/01/1992	08/31/1997	Expired
English 7-12 Provisional Certificate	09/01/1992	08/31/1997	Expired

Search Results

Select	First Name	Last Name	MI	City	State	Registration Status
◉	TEQUILA	GREGORY		SYRACUSE	NY	Registered

View Detail

Certificate Information for New York State Teaching Certificate Holder

Certificate Title	Issue / Effective Date	Expiration Date	Status
Teaching Assistant Level I	09/25/2015	01/31/2019	Expired
Teaching Assistant Level III	02/12/2019		Issued
Drafting 7-12 Transitional A Certificate	01/25/2022	01/31/2025	Issued

Search Results

Select	First Name	Last Name	MI	City	State	Registration Status
◉	NICHOLAS	LISI		SYRACUSE	NY	Registered Active

View Detail

Certificate Information for New York State Teaching Certificate Holder

Certificate Title	Issue / Effective Date	Expiration Date	Status
Media Communications 7-12 Initial Certificate	09/01/2011	08/31/2016	Expired
Coordinator of Work-Based Learning Programs for Career Development Extension Initial Extension Annotation	12/19/2013	08/31/2016	Expired
Media Communications 7-12 Professional Certificate	03/17/2016		Issued
Coordinator of Work-Based Learning Programs for Career Development Extension Professional Ext/Anno	03/17/2016		Issued

C. Technical Assessments Based on Industry Standards

> *The self-study team reviews the selection of a technical assessment for the program seeking approval. The selected technical assessment must be nationally-recognized and based on industry standards. It must be available to students enrolled in the approved program and must consist of three parts: written, student demonstration, and student project. Successful completion of the technical assessment is not a requirement for high school graduation, but is required for a student to earn a technical endorsement on the high school diploma*
>
> *The New York State Education Department does not approve, endorse, or certify any technical assessment.*

Process

- The school district or BOCES selects an appropriate industry standard technical assessment to measure student proficiency in the technical field for the program. The school district or BOCES may select a New York State licensing examination as the technical assessment.
- The school district or BOCES determines the scheduling and administration of technical assessments. It is not required that the technical assessment be administered at the conclusion of the program. Parts may be administered throughout a student's learning experience.
- The school district or BOCES determines the number of times a student may take a particular technical assessment.
- The school district or BOCES must comply with existing laws and regulations related to administration of technical assessments to students with disabling conditions and provide appropriate testing modifications. Restrictions on student eligibility for testing are the responsibility of the test producer.
- In the absence of an appropriate nationally-recognized industry standard based assessment, a consortium of local, regional, state, business and industry representatives may be formed to produce such an instrument.
  - Technical assessments must meet generally recognized psychometric criteria. Therefore, the consortium approach may be expensive because of the many steps required to insure assessment validity, reliability, and security.
  - An existing CTE advisory committee or craft committee is not a technical assessment consortium. The school district or BOCES must ensure that the assessment consortium adequately represents current business and industry standards for the specific career area for the program.
- Where an appropriate technical assessment exists, but consists of only one or two parts, a consortium must be formed to develop the missing part(s).
- The school district or BOCES must develop a system to collect student-level and program-level data on performance on the technical assessment.

Documentation

Recommendations on the technical assessment selection should be included in the self-study report and reviewed by the external committee.

Resources

New York State graduation requirements: http://www.emsc.nysed.gov/part100/pages/1005.html
Information on the Technical Endorsement: http://www.emsc.nysed.gov/cte/ctepolicy/endorsement.html

PRECISION EXAMS

Manufacturing Technology

EXAM INFORMATION

Items
52
Points
63
Prerequisites
NONE
Course Length
ONE SEMESTER

Career Cluster
MANUFACTURING
SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS

Performance Standards
INCLUDED

Certificate Available
YES

DESCRIPTION

Manufacturing Technology introduces students to the manufacturing industry. Students must demonstrate knowledge and skill about how manufactures use technology to change raw materials into finished products. Topics include; history of manufacturing, social impacts, types of manufacturing production, design processes, properties of materials, manufacturing processes, safe use of tools and equipment, free enterprise and marketing principles, and career exploration.

EXAM BLUEPRINT

STANDARD	PERCENTAGE OF EXAM
1- Safety Practices	21%
2- Effects of Technology	11%
3- Manufacturing Technologies	40%
4- Free Enterprise and Marketing	8%
5- Mass Production System	16%
6- Career Opportunities	4%

STANDARD 1
STUDENTS WILL FOLLOW SAFETY PRACTICES

Objective 1 Identify potential safety hazards and follow general laboratory safety practices.

1. Assess workplace conditions with regard to safety and health.
2. Identify potential safety issues and align with relevant safety standards to ensure a safe workplace/jobsite.
3. Locate and understand the use of shop safety equipment.
4. Select appropriate personal protective equipment.

Objective 2 Use safe work practices.

1. Use personal protective equipment according to manufacturer rules and regulations.
2. Follow correct procedures when using any hand or power tools.

Objective 3 Complete a basic safety test without errors (100%) before using any tools or shop equipment.

Standard 1 Performance Evaluation included below (Optional)

STANDARD 2
STUDENTS WILL DEVELOP AN UNDERSTANDING OF THE CULTURAL, SOCIAL, ECONOMIC, AND POLITICAL EFFECTS OF TECHNOLOGY, THE EFFECTS OF TECHNOLOGY ON THE ENVIRONMENT, THE ROLE OF SOCIETY IN THE DEVELOPMENT AND USE OF TECHNOLOGY, AND THE INFLUENCE OF TECHNOLOGY IN HISTORY

Objective 1 In order to be aware of the history of technology, students should learn that:

1. Many inventions and innovations have evolved by using slow and methodical processes of tests and refinements.
2. The specialization of function has been at the heart of many technological improvements.
3. The design and construction of structures for service or convenience have evolved from the development of techniques for measurement, controlling systems, and the understanding of spatial relationships.
4. In the past, an invention or innovation was not usually developed with the knowledge of science.

Objective 2 In order to realize the impact of society on technology, students should learn that:

1. Throughout history, new technologies have resulted from the demands, values, and interests of individuals, businesses, industries, and societies.
2. The use of inventions and innovations has led to changes in society and the creation of new needs and wants.
3. Social and cultural priorities and values are reflected in technological devices.
4. Meeting societal expectations is the driving force behind the acceptance and use of products and systems.

Objective 3 In order to understand the effects of technology on the environment, students should learn that:

1. The management of waste produced by technological systems is an important societal issue.
2. Technologies can be used to repair damage caused by natural disasters and to break down waste from the use of various products and systems.

3. Decisions to develop and use technologies often put environmental and economic interests in direct competition with one another.

Standard 2 Performance Evaluation included below (Optional)

STANDARD 3

STUDENTS WILL DEVELOP AN UNDERSTANDING OF AND BE ABLE TO SELECT AND USE APPROPRIATE MANUFACTURING TECHNOLOGIES

Objective 1 In order to better understand manufacturing technologies, students should learn that:

1. Materials must first be located before the can be extracted from the earth through such processes as harvesting, drilling, and mining.
2. Materials have different qualities and may be classified as natural, synthetic, or mixed.
3. Manufacturing systems are mechanical processes that change the form of materials through the process of separating, forming, combining, and conditioning.
4. Chemical technologies are used to modify or alter chemical substances and provide a means for humans to alter or modify materials and produce chemical products.

Objective 2 In order to select and use manufacturing technologies, students should learn that:

1. The manufacturing process includes the designing, development, making, and servicing of products and systems.
2. Manufacturing systems may be classified into types, such as customized production, batch production, and continuous production.
3. Manufactured goods may be classified as durable and non-durable. Durable goods are designed to operate for a long period of time, while non-durable goods are designed to operate for a short period of time.
4. The interchangeability of parts is an inherent requirement of an effective manufacturing processes.
5. Servicing keeps products in good condition.

Objective 3 Demonstrate basic technical drawing and reading skills.

Objective 4 Take measurements using basic equipment used in manufacturing.

1. Steel rule
2. Digital or analog caliper
3. Micrometer

Standard 3 Performance Evaluation included below (Optional)

STANDARD 4

STUDENTS WILL DEFINE FREE ENTERPRISE AND MARKETING AS IT RELATES TO MANUFACTURING

Objective 1 In order to define free enterprise and marketing, student should learn that:

1. The basic concepts of entrepreneurship.
2. The process of obtaining capital and managing finances.

3. Marketing a product involves conducting research on its potential, establishing a product's identity, advertising it, selling it, and distributing it.

Standard 4 Performance Evaluation included below (Optional)

STANDARD 5

STUDENTS WILL DESIGN AND OPERATE TO A MASS PRODUCTION SYSTEM THAT CREATES APRODUCT OF VALUE

Objective 1 In order to better understand a production system, students will:

1. Assume an individual production role within a continuous system.
2. Understand the importance of labor efficiency and be able to identify ways to improve a mass production system.
3. Include evidence of planning that ensures the product, system, or service meets established criteria.

