CTE Approval Self-Study Report

P-Tech Electrical Engineering

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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

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Electrical and Electronics Engineers

Quick Facts: Electrical and Electronics Engineers	
2015 Median Pay	$95,230 per year $45.78 per hour
Typical Entry-Level Education	Bachelor's degree
Work Experience in a Related Occupation	None
On-the-job Training	None
Number of Jobs, 2014	315,900
Job Outlook, 2014-24	0% (Little or no change)
Employment Change, 2014-24	-100

What Electrical and Electronics Engineers Do

Electrical engineers design, develop, test, and supervise the manufacturing of electrical equipment, such as electric motors, radar and navigation systems, communications systems, and power generation equipment. Electronics engineers design and develop electronic equipment, such as broadcast and communications systems—from portable music players to global positioning systems (GPSs).

Work Environment

Electrical and electronics engineers work in industries including research-and development, engineering services, manufacturing, telecommunications, and the federal government. Electrical and electronics engineers generally work indoors in offices. However, they may have to visit sites to observe a problem or a piece of complex equipment.

How to Become an Electrical or Electronics Engineer

Electrical and electronics engineers must have a bachelor’s degree. Employers also value practical experience, so participation in cooperative engineering programs, in which students earn academic credit for structured work experience.

Pay

The median annual wage for electrical and electronics engineers was $95,230 in May 2015.

Job Outlook

Employment of electrical and electronics engineers is projected to show little or no change from 2014 to 2024. Change in employment is expected to be tempered by slow growth or decline in most manufacturing sectors in which electrical and electronics engineers are employed.

Related Occupations

Occupational Title	SOC Code	Employment, 2014	Projected Employment, 2024	Change, 2014-24	
				Percent	Numeric
Electrical and electronics engineering technicians	17-3023	139,400	136,600	-2	-2,8
Electrical and electronics installers and repairers	—	136,100	130,700	-4	-5,400
Electro-mechanical technicians	17-3024	14,700	14,800	1	100
Electricians	47-2111	628,800	714,700	14	85,900

Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, 2016-17 Edition, Electrical and Electronics Engineers, on the Internet at https://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronics-engineers.htm (visited February 14, 2017).

New York Employment Demand Profile: **PTECH Electrical**

Source: Labor Insight Jobs (Burning Glass Technologies), Summary Demand and Requirements Table by Occupation, New York state data, Mar. 01, 2016 - Feb. 28, 2017, Monday, March 6, 2017

Category:		**Demand and Employment**				**Salary**		**Education level based on posting requirements (*excluding NA)**					**Education level of employed individuals**		
Source:		**Burning Glass**	**BLS/OES, 2015**			**Burning Glass**	**BLS/OES, 2015**	**Burning Glass**					**ACS, 2014**		
SOC Code (ONET-6)	Occupation Title	Number of Job Postings	Number Employed	% Change in Employment, 2014-2015	Projected Statewide Change in Employment, 2016-2026	Mean Advertised Salary	Mean Salary	% Requiring high school*	% Requiring Post-Secondary or Associate's Degree*	% Requiring Bachelor's Degree*	% Requiring Graduate or Professional Degree*	% with Unspecified Education	% with a H.S. diploma or less	% with Some College or an Assoc.	% with a Bachelor's or higher
17-2071	**Electrical Engineers**	791	11,010	0%	10%	$90,157	$98,430	0%	0%	96%	26%	20%	4%	17%	79%
47-2111	**Electricians**	395	40,100	8%	23%	$57,902	$72,540	92%	25%	0%	0%	72%	47%	46%	7%
17-3023	**Electrical And Electronics Engineering Technicians**	270	5,710	-8%	5.3%	$52,579	$63,220	47%	57%	39%	4%	34%	26%	56%	17%
17-3024	**Electro-Mechanical Technicians**	10	520	33%	N/A	N/A	$61,860	N/A	N/A	N/A	N/A	10%	26%	56%	17%

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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

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

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P-TECH Electrical Engineering

You're the kind of person who likes to tinker. You'll take something apart, study its ways and put it back together. Not always because it's broken – sometimes just for fun. If this sounds familiar, then you may be interested in a career in Electrical Engineering.

In this program, you will learn the skills you need to "tinker" on a professional scale: construct, test, analyze, trouble-shoot and repair systems and sub-systems reflective of modern technology using real-world engineering tools and the technologies of today.