Standard 5 Performance Evaluation included below (Optional)

STANDARD 6

STUDENTS WILL INVESTIGATE THE EDUCATIONAL PATHWAYS AND CAREER OPPORTUNITIES IN THE MANUFACTURING INDUSTRY

Objective 1 Identify occupations related to the manufacturing industry.

Objective 2 Identify different types of occupational training.

Standard 6 Performance Evaluation included below (Optional)

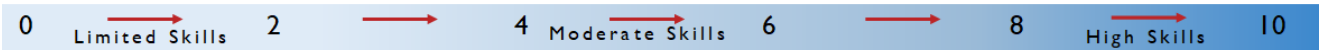
Manufacturing Technology Performance Standards (Optional)

Performance assessments may be completed and evaluated at any time during the course. The following performance skills are to be used in connection with the associated standards and exam. To pass the performance standard the student must attain a performance standard average of **8 or higher** on the ratingscale. Students may be encouraged to repeat the objectives until they average **8 or higher**.

Students Name_____

Class_____

PERFORMANCE RATING SCALE



STANDARD 1 Safety Practices — Score:

- ☐ Follow safety practices

STANDARD 2 Cultural Effects of Technology — Score:

- ☐ Develop an understanding of the cultural, social, economic, and political effects of technology, the effects of technology on the environment, the role of society in the development and use of technology, and the influence of technology on history

STANDARD 3 Manufacturing Technologies — Score:

- ☐ Develop an understanding of and be able to select and use appropriate manufacturing technologies

STANDARD 4 Free Enterprise Marketing — Score:

- ☐ Define free enterprise and marketing as it relates to manufacturing

STANDARD 5 Mass Production Operation System — Score:

- ☐ Design and operate to a mass production system that creates a product of value

STANDARD 6 Career Opportunities — Score:

- Investigate the educational pathways and career opportunities in the manufacturing industry

PERFORMANCE STANDARD AVERAGE SCORE:

SCSD CTE Student Portfolio

Definition: Student portfolios are a collection of personal documents, which showcase an individual's learning experiences, goals and achievements. Student portfolios are created and controlled by the student, facilitated by the instructor, and evaluated by outside entities.

Purpose: Students should be able to leave a program with as many tools in their toolbox as possible. Student portfolios are a way to assist students in marketing themselves in future interviews, by using the portfolio to illustrate his or her skills and/or talents.

SCSD CTE Student Portfolio Requirements

☐	**Table of Contents:**	This should list each section and piece of the portfolio in the order it appears
☐	**Cover letter**	A cover letter introducing the student to a potential employer about a specific job in his or her chosen pathway. Should focus on why the student is the best candidate for the job. It should complement the resume, not repeat it.
☐	**Resume**	Should be professionally formatted. Usually a one-page document listing the student's name, personal information (address, phone, and email), an objective, work history or extracurricular/community involvement, education, certifications/credentials, personal skills/interests, and references.
☐	**Letters of Recommendation**	Students must include at least two (2) reference letters, provided by people outside the school who are familiar with his or her work or character. The reference letters can be employment-related, personal, or they can attest to the character of the student.
☐	**Certifications/Credentials**	Students should include copies of any credentials and/or certifications they have earned as a result of their program.
☐	**Transcript**	Student provides a copy of his or her full academic transcript.
☐	**Employability Profile**	Per NYSED: The work skills employability profile is intended to document student attainment of technical knowledge and work-related skills. Documents to validate skills reported on the profile could include, but are not limited to, an employer/teacher review of student work based on learning standards and expectations in the workplace, performance evaluations and observations. Students must have at least one employability profile completed within one year prior to school exit. If a student is involved in a number of work-based learning experiences and/or is employed part time, he/she may also have additional employability profiles as completed by others knowledgeable about his or her skills (e.g.,

	employer and/or job coach).
☐ **College Research**	A written research assignment focusing on three colleges offering programs in the student's chosen career pathway.
☐ **Career Plan**	Per NYSED: "Career Plans are an important mechanism to add relevance and meaning to learning experiences across subject areas. The career development model used to create the Career Plan aligns with the CDOS standards." A Career Plan document can be found here: http://www.p12.nysed.gov/cte/careerplan/docs/SecondaryCommencLvl.pdf
☐ **Student Awards**	This section is completely open ended. Students should use this section to illustrate any awards, projects, exemplars, service learning, or scholarships, they participated or earned during their high school years. They can show evidence through pictures, project documentation, news articles, program agendas, meeting minutes, videos, etc.
☐ **Work Samples**	Examples highlighting ***only the student's best work***, demonstrating the skills and competencies he or she has mastered. These should be presented professionally and be clearly captioned. ***Should not be thought as a scrapbook.*** Potential employers are only interested in the very best examples.

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Return to TOC

D. Postsecondary Articulation

> *The self-study team reviews the postsecondary articulation agreement for the program seeking approval. Postsecondary articulation agreements help students prepare for the transition from high school to advanced study in a particular career area. Articulation agreements provide direct benefits to students such as dual credits, college credits, advanced standing, or reduced tuition at a postsecondary institution. Articulation agreements may include several school districts and/or BOCES and multiple postsecondary institutions. The school district or BOCES may enter into multiple articulation agreements for a program seeking approval.*

Process

- Reviewers confirm that the postsecondary articulation agreement is designed to prepare students for the transition from high school study to postsecondary study in the career area of the program seeking approval.
- Reviewers confirm that a postsecondary articulation agreement has been obtained that offers direct benefits to students in the program seeking approval.
- Reviewers confirm that the postsecondary articulation agreement includes the
  - prerequisite skills, knowledge, or coursework required of students to participate in the agreement
  - roles and responsibilities of each institution
  - duration of the agreement
  - endorsement by officials of each institution
- Signed articulation agreements must be on file within the school district or BOCES.

Documentation

Documentation of the postsecondary articulation agreement is maintained by the school district or BOCES and updated whenever modifications are made. Recommendations on the technical assessment selection should be included in the self-study report and reviewed by the external committee. A copy of the signed postsecondary articulation agreement must be attached to the Application for Career and Technical Education Program Approval.

Source: http://www.p12.nysed.gov/cte/ctepolicy/guide.html

MOHAWK VALLEY COMMUNITY COLLEGE
UTICA-ROME, NY 13501
AND
SYRACUSE CITY SCHOOL DISTRICT
725 HARRISON STREET, SYRACUSE NY 13210

ARTICULATION AGREEMENT

The purpose of this articulation agreement is to develop an ongoing relationship between Mohawk Valley Community College (MVCC) and Syracuse City School District (SCSD), enabling each of these institutions to better serve their communal students. The relevant faculties of MVCC and SCSD subscribe to the following memorandum of understanding based on their mutual concern for providing applied programs that will build upon past student experiences and eliminate unnecessary duplication of instruction.

It is agreed, subject to the following conditions, that MVCC will grant 3-college credit hours for ET127-Modern Industrial Processes for all students who complete SCSD's Manufacturing Technology CTE program *(Note: This agreement is valid for up to 1-year post SCSD graduation).*

To receive college credit for ET127, SCSD Manufacturing Technology CTE graduates must meet the following criteria:

1. Achieved a minimum cumulative average of 85 during their SCSD secondary school experience.
2. Completed the SCSD Manufacturing Technology CTE pathway.

Process for granting credit owed:

1. Students will arrange a meeting with the Assistant Vice President (AVP), Academic Affairs or designee by calling 315-792-5446 upon entrance into MVCC. At the meeting, students will provide documentation supporting their attainment of the above criteria #1-2.
2. The AVP or designee will verify that the student meets criteria #1-2 identified above.
3. Upon verification of the student's fulfillment of criteria #1-2, the AVP or designee will communicate with MVCC's Registrar to authorize the granting of transfer credit for ET127.

This agreement is effective for 5-years subsequent the completion of the signing process unless either party has significant changes in the program. SCSD may terminate the Agreement upon thirty (30) days written notice to the College. The College reserves the right to make final determination concerning all college credit awarded. This Agreement incorporates all provisions of the Data Privacy Plan and Parents' Bill Of Rights For Data Security And Privacy executed by MVCC.

Syracuse City School District

Manufacturing Technology Instructor	Date
Director of Career Technical Education	Date 3/11/22
Superintendent	Date 3/9/22

Mohawk Valley Community College

Dean, School of STEM-Transfer	Date 3/14/22
V.P. for Learning & Academic Affairs	Date 3/23/22
President TB	Date 3/31/22

Mohawk Valley Community College does not discriminate on the basis of age, race, creed, color, sex, sexual orientation, national origin, disability, veteran status, gender identity, pregnancy, religion, predisposing genetic characteristics, marital status or domestic violence victim status in admissions, employment, and treatment of students and employees or in any aspect of the business of the College.

E. Work-based Learning

> *Work-based learning (WBL) is the "umbrella" term used to identify activities which collaboratively engage employers and schools in providing structured learning experiences for students. These experiences focus on assisting students to develop broad, transferable skills for postsecondary education and the workplace. A quality WBL experience can make school-based learning more relevant by providing students with the opportunity to apply knowledge and skills learned in the classroom to real world situations.*
>
> *Time requirements that students in an approved program may devote to work-based learning experiences are set by administrators of the approved program. This time should be an outcome of the self-study report and external review phases of the approval process. Work-based learning experiences must be sufficient in length and rigor to contribute to student achievement of the State learning standards as well as specific technical competencies.*

Process

- The school district/BOCES and the employer cooperatively plan all work experiences.
- The school district/BOCES set up a formal procedure for the supervision/coordination of all work-based learning experiences and must ensure that work-based learning coordinators are appropriately certified.
- The school district/BOCES provide work-based learning experiences for students with disabilities
- The school district/BOCES and employer must ensure compliance with federal and state labor laws, and the State Department of Labor regulations and guidelines.
- The school district/BOCES must explore and develop work-based learning experiences in settings that are relevant to the program.
- The school district/BOCES must comply with Commissioner's Regulations and Department policy where credit towards graduation is being awarded.

Documentation

Recommendations for work-based learning should be included in the self-study report and reviewed by the external committee.

Resources

New York State Education Department Work Experience Manual
http://www.emsc.nysed.gov/cte/wbl/

Source: http://www.p12.nysed.gov/cte/ctepolicy/guide.html

SYRACUSE CITY SCHOOL DISTRICT

Career and Technical Education

CTE

Internship Handbook

Preparing today's students for tomorrow's careers.

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Syracuse City School District

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Forms are available on SCSD CTE website www.syracusecityschools.com/cte

Introduction

Syracuse City School District Career and Technical Education Work Based Learning

Learning in the workplace is not a new concept. Informal, on-the-job training is an integral part of all workforce development. Work based learning (WBL) provides structured learning experiences for students through exposure to a range of occupations. The Harvard Universityreport, Pathways to Prosperity (February, 2011) suggested that "Work-linked learning should play an especially important role in the new American system of pathways
to prosperity. There is mounting evidence that this would be an effective strategy for encouraging young adults to complete both high school and post-secondary degrees. Co-operative education is a tested model that provides students with extensive work experience that is monitoredby the school."

Learning in the workplace is connected to and supports learning in the classroom. Work based learning also helps students achieve established academic standards. Properly developed and supported, work based learning provides a practical context for school subject matter and enhances thetraditional classroom learning. Work based learning activitiespromote the development of broad, transferable skills and are a key element of a rigorous and relevant education for students. It enables students to acquire the attitudes, skills and knowledge needed to succeed in today's workplace.

Employer partners can develop and support work based learning experiences that promote the attainment of workplace knowledge and skills. In doing so, they can support academic achievement and personal growth by designing, structuring, supporting and connecting work based learning experiences. Work based learning also supports professional, technical, and work-readiness skillsdevelopment. Quality work based learning should:

- Be designed to enhance the learning of skills and workplace knowledge in all aspects of the industry
- Be structured to be safe, legal and measurable
- Be developmentally appropriate
- Have identified learning objectives and assessstudent performance
- Develop career ready practices and provideopportunities for reflection
- Be supported and documented by appropriateplanning and training; and
- Comply with State and Federal labor laws

Syracuse City School District Career and Technical Education Internship

A Career and Technical Education Internship provides an important link between the classroom and the workplace for students age 16 and older. It is a structured, time- limited, career preparation activity in which students are assigned to a workplace for a defined period of time to participate in and observe firsthand within a given industry.The internship enhances and adds relevance to classroom learning. The internship may provide the opportunity to work in teams, rotate through a number of departments and job functions, or work on a project of interest to the student. It is essentially a partnership that links school, community, and business/industry to provide a real-world environment in which students are given the opportunity
to apply, and thereby enhance, the knowledge and skills obtained in the classroom. The internship is related to the student's CTE program of study, with the primary goals ofpromoting:

- The exploration of and experience in a field ofinterest
- Exposure to a wide range of careers and jobs within anindustry
- Opportunities to develop, practice and demonstratenew skills
- The acquisition of occupational knowledge and awareness of the skills and education needed to besuccessful in the industry

CTE Teacher

Career & Technical Program/Teacher Guidelines

Legal Requirements of SCSD CTE Internship Program

All Career and Technical Education Internship Programshave the common objective of providing opportunities for students to develop and demonstrate job skills at a supervised worksite. They are supported by training plans developed cooperatively by the employer, instructor, and student. There should be ongoing communication between the job mentors and the CTE teacher or work based learning coordinator concerning students' performance andneeds.

Each internship program needs to have the following:

- New York State Education Department (NYSED)approval of the CTE program
- The employer understands that the student placement is governed by NYSED, New York State Workers' Compensation Board (NYSWCB), New York State Department of Labor (NYSDOL), and United States Department of Labor (USDOL) laborlaws and regulations
- Employer is provided a Certificate of Insurance fromschool where school liability insurance protects the employer from any damage student may do in the workplace
- Students are given written notification that this program is unpaid and they are not due any wages perNYSDOL regulations
- Per NYS, students are required to receive coverage under the employer's Workers' Compensation Insurance if student is interning for a for-profit company. If student is interning at a non-profit entity,the student is required to be covered by the employer'svisitors or volunteer insurance.
- Worksite must be in compliance with OccupationalSafety and Health Administration (OSHA) regulations. Health and safety instruction/trainingappropriate for the job is provided by the SCSD and employer specific training is provided by the employer on the worksite.
- Memorandum of Agreement is in effect between the cooperating business and the education agency and outlines the responsibilities of the student, employer, parent/guardian, and school/coordinator, all of whom must sign to confirm their support of the agreement.
- Students complete an Internship Application indicating their understanding of, and agreement to,all rules and regulations of the program.
- Students receive instruction embedded within their CTE curriculum relating to the technical and career ready practices.
- An Internship Training Plan (ITP) is developed and used for each participating student. The plan identifiesthe general and specific job tasks the student will perform on the job, the desired learning outcomes of the experience, and the time frame the student will spend at each task. The training plan should be designed to ensure that the student will have a progressive learning experience.
- All participating students are meeting, or have met, academic requirements of their CTE programs and academic subjects. No students on academic probationwill participate in the internship.
- Employment Certificate (Working Papers) for students provide verification that a student under age18 is eligible for employment. The student, employer,and school must complete the form. Employment certificates are obtained at the high school – typicallythe main office, health office, or guidance office.
- Time Log/Record of Attendance provides an official record of the weekly and cumulative hours the student has worked during the experience. It must bemaintained for each student.
- An intern evaluation will be done by the CTE teacher before the internship, at the midpoint of the internshipand at the end of the internship. This same form will be completed by the on-site supervisor in the midpointand at the end of the internship.

SCSD CTE Internship Program Checklist
(To be completed by CTE teacher or WBL coordinator)

- ☐ NYSED has approved the CTE program
- ☐ The employer understands that the student placement is governed by NYSED, NYSWCB, NYSDOL, and USDOL labor laws and regulations
- ☐ NYSED Application for Employment certificate (working papers, usually available in school counseling office) has been verified (NYSED form attached)
- ☐ Employer is provided with a Certificate of Insurance from school to cover liability (sample attached)
- ☐ A written Memorandum of Agreement is in effect between the cooperating business and the education agency (**Form #1**)
- ☐ Students complete an Internship Application indicating their understanding of, and adherence to all rules and regulations set forth by the program. (**Form #2**)
- ☐ Students receive instruction embedded within their CTE curriculum relating to the technical and Career Ready Practices. The CTE teacher and the student have completed the SCSD CTE Internship Ready to Work Assessment (**Form #3**)
- ☐ An Internship Training Plan (ITP) is developed and used for each participating student (**Form #4**)
- ☐ Students are given written notification that this program will be unpaid and they are not due any wages per NYS DOL regulations (**Form #5**)
- ☐ All SCSD internship candidates have received appropriate safety certification for the industry provided by the school before internship and employer specific training and orientation is provided by the employer on the worksite (**Form #6 & Form #7**)
- ☐ All participating students are meeting, or have met, academic requirements of their CTE programs and academic subjects
- ☐ Review Time Log/Record of Attendance which serves as an official record of the hours the student has worked during the experience (**Form #8**)

REQUIRED FORMS

NYSED Application for Employment Certificate

Certificate of Insurance

SCSD Memorandum of Agreement (Form #1)

SCSD Internship Program Application (Form #2)

SCSD Internship Ready to Work Assessment (Form #3)

SCSD Internship Training Plan (Form #4)

SCSD Notification of unpaid internship (Form #5)

SCSD Internship Safety Certification (Form #6)

SCSD Worksite Orientation (Form #7)

SCSD Weekly Time Log/Record of Attendance (Form #8)

Forms are available online at the SCSD CTE website : www.syracusecityschools.com/cte

CTE Teacher/WBL Coordinator

Date

Employer Internship Partner Guidelines

SCSD CTE Internship Employer Requirements

Safety

At all times, both school personnel and the employment site personnel must take appropriate steps to ensure thatsafe practices are stressed and followed. However, it is impossible to guarantee that no injuries resulting in medicalexpenses and liability will occur. The following prudent steps are encouraged:

1. In-school course content must include training related to safety at the worksite. Appropriate safety certification should be offered if possible. SCSD internship candidates will have received appropriatesafety training before beginning their internship.
2. Any sites used for SCSD CTE internships will bereviewed by school personnel prior to placing a student at the worksite.
3. Employers must provide safety training information to interns as they would a new employee. Safety training must be provided if the employer engaged in a particularly hazardous occupation for minors asdefined by the USDOL.
4. Provisions for student safety must be included as partof the training agreement signed by the employer, student, parent, and school representative.