In this program, you'll also learn fundamental engineering concepts such as electronics, industrial control, instrumentation, communications, power distribution and electronic hardware while taking your problem-solving skills to the next level.

CAREER OPPORTUNITIES:
Electrical Engineer, Electronics Technician/Installer/Repair, Electrician

Course of Study P-TECH Electrical Engineering

9th Grade	10th Grade	11th Grade	12th Grade
■ Engineering Design 100 PTP100 (1 Credit CTE)	■ Engineering Design 200 PTP200 (1 Credit CTE)	■ Electrical Engineering 300 PTE300 (1 Credit CTE) ■ ELT CTE Integrated Science (CTE300) (1 Credit)	■ Electrical Engineering 400 PTE400 (1 Credit CTE) ■ ELT Integrated Math (CTE200) (1 Credit)

DISTRICT REQUIREMENTS

- Students must pass PTECH Electrical 100, 200, 300 and 400 to challenge the course approved technical assessment.
- All students in 9th grade will receive CFM.
- Student will have earned the 12th grade integrated ELA credit upon successful completion of the PTECH Electrical 100, 200, 300 and 400 sequences.
- Student will receive the CTE Endorsement upon successful completion of the CTE PTECH Electrical 400, passing the prescribed technical assessment and completion of a commencement level project.
- Student will have earned the 11th grade integrated science credit upon successful completion of the PTECH lectrical 300.

CONSIDERATIONS

- Student will have earned the 12th grade specialized math upon successful completion of the PTECH Electrical 400 or MAT119OCC and MAT120OCC.

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Syracuse City School District
Career and Technical Education
Course Syllabus
PTP 100: Pre-Engineering Level 100

Program Overview

Students will develop critical and analytical thinking, troubleshooting and problem solving skills through hands-on activities in this project-based curriculum. Electrical and mechanical concepts and processes are taught and topics include ethics in engineering, technical drawing and cad design, measuring tools, simple machines, failure analysis, and data collection and analysis. Career pathways are explored and skills are enhanced through work-based experiences. The PTECH program offers the opportunity to earn college credits toward Electrical Engineering or Mechanical Technology degrees. Upon completion of PTP 100-300, students will earn 11th grade science credit, and following the successful completion of PTP 100-400, students will be awarded specialized math and 12th grade ELA credits.

Course Description

This course will provide an overview of various aspects of the engineering profession. Students will gain skills in career exploration, learn more about pathways to selected engineering careers and begin to develop foundation skills in professional and ethical responsibilities. Students will learn about practical engineering tools, engineering design and the basics of CAD and CAM, air conditioning and refrigeration. Through various speakers and field trip experiences, they will learn about education and licensing requirements, roles and responsibilities, regulatory agencies and work settings. Students will also begin to learn and apply standard engineering nomenclature within the context of the subjects, and based on instruction and research, they will begin to understand the need for industry regulations and protocols. In addition, they will practice team building, critical thinking skills, oral and written communications.

Course Objectives

- Students will identify and understand the major disciplines in the engineering field and associated pathways to becoming educated and licensed.
- Students will apply math and science concepts to the engineering profession.
- Students will learn basic design processes for application to assigned projects.
- Students will identify ethical and professional roles and responsibilities in the engineering profession.
- Students will learn and apply basic skills in technical drawing and design, CAD and use of practical engineering tools.
- Students will understand the concepts of materials and fabrication in the manufacturing process.
- Students will understand motion and simple machines.
- Students will learn basic concepts of mechanical and electrical engineering.
- Students will apply teamwork, communication skills research practices to assigned projects.

Integrated Academics

N/A

Equipment and Supplies

School will provide:

- Computer hardware and software
- Engineering and drawing tools and measurement instruments.
- Plotter/printer

Student will provide:

- 3-Ring Binder
- Dividers
- Writing utensils – pens and pencils
- Notebook and filler paper

Textbook

TBD

Grading

First and Second Quarter

25% Homework, quizzes, etc.
25% Tests, reports, projects.
25% Technical drawings
25% Professionalism

Third and Fourth Quarter

20% Homework, quizzes, tests
20% Technical writing, projects
20% Data analysis application
20% Research papers
20% Professionalism