Types of Liability Insurance and Risk Management

Workers' Compensation and Employer Liability Insurance

All employers will have a policy that provides coverage for the Workers' Compensation statutory benefits as well as liability coverage for certain employment-related situations.Verification of employer's Workers Compensation insurance will be included in the Memorandum of Agreement. The SCSD will also have insurance that covers the student participating in a school-related internship experience.

SCSD CTE Internship Expectations & Responsibilities ofEmployer

Before

- Determine projects or activities that would beappropriate for your student intern
- Communicate with staff that an intern will be at theworkplace and identify mentors
- Designate one employee, the on-site supervisor, to work with coordinator/teacher to develop and definesuccessful student objectives and experiences and record on the student Internship Training Plan

During

- Provide student with a Work Site Orientation toorganization and any required training
- Train student intern for your work site, including allwork site safety training
- Maintain a quality, safe and legal learning experience;provide effective supervision
- Use the Internship Training Plan as a guide for the internship; hold intern to employee standards/ expectations; oversee, direct, and provide adequate tasking to maximize learning
- Meet with coordinator/teacher and student to decideon an ongoing communications strategy
- Evaluate intern work and provide constructivecriticism
- Assist student in working toward learning outcomes
- Coordinate student schedule, approve weeklytimesheets
- Communicate successes and opportunities at the workplace that the teacher can use to enhance the value of classroom connections
- Complete a student evaluation midway throughinternship and discuss with student

After

- Complete a final evaluation of the student
- Hold debriefing session and review performance withthe student and teacher
- Complete a Program Evaluation

Employer Internship Partner

SCSD CTE Internship Employer Internship Partner Checklist (To be completed by On-Site Supervisor/Mentor)

- ☐ Meet with coordinator/teacher and student to agree on ongoing communication strategy (e-mail, text, telephone, etc.)
- ☐ A written Memorandum of Agreement is in effect between the cooperating business and the education agency (**Form #1**)
- ☐ Work with coordinator/teacher to develop and define successful student objectives and experiences and record on the student Internship Training Plan (**Form #4**)
- ☐ Coordinate student schedule, approve weekly time log/record of attendance (**Form #8**)
- ☐ Communicate with staff that an intern will be at the workplace and identify on-site supervisor and/or mentor

  On-Site Supervisor _____

  Mentor Name _____
- ☐ Provide student with Work Site Orientation to organization and any required training (Form #7)
- ☐ Create and maintain a quality, safe and legal learning experience
- ☐ Hold intern to employee standards/expectation; provide student support and candid feedback
- ☐ Communicate successes and opportunities at the workplace that the teacher can use to enhance the value of classroom connections
- ☐ Complete an interim SCSD CTE Internship Ready to Work Assessment of student performance and discuss with student (**Form #3**)
- ☐ Provide effective supervision
- ☐ Complete a final assessment of the student (**Ready to Work Assessment, Form #3 and Student Training Plan, Form #4**)
- ☐ Complete a program evaluation (**Form #10**)

REQUIRED FORMS

SCSD Memorandum of Agreement (Form #1)

SCSD Internship Ready to Work Assessment (Form #3)

SCSD Internship Training Plan (Form #4)

SCSD Worksite Orientation (Form #7)

SCSD Weekly Time Log/Record of Attendance (Form #8)

SCSD Mentor Program Evaluation (Form #10)

Forms are available online at the SCSD CTE website : www.syracusecityschools.com/cte

_____ _____

Employer/ Mentor Date

Student Intern Guidelines

Expectations and Responsibilities of Students

Before

- Obtain working papers (if under 18)
- Return Internship Application and all permissionslips with appropriate signatures
- Meet with your teacher/coordinator and worksite supervisor to finalize an Internship Training Plan

During

- Attend Orientation at the worksite
- Observe all workplace rules and regulations particularly those applicable to safety and securityconcerns
- Perform all duties, jobs and assigned tasks; treatinternship like a real job
- Maintain regular work schedule and notify supervisor in advance of any vacation/appointments
- Track you hours as instructed on Weekly Timesheet
- Develop skill specific learning outcomes with yourworksite supervisor
- Participate in ongoing reflection journal activitiesand skill building classroom assignments
- Communicate with your teacher/coordinator andworksite supervisor if issues arise
- Keep copies of all necessary paperwork (work journal, training plan, Weekly Time Log/Record ofAttendance, and evaluations)

After

- Participate in self-evaluation and reflection activities
- Update your resume based upon new skills andexperiences gained
- Send thank you note to employer

Student Intern

SCSD CTE Internship Student Checklist (To be completed by student)

- ☐ Obtain NYSED Application for Employment Certificate (usuallyavailable in school counseling office, application attached)
- ☐ A written Memorandum of Agreement is in effect between thecooperating business, the education agency, and signed by student and parents (**Form #1**)
- ☐ Return Internship Application (**Form #2**) and all permission slipswith appropriate signatures
- ☐ Develop skill specific learning outcomes with your worksitesupervisor
- ☐ Meet with your teacher/coordinator and worksite supervisor tofinalize an Internship Training Plan for the internship (**Form #4**)
- ☐ Attend orientation at the worksite (**Form #7**)
- ☐ Observe all workplace rules and regulations particularly thoseapplicable to safety and security concerns
- ☐ Perform all duties, jobs and assigned tasks; treat internship like areal job
- ☐ Maintain regular work schedule and notify supervisor in advanceof any vacation/appointments
- ☐ Track you hours as instructed on time log/record of attendance(**Form #8**)
- ☐ Participate in ongoing reflection activities and skill buildingclassroom assignments
- ☐ Communicate with your teacher/coordinator and worksite supervisor, if issues arise and keep copies of all necessary paperwork (work journal, training plan, Weekly Time Log/Recordof Attendance, and evaluations)
- ☐ Participate in self-evaluation and reflection activities (**Forms #3 & #9**)
- ☐ Update your resume based on new skills and experiences gained
- ☐ Send thank you note to employer

REQUIRED FORMS

SCSD Memorandum of Agreement
(Form #1)

SCSD Internship Program Application
(Form #2)

SCSD Internship Ready to Work Assessment
(Form #3)

SCSD Internship Training Plan
(Form #4)

SCSD Worksite Orientation
(Form #7)

SCSD Weekly Time Log/Record of Attendance
(Form #8)

SCSD Student Evaluation
(Form #9)

Forms are available online at the SCSD CTE website : www.syracusecityschools.com/cte

Student _____ Date _____

SCSD CTE Internship Forms

NYSED Application for Employment Certificate

SCSD Certificate of Insurance to Cover Student Liability

(Sample) Form #1 SCSD Memorandum of Agreement

Form #2 SCSD Internship Program Application

Form #3 SCSD Internship Ready to Work Assessment

Form #4 SCSD Internship Training Plan

Form #5 SCSD Notification of unpaid internship

Form #6 SCSD Internship Safety Certification

Form #7 SCSD Worksite Orientation

Form #8 SCSD Weekly Time Log/Record of Attendance

Form #9 SCSD Student Evaluation

Form #10 SCSD Mentor Program Evaluation

Forms are available on SCSD CTE website at www.syracusecityschools.com/cte

AT-17
Rev. 5/10

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATEEDUCATION DEPARTMENT
ALBANY, NY 12234

APPLICATION FOR EMPLOYMENT CERTIFICATE

See reverse side of this form for information concerning employment of minors. All signatures must be handwritten in ink, and applicant must appear in person before the certifying official.

THIS APPLICATION DOES NOT AUTHORIZE EMPLOYMENT

PARTI - **Parental Consent** - (To be completed by applicant and parent or guardian)

Parent or guardian must appear at the school or issuing center to sign the application for the first certificate for full-time employment, unless the minor is a graduate of a four-year high school and presents evidence thereof. For all other certificates, the parent or guardian must sign the application, but need not appear in person to do so.

I, ……. Age ……. Date ……..