Additional Course Policies

TBD

Course Calendar

Quarter	Units of Study
1	• Introduction to Engineering and Engineering Career Pathways • Roles & Responsibilities of Engineers • Ethics in Engineering
2	• The Engineering Design Process, Designs and Modeling • Measurement Tools and Techniques • Manufacturing Engineering • Math and Science Connections
3	• Materials and Fabrications • Mechanical Engineering • Electrical Engineering • Electronics
4	• Air Conditioning and Refrigeration Characteristics • The Engineering Team • Final Project Presentation

Syracuse City School District
Career and Technical Education Program
Scope and Sequence
PTP-100: Pre-Engineering Level 100

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Week 1-2 **Introductions and Classroom Procedures**	• Who are you? • What do you think this course is about? • What procedures and safety practices will be important in this class? • What does respect and leadership mean?	• Understand and engage in icebreaker and "getting to know you" exercises • Explain the rationale for and follow classroom rules and procedures • State and apply safety rules and procedures for the class and school • Discuss classroom respect and leadership	• Students will learn about other students and staff • Safety quiz • Compliance with procedures • Posters with Presentations	**Career Ready Practice** CRP1,4 **Cluster Standards** ST3 **Pathway Standards**	**Literacy** RST.9-10.1,3 WHST.9-10.4 **ELA** R.9-10.2,7 W.9-10 2,4,6 SL.9-10.1,4 L.9-10.1 **Math** **Science**
Week 3-4 **Introduction to Technology and Engineering**	• What is the definition of engineering? • What are the connections among science, technology, engineering, and mathematics? • Can you name early examples of engineering and models of great engineering achievements of the past century? • How would you compare major engineering activities?	• Define engineering • Describe how engineering has affected the world in the past and the present • Identify several early examples of engineering • Evaluate great engineering achievements of the past century • Compare and contrast the major engineering activities	• Quiz on engineering terms • Research and write papers on engineering achievements of the past • Research assignment on benefits of the engineering profession • Student developed questions for guest speaker – 21st Century Rubric	**Career Ready Practice** CRP2,4,7,11 **Cluster Standards** ST4 **Pathway Standards** ST-ET2	**Literacy** RST.9-10.1,2 WHST.9-10.4,7 **ELA** W.9-10 .1,2,4,6, 7 R.9-10.1,2,4,8 L.9-10.1,2,3,4 **Math** **Science** **HS-ETS1-2** **HS-ETS1-3**

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Week 5-7 **The Engineering Design Process**	• What is meant by the engineering design process? • What are the common design process steps? • What are the constraints to engineering design? • How can old products or buildings be updated to include new engineering ideas and achievements? • What is brainstorming?	• Outline and describe the engineering design process • List steps in common design process • Identify engineering problems and opportunities • Describe the rationale for detailed documentation • Discuss design constraints • Identify types of research involved in developing a project • Explain prototyping and rapid prototyping	• Design project presentations. (Rubric) • Quiz, Tests • PBL project	**Career Ready Practice** CRP1,2,4,7,8,11,12	**Literacy** RST.9-10.1,2,7 WHST.9-10.4,7
				Cluster Standards ST1,2,6	
				Pathway Standards ST-ET2,5	**ELA** R 9-10.1,2,4,7 W 9-10.1,3,6 SL 9-10.1,4 L 9-10.1,3,4
					Math G SRT 5, 6, 8 G-MG-1, 3 G-GMD.4 N-Q.1
					Science **HS-ETS1-2** **HS-ETS1-3**
Week 8-10 **Design and Modeling**	• Why is sketching an important part of engineering, and what are the different types of lines used in engineering drawings? • How are the most common views, perspectives and drawing types of engineered objects used today? • What are the types and uses of theoretical models? • What are the methods of generating three-	• Identify the sketching skills and techniques used by engineers • Recognize the different types of lines in engineering drawings • Examine the methods of generating three-dimensional models • Generate and describe three dimensional views • Compare and explain the types of theoretical models and their uses	• Students will apply techniques learned to a design project involving sketches, drawings, and prototyping • Quizzes • Project completion and assessment (Rubric)	**Career Ready Practice** CRP2,4,8	**Literacy** RST.9-10.1,2,7 WHST.9-10.4,7
				Cluster Standards ST6	
				Pathway Standards ST-ET1,3,4 ST-SM4	**ELA** R 9-10.4 W 9-10.1,2,4 SL 9-10.5 L 9-10.1,4,6
					Math G SRT 5, 6, 8 G SRT 5, 6, 8 G-GMD.4 N-Q.1 S-IC.4

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
	dimensional models? • What is the purpose and what are the features of a prototype?				**Science** **HS-ETS1-2** **HS-ETS1-3** **HS-ETS1-4**
Week 11-12 **Measurement Tools and Techniques**	• What are standard measuring tools? • How are measuring devices used? • What is tolerance and how is it checked? • What is scaling?	• Identify standard measuring tools • Demonstrate correct use of tools to measure components • Define geometric tolerance • Analyze dimensions from a drawing and check components • Determine where to locate drawing scale from a print	• Application of measurement terminology quiz • Assessment on drawing dimensions • Performance assessment on use of measuring tools	**Career Ready Practice** CRP2,4,8	**Literacy** RST.9-10.1,2
				Cluster Standards ST4,6	
				Pathway Standards ST-SM1,4	**ELA** R 9-10.1,2,4,7 W 9-10.2,8 SL 9-10.1 L 9-10.6
					Math G-MG.1,3 N-Q.3 S-IC.4
					Science
Week 13-16 Manufacturing Engineering	• What is rapid prototyping? • What are the four basic types of manufacturing? • What is quality control? • What is computer-aided manufacturing? • What is computer-integrated manufacturing? • Why is packaging important to a	• Discuss the benefits of rapid prototyping • Identify four types of manufacturing systems and explain the benefits of each • Explain how quality control in manufacturing has evolved • Compare and contrast the roles of computer-aided manufacturing and computer-integrated manufacturing	• Terminology quiz • Students will complete a packaging challenge • Exercise to analyze quality issues in a product	**Career Ready Practice** CRP2,4,8,11,12	**Literacy** RST.9-10.1,2,4
				Cluster Standards MN6 ST1,6	**ELA** R 9-10.1,3,4,7 W 9-10.1,8 SL 9-10.1,2 L 9-10.1,6
				Pathway Standards MN-MIR1 MN-PPD1,3,4,5 MN-QA6,7	
					Math S-IC.1,4,6

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
	manufacturer?	• Analyze the role of packaging in the manufacturing process			**Science** **HS-ETS1-4**
Week 17-19 **Math and Science Connections**	• Why are math and science important in engineering tasks? • How do engineers use mathematics to measure energy savings and construction costs? • Do you think that nature and living creatures, even tiny ones like bugs and spiders, can have an impact on engineering design? • What types of energy should engineers be able to evaluate?	• Explain why math and science are important to the daily tasks of engineers in all disciplines • Describe the concept of a normal distribution and two ways in which this concept can be applied in engineering • Describe three levels of mathematics used by engineers • Discuss how probability and statistics affect the choices applied to engineering designs • List applications of geometry and trigonometry in engineering • Identify three main physics topics of interest to engineers • Describe how engineers work within four fields of science	• Written summary to check for understanding • Application of learning to a discovery project (Rubric)	**Career Ready Practice** CRP1,2,4,8 **Cluster Standards** ST-4 **Pathway Standards** ST-SM1,4	**Literacy** RST.9-10.1 **ELA** R 9-10.2,4 W 9-10.1,8 SL 9-10.1,2,3,4, 5 L 9-10.1,2,4,6 **Math** A-CED.4 S-ID.4 **Science** **HS-ESS2-1** **HS-PS3-1**
Week 20-22 **Materials and Fabrications**	• What are the characteristics and classifications of natural and synthetic materials? • How do engineers choose materials for a	• Identify the characteristics used to classify and group both natural and synthetic materials • Evaluate how engineers choose materials for a	• Students will assess material types through various testing procedures • Terminology Exam	**Career Ready Practice** CRP1,2,4,8,12 **Cluster Standards** MN6 ST1,2,3	**Literacy** RST.9-10.1,3,4 WHST.9-10.2,4