Home Address ....., apply for a certificate as checked below
[Full Home Address including Zip Code]

- □ Nonfactory Employment Certificate - Valid for lawful employment of a minor 14 or 15 years of age enrolled in day school when attendance is not required.
- □ Student General Employment Certificate - Valid for lawful employment of a minor 16 or 17 years of age enrolled in day school when attendance is not required.
- □ Full-Time Employment Certificate - Valid for lawful employment of a minor 16 or 17 years of age who is not attending dayschool.

I hereby consent to the required examination and employment certification as indicated above.

……
[Signature of Parent or Guardian)

PART II - **Evidence of Age** - (To be completed by issuing official only)

……Check evidence of age accepted - Document# (if any) ……
[Date of Birth)

Birth Certificate State Issued Photo I.D Driver's License Schooling Record Other ……..

PART III - **Certificate of Physical Fitness**

Applicant shall present documentation of physical exam from a school or private physician, physician's assistant or nurse practitioner licensed to practice within New York State. Said examination must have been given within 12 months prior to issuance of the employment certificate. Date of physical exam on file with school..... If physical exam is over 12 months, provide student with certificate of physical fitness to be completed by school medical director or private health care provider.

If the physical exam or Certificate of Physical Fitness is limited with regards to allowed work/activity, the issuing official shall issue a Limited Employment Certificate (valid for a period not to exceed 6 months unless the limitation noted by the physician is permanent then the certificate will remain valid until the minor changes jobs. Enter the limitation on the employment certificate. THE PHYSICIAN'S CERTIFICATION SHOULD BE RETIJRNED TO THE APPLICANT.

PART IV - **Pledge of Employment** - (To be completed by prospective employer)

Part IV must be completed only for: (a) a minor with a medical limitation; and (b) for a minor 16 years of age or legally able to withdraw from school, according to Section 3205 of the Education Law, and must show proof of having a job.

The undersigned will employ……. residing at ……..
(applicant)

as ……. at ……
(description of applicant's work) (job location)

for…… days per week …….. hours per day, beginning…….. a.m……..p.m……..

……Factory, ending……a.m……p.m……..
(name of firm)

Nonfactory……..
(address of firm)

……. Start date…… ……
(telephone number) (signature of employer)

PART V- Schooling Record- (To be completed by school official)

Part V must be completed only for a minor 16 years of age who is leaving school and resides in a district (New York City and Buffalo) which require a minor 16 years of age to attend school, according to Section 3205 of the Education Law.

I certify that the records of..... ……
(Name of School) (Address)

Show that..... whose date of birth is ……
(Name of Applicant)

Is in grade…… ……..
(Signature of Principal or Designee)

PART VI - Employment Certification - (To be completed by issuing official only)

Certificate Number …….. Date Issued…….

…… …….. ……
(School or Issuing Center) (Address) (Signature of Issuing Officer)

GENERAL INFORMATION

An employment Certificate (Student Nonfactory, Student General, or Full Time) may be used for an unlimited number of successive job placements in lawful employment permitted by the particular type of ce1tificate.

A Nonfactory Employment Certificate is valid for 2 years from the date of issuance or until the student turns 16 years old, with the exception of a Limited Employment Certificate. A Limited Employment Certificate is valid for a maximum of 6 months unless the limitation noted by the physician is permanent, then the certificate will remain valid until the minor changes job. It may be accepted only by the employer indicated on the certificate.

A new Certificate of Physical Fitness is required when applying for a different type of employment certificate, if more **than 12 months have elapsed since the previous physical for employment.**

An employer shall retain the certificate on file for the duration of the minor's employment. Upon termination of employment, or expiration of the employment certificate's period of validity, the certificate shall be returned to the minor. A certificate may be revoked by school district authorities for cause.

A minor employed as a Newspaper Carrier, Street Trades' Worker, Farm worker, or Child Model, must obtain the Special Occupational Permit required.

A minor 14 years of age and over may be employed as a caddy, babysitter, or in casual employment consisting of yard work and household chores when not required to attend school. Employment certification for such employment is not mandatory.

An employer or a minor in an occupation which does not require employment certification should request a Certificate of Age.

PROHIBITED EMPLOYMENT

Minors 14 and 15 years may not be employed in, or in connection with a factory (except in delivery and clerical employment in an enclosed office thereof), or in certain hazardous occupations such as: construction work; helper on a motor vehicle; operation of washing, grinding, cutting, slicing, pressing or mixing machinery in any establishment; painting or exterior cleaning in connection with the maintenance of a building or Structure; and others listed in Section 133 of the New York State Labor Law.

Minors 16 and 17 years of age may not be employed in certain hazardous occupations such as: construction worker; helper on a motor vehicle, the operation of various kinds of power-driver and others listed in Section 133 of the New York State Labor Law.

HOURS OF EMPLOYMENT

Minors may not be employed during the hours they are required to attend school.

Minors 14 and 15 years of age may not be employed in any occupation (except farm work and delivering, or selling and delivering newspapers):

When school is in **session:**

more than 3 hours on any school day, more than 8 hours on a nonschool day, more than 6 days in any week, for a maximum of 18 hours per week, or a maximum or 23 hours per week if enrolled in a supervised work study program approved by the Commissioner.

after 7 p.m. or before 7 a.m.

When school is not in session:

more than 8 hours on any day, 6 days in any week, for a n1axin1um of 40 hours per week.

after 9 p.m. or before 7 a.m.

This certificate is not valid for work associated with newspaper carrier, agriculture or modeling.

Minors 16 and 17 years of age may not be employed.

When school is **in** session:

more than 4 hours on days preceding school days; more than 8 hours on days not preceding school days (Friday, Saturday, Sunday and holidays), 6 days in any week, for a maximum of 28 hours per week.

between 10 p.m. and 12 midnight on days followed by a school day without written consent of parent of guardian and a certificate of satisfactory academic standing from the minor's school (to be validated at the end of each marking period).

between 10 p.m. and 12 midnight on days not followed by a school day without written consent or parent or guardian.

When school is not in session:

more than 8 hours on any day, 6 days in any week, for a maximum of 48 hours per week.

EDUCATION LAW, SECTION 3233

"Any person who knowingly makes a false statement in or in relation to any application made for an employment certificate or permit as to any matter by this chapter to appear in any affidavit, record, transcript, certificate or permit therein provided for, is guilty of a misdemeanor."

ALC<_!,,,RD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/OO/YYYY)

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:
	PHONE /6/1: .,n .-,n· FAX IAYC No!:
	E-MAIL ADDRESS:

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC#
	INSURERA:	
	INSURERS:	
	INSURERC:	
	INSURERD:	
	INSURERE:	
	INSURERF:	

COVERAGES CERTIFICATE **NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERM,S EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSR	SUBR WVD	POLICY NUMBER	,; M% 1	, g J%Y V)	LIMITS	
A	GENERAL LIABILITY						EACH OCCURRENCE	$
	COMMERCIAL GENERAL LIABILITY CLAIMS-MADE OCCUR						DAMAGE TO RENTED PREMISES /Ea occurrence\	$
	500,000 Retained						MED EXP(Any one person)	S
							PERSONAL& ADV INJURY	S
							GENERALAGGREGATE	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS • COMP/OP AGG	$
	POLICYn rgi,: n LO C							$
	AUTOMOBILE LIABILITY						(Ea accident INGLI=LM	$
	ANY AUTO						BODILY INJURY (Per person)	$
	ALL OWNED AUTOS / SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	HIRED AUTOS / NON-OWNED AUTOS						iP de t?AMAGE	$
								$
	UMBRELLA **LIAB** HOCCUR						EACH OCCURRENCE	$
	EXCESSLIAB CLAIMS-MADE						AGGREGATE	$
	OED RETENTION$						.'rr. ,,	$
	AND EMPLOYERS' LIABILITY **WORKERS COMPENSATION** YIN						T"j, JT OJ	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? **(Mandatory in NH)**	N / A					E.L.EACH ACCIDENT	$
	If yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE· EA EMPLOYEE	$
							E.L.DISEASE- POLICY LIMIT	$

DESCRIPTION OF OPERATIONS I LOCATIONS I VEHICLES (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

CERTIFICATE HOLDER

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

Memorandum of Agreement

(Form #1)

Teacher
Employer
Student

Type of Work Based Learning Experience: Non-Paid Internship

This Work Based Learning Experience Agreement is entered into by and between the Syracuse City School District (SCSD) _____ (Student), his/her Parents/Guardian, _____ (Parent/Guardian), and his/her Work Experience Employer,_____(Employer), on the date indicated below, whereby the Student will participate in a CTE Internship (Program at the Employer's place of business located at_____, on_____, during the hours of _____.