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
	project? • How are the strengths of materials established? • How does the development of new materials affect the techniques used to fabricate various objects and structures?	project • Describe how the strength of a material can be established • Compare and contrast manufacturing and construction • Analyze how fabrication techniques affect the design process	• Team Competition PBL Project	**Pathway Standards** MN-MIR1 ST-ET1,2	**ELA** R 9-10.4,7 W 9-10.1,5,7 SL 9-10.1,4 L 9-10.1,2,6 **Math** A-CED.4 N-Q.1 **Science** **HS-ETS1-2** **HS-ETS1-3** **HS-PS2-6**
Week 23-25 **Mechanical Engineering**	• What are Newton's laws of motion? • What are the laws of thermodynamics? • What is the difference between hydraulics and pneumatics? • What is a simple machine? • What are the six simple machines? • What are the different types of motion?	• Summarize Newton's three laws of motion • Evaluate the laws of thermodynamics • Compare and contrast hydraulics and pneumatics • Discuss simple machines • Identify five different types of motion. • Analyze the purpose of basic mechanisms	• Task analysis of the engineering steps needed for the development of a selected product (Rubric) • Research a product that uses simple machines, including a description of each machine in reports • Mechanical terminology quiz	**Career Ready Practice** CRP2,4,8,11 **Cluster Standards** MN6 **Pathway Standards** MN-PPD1,3,,5	**Literacy** RST.9-10.1,2 4, 7 **ELA** R 9-10.1,2,4,5,6 W 9-10.2,4,8 SL 9-10.1,2 L 9-10.1,2,3,6 **Math** **Science** **HS-PS2-1** **HS-PS3-1** **HS-PS3-2**
Week 26-27 **Electrical Engineering**	• What is required for licensure of electrical engineers? • How is electricity	• Discuss specialty and licensure options of electrical engineers. • Identify at least four	• Students will construct a simple generator • Electrical	**Career Ready Practice** CRP1,2,4,6,8,11,12	**Literacy** RST.9-10.1,2,4, 7

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
	measured and what terms are used in measuring electricity? • How is electricity generated? • What is the difference between direct and alternating current?	measurements (and their units of measure) that are critical to electrical and electronics engineers • Describe several ways energy is used to create electricity • Compare direct current and alternating current	terminology quiz • Performance test on calculating and measuring volts, ohms, amps	**Cluster Standards** ST2,5 **Pathway Standards** ST-ET5 ST-SM1,2,3,4	**ELA** **Math** A-CED.2,4 **Science** **HS-PS3-6** **HS-PS3-1** **HS-PS3-2**
Week 28-30 **Electronics**	• What is Electronics Engineering and what are the licensure requirements for electronics engineers? • What is Ohms Law? • What type of equipment and components are used in electronics? • What is a capacitor?	• Discuss electronics engineering, educational and licensure requirements • Explain Ohm's Law • Analyze the effect of digital electronics and integrated circuits • Describe the relationship between electrical potential (voltage), rate of flow (current), and resistance in an electric circuit, according to Ohm's law	• Task analysis of the engineering steps needed for the development of a selected product. (Rubric) • Terminology quiz • Assessment on reading schematic drawings	**Career Ready Practice** CRP2,4,8,11 **Cluster Standards** ST6 **Pathway Standards** ST-ET3 ST-SM1,4	**Literacy** RST.9-10.1,3 **ELA** R 9-10.1,3,5 W 9-10.2,8 SL 9-10.1,3 L 9-10.1,4,6 **Math** A-CED.2,4 **Science** **HS-PS3-6**
Week 31-33 **Air Conditioning and Refrigeration**	• What is air-conditioning and refrigeration? • What is latent heat? • What is sensible heat? • What are conduction, convection and radiation? • What is pressure?	• Compare and contrast air-conditioning and refrigeration • Explain latent heat • Explain sensible heat • Analyze the difference between conduction, convection and radiation • Explain pressure and the effects of pressure	• Terminology quiz • Lab Practical	**Career Ready Practice** CRP2,4,8,11 **Cluster Standards** ST2,6 **Pathway Standards** ST-ET2,3	**Literacy** RST.9-10.1,2,4 **ELA** R 9-10.1,3,5 W 9-10.1,2,6 L 9-10.1,2,4,6 **Math** **Science** **HS-PS1-9** **HS-PS3-3**