THE STUDENT UNDERSTANDS THAT HIS/HER CONDUCT IS A REFLECTION UPON THE SCHOOL NAME AND AGREES THAT HE/SHE WILL:

1. Provide his/her own transportation to and from the Employer's place of business (the SCHOOL, the Student's home school, the SCHOOL and the Employer are in no way responsible for providing the Student with transportation to and/or from the Employer's place of business at any time or for any incidents or accidents which may occur while the Student is on route to or from the Employer's place of business)
2. Demonstrate a conscientious attitude and be honest, punctual, cooperative, courteous and willing to learn while at the Employer's place of business.
3. Keep regular attendance as agreed upon with the Employer, excluding Employer-observed holidays, days on which the Employer's place of business is closed or other legal absences and understands that his/her attendance will be taken from his/her weekly attendance reports.
4. Keep regular attendance at his/her home school.
5. Give the Employer as much advance notice as possible if unable to report for work or to do so in a timely manner and contact the CTE teacher at (315)_____.
6. Report to SCHOOL if the Internship location is closed for any reason during at time in which the student is scheduled to be at the Internship location and SCHOOL is in session.
7. Complete weekly time log/record of attendance (Form # 8) reports as required by SCHOOL.
8. Engage in only those work based learning experiences approved by the supervisor at the work-site.

THE EMPLOYER AGREES THAT IT WILL:

1. Not permit the Student to replace any paid employee (in the case of an Internship).
2. Advise the Student of all company rules, regulations and policies which relate to the Student.
3. Explain to the Student the responsibilities and duties of his/her internship and shall correlate on-the-job training with safety instructions given by the SCHOOL.
4. The work of the Student in occupations declared particularly hazardous by the U.S. Department of Labor shall be (i) incidental to the Student's training; (ii) intermittent and for short periods of time; and (iii) under the direct and close supervision of a qualified and experienced person.
5. Provide direct supervision by an authorized employee to the Student as needed.
6. Complete an accident report form and return to SCHOOL in the event of an accident.
7. Review the Student's performance with him/her on a weekly basis and sign a weekly time sheet, complete an evaluation of the Student on forms provided by the SCHOOL.
8. Inform the SCHOOL Instructor/Coordinator when the Student is absent or not performing adequately by calling (315)_____.

Employer

Student

9. Observe any and all laws that may relate to the Student's work experience.

THE SCHOOL AGREES THAT IT WILL:

1. Carry the insurance listed for students during class activities including internships, job experiences and workplacement.
2. Accident Insurance: SCHOOL carries tertiary accident insurance to cover medical expenses as a result of an accident.The parent's health insurance is primary and the home school district would be secondary. General Liability Insurance: SCHOOL carries general liability insurance to cover up to one million dollars for a single event. As added protection, a ten million dollar umbrella policy is also in effect.
3. Assist the Student in securing internship placement regardless of his/her sex, race, color, national origin or disability (all inquiries and/or complaints regarding discrimination should be directed to the compliance officer, Patty Clark, SCSD Central Office, 725 Harrison Street, Syracuse, New York 13210. Telephone: (315) 435-4131.
4. Provide the STUDENT with safety instructions correlated by the EMPLOYER with on-the-job training.
5. Review with the Student and the Employer their respective responsibilities and obligations while participating in theProgram.

The parties/signatories hereby agree that good communication and understanding between them is vital if the objectivesof this Program are to be met and that joint conferences between the Student, Employer, Parent/Guardian, Instructor, andothers may be scheduled from time to time in order to discuss:

1. the student's progress
2. any misunderstandings
3. the reason for termination of the Agreement

This Agreement is not in effect until signed by all parties. This Agreement may be terminated at any time by any partyupon written notice to the other parties.

We the undersigned, have reviewed and agreed to the terms and conditions set forth herein.

Date __/__/__ _____ Student

Date __/__/__ _____ Parent/ Guardian

Date __/__/__ _____ Daytime Phone

_____ Evening Phone

Date __/__/__ _____ Employer/ Supervisor

Date __/__/__ _____ CTE Teacher

Date __/__/__ _____ Home School Principal

The Syracuse City School District hereby advises students, parents, employees and the general public that it is committed to providing equal access to all categories of employment, programs and educational opportunities, including career and technical education opportunities, regardless of actual or perceived race, color, national origin, Native American ancestry/ethnicity, creed or religion, marital status, sex, sexual orientation, age, gender identity or expression, disability or any other legally protected category under federal, state or local law.
Inquiries regarding the District's non-discrimination policies should be directed to:
Executive Director of Student Support Services, Civil Rights Compliance Officer, Syracuse City School District, 725 Harrison Street • Syracuse, NY 13210
(315) 435-4131, Email: CivilRightsCompliance@scsd.us

Syracuse City School District

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

Teacher

Student

CTE Internship Program Application Form

(Form #2)

Personal Information

Last Name	First Name	Age	Date of Birth
Street		Home Telephone Number	Cell Phone Number
City, State, Zip		Emergency Contact Name	Telephone Number
Email Address		Relationship to Emergency Contact	
Primary Parent/ Guardian Name		Parent/ Guardian's Telephone Number Home Cell	
Primary Parent/ Guardian Email			
Secondary Parent/ Guardian Name		Secondary Parent/ Guardian's Telephone Number Home Cell	
Secondary Parent/ Guardian Email			
Working Papers Certificate Number		SCSD Student schedule should be attached to this form School Counselor	

School Year Training/ Work Schedule Availability

Please list the hours you can work during a typical weekly schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Please check applicable box:

Fixed Schedule ☐

Schedule will vary ☐

Sports, Clubs, and Other Activities

Transportation

Please check the appropriate response

Do you have a license? ☐ Yes ☐ No	If YES, which license do you have? ☐ Full License ☐ Junior License
Do you drive to school? ☐ Yes ☐ No	License Number:

If you do not have a license, how do you plan on getting to and from your internship?

☐ Public Transportation ☐ Other

Teacher

Student

(Form #2 Continued)

INSURANCE COVERAGE IN CASE OF INJURIES TO STUDENT AT INTERNSHIP:

EMPLOYER'S WORKER'S COMPENSATION MUST COVER THE STUDENT IN CASE OF INJURIES AT TRAINING SITE.

PROGRAM AWARENESS STATEMENT TO BE CHECKED BY STUDENTS:

- ☐ In order to receive credit for my work-based learning experience, I must be training at a legal site approved by the school's CTE Teacher or work-based learning coordinator.
- ☐ I must notify my CTE teacher or work-based learning coordinator immediately if there is a change of work schedule or duties at the training site.
- ☐ Failure to report any disciplinary action, termination, or proper documentation of hours may result in the student not earning school credit.
- ☐ Students must present all daily attendance records to CTE teacher or work-based learning coordinator weekly and complete all assignments related to the program.
- ☐ I must immediately notify my work-based learning coordinator if I have or develop any medical condition(s) which affects my ability to participate in training, such as allergies, lifting heavy items, movement, standing, sitting, migraine headaches, etc. If there are any current conditions, please state them below. The presence of such a condition will not necessarily preclude me from participating in the internship and accommodations may be provided.

PARENTAL/GUARDIAN PERMISSION AND PICTURE/NEWS STORY RELEASE:

I give my child, _____ permission to participate in the work-based learning internship at the Syracuse City School District. By signing the parental permission form, it is understood that:

- All the information is accurate.
- In order to receive credit, students must work a minimum of 150 hours during the school year.
- All students must report to CTE teacher or work-based learning coordinator in the case of any change in employment.
- Failure to report any disciplinary action, termination, or proper documentation may result in the student not earning schoolcredit.
- Students must present all daily attendance records to CTE teacher or work-based learning coordinator weekly and complete allassignments related to the program.
- A student with a junior license must only drive to school if they go directly to work following the school day and they must carrywith them the proper paperwork as directed by the work-based learning coordinator.

In addition to agreeing with the above statements, please check off one:

- ☐ I give permission for my child's photograph or name to be used to promote the Work Experience Program.
- ☐ I do not want my child's photograph or name to be used to promote the Work Experience Program.

_____	_____	___/___/___
Parent/ Guardian's Name	Parent/ Guardian's Signature	Date

_____

Relationship to Student

_____	_____	___/___/___
Student's Name	Student's Signature	Date

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Teacher

Employer

Student

Syracuse City School District

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

CTE Internship Ready to Work Assessment

(Form #3)

Name _____ Program _____ Date ____/____/____

Scale

1 = Seldom. 2 = Occasionally. 3 = Usually. 4 =

ZEST				
1	Actively participates			
2	Shows enthusiasm			
3	Invigorates others			
GRIT				
4	Finishes whatever he or she begins			
5	Tries very hard even after experiencing failure			
6	Works independently with focus			
SELF CONTROL SCHOOL WORK				
7	Comes to class prepared			
8	Pays attention and resists distractions			
9	Remembers and follows directions			
10	Gets to work right away rather than procrastinating			
SELF-CONTROL INTERPERSONAL				
11	Remains calm even when criticized or otherwise provoked			
12	Allows others to speak without interruption			
13	Is polite to adults and peers			
14	Keeps his/her temper in check			

OPTIMISM				
15	Gets over frustrations and setbacks quickly			
16	Believes that effort will improve his or her future			
GRATITUDE				
17	Recognizes and shows appreciation for others			
18	Recognizes and shows appreciation for his/her opportunities			
SOCIAL INTELLIGENCE				
19	Is able to find solutions during conflicts with others			
20	Demonstrates respect for feelings of others			
21	Knows when and how to include others			
CURIOSITY				
22	Is eager to explore new things			
23	Asks and answers questions to deepen understanding			
24	Actively listens to others.			
ACADEMIC PERFORMANCE				
25	Completes all assignments with quality and timeliness			
26	Uses tools appropriately and safely			
COMMITMENT				
27	Attends class with one or less absences per quarter			
28	Demonstrates loyalty and appreciation to the program and instructors			

Teacher
Employer
Student

Syracuse City School District

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

CTE Internship Training Plan

(Form #4)

Student's Name	Email	
Student's Address	Telephone	Date of Birth
CTE Program Career Cluster	Working Papers Certificate #	
School Coordinator		
Phone Number		
Fax Number		
Email		
Employer		
Phone Number		
Fax Number		
Email		
Immediate Job Supervisor		
Phone Number		
Email		
Corporate Address		

Training Schedule

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

Insurance Coverage

- ☐ Student is a non-paid intern – Worker's Compensation
- ☐ Student is a non-paid observer – Worker's Compensation

Transportation Provided by

- ☐ Student/parent will provide own transportation
- ☐ School district will provide transportation during school hours

Goals for this Work-Based Learning Student:

1. To explore, learn and develop the skills necessary for this career.
2. To develop the Career Ready Practices necessary for success in the global, competitive world.
3. To be trained in the safe operations of this job title.
4. To be able to demonstrate positive behavior and appropriate dress.

(Form #4 Continued)

JOB TASKS AND LEARNING OUTCOMES (Determined by the Employer and Coordinator)	ACHIEVEMENT LEVEL AND COMMENTS 1. Mastered skill 2. Needs more training at the work site. 3. Needs more training at school. 4. Has not reached this training area.
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	

CAREER READY PRACTICES	Always	Frequently	Occasionally	Rarely
1. Student works cooperatively as a team member?	☐	☐	☐	☐
2. Student is able to read instructions for information and application.	☐	☐	☐	☐
3. Student can calculate and measure for information and application.	☐	☐	☐	☐
4. Student can behave in a responsible manner without supervision.	☐	☐	☐	☐
5. Student can communicate verbally and in writing to evoke clear understanding.	☐	☐	☐	☐
6. Student demonstrates good listening and follow through skills.	☐	☐	☐	☐
7. Student demonstrates critical thinking and problem solving skills.	☐	☐	☐	☐
8. Student can locate and manage resources for problem solving.	☐	☐	☐	☐
9. Student demonstrates a positive work ethic.	☐	☐	☐	☐
10. Student demonstrates computer literacy.	☐	☐	☐	☐

Teacher

Employer

Student

SAFETY TRAINING	DATE OF SAFETY TRAINING	ACHIEVEMENT LEVEL AND COMMENTS 1. Mastered safety training instruction. 2. Needs more safety training at work site. 3. Needs more safety training at school. 4. Has not reached this training area.
1. Safety precautions related to stairs, floors, office equipment and furniture.		
2. Safety precaution related to proper dress apparel, shoes, gloves, head, eye and ear protection.		
3. Safety precaution related to use of tools, machines, and chemicals.		
4. Safety precautions related to fire, weather and other natural disasters.		
5. Safety precautions related to sexual harassment and workplace violence.		

DRESS AND BEHAVIOR CODE FOR POSITION	ACHIEVEMENT LEVEL AND COMMENTS 1. Dresses/behaves appropriately 2. Needs to modify dress/behavior. 3. Needs personal consultation.

Employer Name _____ Employer Signature _____ Date ____/____/____

Work-based Learning Coordinator Name _____ Work Based Learning Coordinator Signature _____ Date ____/____/____

Parent/ Guardian Name _____ Parent/Guardian Signature _____ Date ____/____/____

Student Name _____ Student Signature _____ Date ____/____/____

If you have any questions, please do not hesitate to contact me at (315) 435- _____

Thank you for your cooperation!_____, CTE Teacher

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

SCSD CTE Internship

Notification of Unpaid Internship

(Form #5)

This form serves as notification that the Syracuse City School District CTE Internship is an unpaid internship and studentsare not due any wages per New York State Department of Labor.

Student	Date
CTE Teacher/ WBL Coordinator	Date
Worksite Representative/ Mentor	Date

Teacher

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

SCSD Internship Safety Certification

(Form #6)

Student _____ Date _____

Mentor or Supervisor _____ CTE/ WBL Teacher _____

Student CTE Program SCSD Career and Technical Program: _____

Safety Certification		Date
OSHA 10	☐	/ /
Safe Serv	☐	/ /
First Aid	☐	/ /
CPR	☐	/ /
Other	☐	/ /

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

SCSD Internship Worksite Orientation

(Form #7)

Teacher
Employer
Student

Student _____ Date _____

Mentor or Supervisor _____ CTE/ WBL Teacher _____

Company Orientation

Directions: Be sure that your student employee obtains information about the factors listed below. Check the information on each item as it is completed. Return the completed form to the CTE Teacher or Work Based Learning Coordinator.

Tour of Workplace

- ☐ A tour of the workplace
- ☐ An overview of the company safety
- ☐ planIntroductions to co-workers

Tour of Employee Facilities

- ☐ Rest rooms
- ☐ Lunch room
- ☐ Where to store personal belongings

Other _____

Safety Plan

- ☐ Safety plan
- ☐ Stairwell/fire exits
- ☐ Fire Extinguishers
- ☐ Special hazards
- ☐ Accident prevention
- ☐ Safety Training Log, updated as needed

About the Company

- ☐ Discuss company organizational structure
- ☐ Review type of business, products, services
- ☐ Overview of who the customers are

Other _____

Department/Position Specifics

- ☐ Explanation of work schedule
- ☐ Review of dress and conduct
- ☐ code
- ☐ Review of hours, breaks and lunch
- ☐ policiesLocation of time clock or sign-in
- ☐ Attendance requirements, including procedures for calling in when absent
- ☐ Relationship to working with other departments or co-workers

Job Specific

- ☐ How to use office equipment
- ☐ Supplies, paper, pens, etc.
- ☐ Job description, Work-Based Learning Plan and evaluation process

Supervisors Expectations

- ☐ Dress code including clothing, hair and jewelry
- ☐ Work performance including productivity and work habits
- ☐ Company culture

Materials provided to intern

- ☐ Copy of personnel
- ☐ handbookOrganizational
- ☐ charts Telephone directory
- ☐ Security procedures

Employer/training sponsor _____ Date _____

Student _____ Date _____

CTE Teacher/WBL Coordinator _____ Date _____

Teacher

Employer

Student

Syracuse City School District

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

Weekly Time Log/Record of Attendance

(Form #8)

Student _____ Training Title _____

Worksite Supervisor _____

Time Log for the Week of: ____/____/____

	Date	Start Time	End Time	Hours Worked
Sunday				
Monday				
Tuesday				
Wednesday				
Thursday				
Friday				
Saturday				

Total Weekly Hours: _____

Student please list any new tasks performed this week: _____

By signing this timesheet, you are certifying that it is correct and truthful.

Student's Signature _____ Date ____/____/____

Supervisor Name _____ Phone _____ Date ____/____/____

Supervisor's Signature _____

Attention Worksite Supervisor:
If you have any questions or concerns, please contact: CTE Teacher _____ Phone _____

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

Student

SCSD CTE Internship Student Evaluation

(Form #9)

Name _____ CTE Program _____

Dates of Internship ____/____/____ — ____/____/____ Year to Graduate _____

Please complete this form upon completion of your internship.

	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
Overall, I had a great experience	☐	☐	☐	☐	☐
I was actively involved in the team meetings and felt free to express my thoughts and opinions	☐	☐	☐	☐	☐
My mentors encouraged and responded to my questions	☐	☐	☐	☐	☐
I have an increased appreciation for teamwork	☐	☐	☐	☐	☐
I have a greater ability to ask good questions and synthesize information	☐	☐	☐	☐	☐
I was presented with opportunities to learn by doing	☐	☐	☐	☐	☐
I gained factual knowledge about careers throughout the internship	☐	☐	☐	☐	☐
I would recommend this opportunity to others	☐	☐	☐	☐	☐
My time was well spent	☐	☐	☐	☐	☐
I would consider this employer as a future employer	☐	☐	☐	☐	☐
My co-workers are generally positive about work	☐	☐	☐	☐	☐

The best thing about my experience was… _____

The worst thing about my experience was… _____

Any suggestions on how we could improve the intern experience? _____

Other comments… _____

Employe

Syracuse City School District

Syracuse City School District
725 Harrison Street, Syracuse, NY 13210

SCSD CTE Internship Mentor Program Evaluation

(Form #10)

Student Name _____ SCSD School _____

Interning Location _____

Supervisor/ Mentor Name _____ Date ____/____/____

Internship Preparation

- ☐ Exceptional
- ☐ Adequate
- ☐ Inadequate

Modes of Communication with SCSD Personnel

- ☐ In-Person
- ☐ Email
- ☐ Phone

Amount of Communication with SCSD Personnel

- ☐ Exceptional Good
- ☐ Appropriate
- ☐ Too much
- ☐ Too little

Suggestions for improvement: _____

Additional comments: _____

Return to CTE teacher: _____
CTE Teacher Email

BOARD OF EDUCATION

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NOTICE OF NON-DISCRIMINATION

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Inquiries regarding the District's non-discrimination policies should be directed to:

Assistant Superintendent for Student Support Services, Civil Rights Compliance
OfficerSyracuse City School District
725 Harrison Street • Syracuse, NY
13210(315) 435-4131

Email: CivilRightsCompliance@scsd.us

F. Employability Profile

> *The employability profile is a record of student achievement. That may include documentation of the student's attainment of technical knowledge and work-related skills, endorsements, licenses, clinical experience, work experience, performance on core academic Regent's examinations, performance on industry based assessments, attendance, student leadership honors and achievements and other honors or accolades of student success.*

Process

- An employability profile model is developed for the program
- A profile of student achievement is developed for each student in the program and is maintained in accordance with records and retention policies of the school district/BOCES.
- The profile of student achievement is reviewed and updated on a continuous basis by the student and the appropriate program/guidance personnel.
- The work skills to be mastered by students with disabilities should be aligned with the student's Individualized Education Program (IEP).

Documentation

Recommendations for the employability profile model should be included in the self-study report and reviewed by the external committee.

Source: http://www.p12.nysed.gov/cte/ctepolicy/guide.html

EMPLOYABILITY PROFILE

Manufacturing Technology Pre-Apprenticeship

Industry Based Skill Standards

Proficiency Definitions

NA = Not Applicable **1 = Developing** **2 = Basic** **3 = Proficient** **4 = Mastery**

Materials and Material Handling	9th	10th	11th	12th
Explain the operation and limitation of fork lifts/PITs.				
Describe the safe operation of common lifting and moving devices.				
Design Process	9th	10th	11th	12th
Define and apply the design process.				
Can create a sketch of a Multiview drawing given an isometric drawing				
Understands the factors involved in brainstorming, prototyping and reverse engineering.				
Mathematics	9th	10th	11th	12th
Demonstrates how to develop and interpret graphs and charts.				
Able to solve problems involving geometric shapes, using formulas				
Able to calculate torque, speed, voltage, and ratios using standard equations.				
Safety	9th	10th	11th	12th
Can use electrical power tools safely				
Can perform a Lockout and Tag out procedure				
Complete OSHA 10 safety course				
Knows basic industrial safety rules and how to report unsafe conditions.				
Can identify fire exits, fire fighting equipment, and evacuation procedures.				
Knows how to perform an equipment safety check.				
Knows the importance of ergonomics				
Knows how to find and interpret a MSDS document				
Can identify and wear proper personal protective gear				
Foundations of Manufacturing	9th	10th	11th	12th
Can Identify components of an effective quality system				
Knows how to apply continuous quality improvement				
Knows about customer service and the importance				
Can perform quality inspections				
Print Reading	9th	10th	11th	12th
Able to develop 2 dimensional drawings with AutoCAD				
Can interpret commonly used symbols from a drawing				
Able to determine dimensions and tolerances from a drawing				

Manufacturing Processes and Assembly	9th	10th	11th	12th
Can demonstrate basic hand tool care and use (Drills, Saws, Wrenches, etc)				
Can perform basic troubleshooting maintenance procedures				
Demo the five basic weld joints.				
Able to construct component from an assembly drawing				
Able to operate Mills, Drill Press, Lathe, Grinder				
Computer Use	9th	10th	11th	12th
Able to develop charts and graphs from data				
Able to develop documents using Microsoft Word processing software				
Able to describe different methods of tracking inventory				
Mastery of Microsoft Office Suite				
Process Control	9th	10th	11th	12th
Can explain how process control applications function				
Knows the advantages and disadvantages of "just-in-time" inventory				
Knows how time and motion studies are conducted and analyzed				
Electrical Systems	9th	10th	11th	12th
Can use DVM and Analog Voltmeter to gather electrical measurements.				
Can calculate unknown values using Ohms law				
Can troubleshoot simple electric circuits				
Can identify electrical components and what they are used for				
Demo the basic steps of hand soldering				
Hydraulics	9th	10th	11th	12th
Can demonstrate the basic functions of how a hydraulic system work				
Can determine system pressure using gauges				
Can interpret hydraulic connections from a drawing				
Measurement	9th	10th	11th	12th
Demonstrate mastery of measuring instruments; scale and tape measure				
Can identify precision measuring devices.				

EMPLOYABILITY PROFILE

Manufacturing Technology Pre-Apprenticeship

Student Name: _____ School Year: _____ Absences: _____

ID Number: _____ Teacher: _____ Final Grade: _____

Career Ready Practices / Career Development Standards

STANDARDS DEFINITIONS

NA = Not Applicable 1 = Developing 2 = Basic 3 = Proficient 4 = Mastery

	9th	10th	11th	12th
Acts as a responsible citizen/employee				
Is on time and prepared, follows workplace policies, demonstrates reliability and dependability, is polite and courteous to adults and peers, demonstrates appreciation, and is reliable and consistent in their actions				
Applies appropriate academic and technical skills				
Demonstrates an understanding of the academic knowledge and skills associated with their trade. Technical skills are developed with academic competencies including English language arts and science that are integrated within the CTE program.				
Attends to personal health and financial well-being				
Recognizes the benefits of physical, mental, social, and financial well-being to the importance of that success in their career. Accepts criticism and works towards self-improvement targets on a consistent basis.				
Communicates clearly, effectively, and with reason.				
Is able to communicate both verbally and in writing to express ideas and obtain information. Uses appropriate vocabulary to share information both verbally and in writing as well. Demonstrates active listening skills and verbal communication.				
Makes appropriate decisions				
Considers the environmental, social, and economic impacts of their decisions. Understands that their actions and decisions will impact other people directly. Works independently and responds positively to new ideas and suggestions.				
Demonstrates creativity and innovative thought				
Demonstrates creativity and new thinking to solve workplace problems as encountered. Is creative, innovative, and is eager to explore new ways of addressing issues and challenges that are encountered.				
Employs valid and reliable research strategies				
Seeks information to develop a deeper understanding of issues encountered. Uses technology as a tool to research, organize, and evaluate information critically incompetently. Interprets information and draws conclusions based on best analysis.				
Uses critical thinking skills and demonstrates perseverance				
Demonstrates problem-solving skills through the use of creative thinking, decision-making, and adaptability. Effectively reasons through difficult situations, and makes decisions even when faced with complex or challenging problems.				

	9th	10th	11th	12th
Models integrity, ethical behavior, and leadership				
Is accountable and transparent in all of their work and assignments. Consistently exhibits ethical behavior, and commitment to completing tasks as assigned. Develops and demonstrates leadership skills, assuming responsibility readily.				
Develops and implements a Career Plan				
Develops a career plan based on understanding of their personal goals and the career pathways that aligns to them. Develops resumes, cover letters, and examples of best work to aid in the job seeking process and/or entrepreneurial goals.				
Uses technology to enhance productivity				
Demonstrates an understanding of the use of technology related to their career pathway. Continually develops their ability to adapt to changing work environments using technology, including new tools and their associated applications.				
Works as a productive and respectful team member				
Actively participates as a member of a team recognizing and appreciating others skills and abilities. Adds to the collective value of the team, and invigorates others to add to the collective efforts and goals.				
Demonstrates reliability and dependability				
Regardless of tasks given, demonstrates reliable and dependable behaviors to meet the expectations as defined. Attendance and levels of participation meet expectations consistently. Take on additional responsibilities without prompting.				
Arrives on time and is prepared to work				
Consistently demonstrates promptness, reliability, and commitment to reporting for classes, work site experiences, and other assignments as defined. Reports prepared for work or education as requirements dictate, meets attendance requirements.				
Demonstrates safe working habits				
When engaging in worksite situations or learning labs, uses tools and equipment safely, observes general safety guidelines for material handling, and meets the expectations of maintaining a safe work environment for others.				
Demonstrates problem solving skills				
Addresses problems encountered using effective problem-solving strategies. Works to define potential solutions to problems, identifies and implements the best solution based on the information gathered and their skill and knowledge.				

Earned Technical Endorsement on Diploma **YES** ☐ NO

Special Recognitions or Scholarships _____

Student Leadership Organization _____