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Week 34-35 **The Engineering Team**	• What other professions are involved with engineers? • What are the ways in which engineers communicate? • Why is communication an integral part of engineering?	• Identify the professionals and team members who work with engineers • Discuss communication skills engineers must develop to work successfully with others • Examine the additional safety, information technology, cultural, and business skills that are important to the engineer's working life • Analyze the need to diversify the engineering workforce	• Research and present on professional qualities used in the field of engineering	**Career Ready Practice** CRP1,2,4,7,11 **Cluster Standards** ST5 **Pathway Standards**	**Literacy** RST.9-10.1,2,4,7 WHST.9-10.2,4,7 **ELA** R 9-10.1,5,6,7 W 9-10.2,4,5,6,7,8 SL 9-10.1,2,4,5 L 9-10.1,2,3,6 **Math** **Science** **HS-ETS1-2** **HS-ETS1-3**
Week 36-39 **Final Class project**	• How can I apply what I know in a final project?	• Apply all aspects of the design process to a final project • Evaluate peers' projects and provide growth-producing feedback	• Final Project with peer and instructor rubrics	**Career Ready Practice** CRP1,2,4,8 **Cluster Standards** ST2,3,6 **Pathway Standards** ST-ET1,2,4,5	**Literacy** RST.9-10.1,2,4,7 WHST.9-10.2,4,7 **ELA** R 9-10.1,2,3,7 W 9-10.1-8 SL 9-10.1,2,4,5 L 9-10.1,2,6 **Math** G-SRT.5,6,8 5G-MG.1,3 G-GMD.4 N-Q.1 S-IC.1,4,6 **Science** **HS-ETS1-2** **HS-ETS1-3**
Week 40	• How can I apply what I know in a final project?	• Apply engineering knowledge and principles to	• Final Exam	**Career Ready Practice**	**Literacy** RST.9-10.1,2,4

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Course Wrap-up and Evaluation	• What have I learned?	a topic as a final project c • Review for final exam.		CRP2,4,6,7,8,11	**ELA**
				Cluster Standards	**Math**
				Pathway Standards	**Science**

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Syracuse City School District
Career and Technical Education
Course Syllabus
PTP200: P-TECH Pre-Engineering: Mechanical/Electrical 200

Program Overview

Students will develop critical and analytical thinking, troubleshooting and problem solving skills through hands-on activities in this project-based curriculum. Electrical and mechanical concepts and processes are taught and topics include ethics in engineering, technical drawing and cad design, measuring tools, simple machines, failure analysis, and data collection and analysis. Career pathways are explored and skills are enhanced through work-based experiences. The PTECH program offers the opportunity to earn college credits toward Electrical Engineering or Mechanical Technology degrees. Upon completion of PTP 100-300, students will earn 11th grade science credit, and following the successful completion of PTP 100-400, students will be awarded specialized math and 12th grade ELA credits.

Course Description

This course will continue the engineering concepts, practices and projects in the level 100 course and cover various aspects of the engineering profession. Students gain additional knowledge in career exploration, including pathways to selected engineering careers. They will work to further develop skills in professional and ethical responsibilities and behaviors. The course introduces students to technical drawing, the use of practical engineering tools, engineering design, CAD, data collection and analysis methods. Fundamentals of electricity, electrical circuits and input/output devices, as well as drive systems and hydraulics are also covered. Students continue to learn about education and licensing requirements, roles and responsibilities, regulatory agencies and work settings through various speakers and field trip experiences. Students learn and apply standard engineering nomenclature within the context of the subjects and utilize instruction and research for understanding the need for industry regulations and protocols. Research, teamwork, critical thinking and oral/written communication skills will also be expanded.

Course Objectives

- Students will understand and identify the major disciplines in the engineering field and associated pathways to becoming educated and licensed.
- Students will identify ethical and professional roles and responsibilities of the engineering profession.
- Students will apply teamwork, communication skills research practices to assigned projects.
- Students will learn and apply electrical, hydraulic and drive system concepts.
- Students will learn and apply basic skills in technical drawing and design, CAD and use of practical engineering tools.

- Students will learn and apply
- Students will learn and apply data collection and elementary statistics to a variety of designs in both student produced and industry produced projects.

Integrated Academics

N/A

Equipment and Supplies

School will provide:

- Computer hardware and software
- Engineering and drawing tools and measurement instruments.
- Plotter/printer

Student will provide:

- 3-Ring Binder
- Dividers
- Writing utensils – pens and pencils
- Notebook and filler paper

Textbook

TBD

Grading

First and Second Quarter

25% Homework and Quizzes
25% Tests, Reports/Research Papers
25% Technical Drawings and Projects
25% Professionalism

Third and Fourth Quarter

20% Homework, Quizzes, Tests
20% Technical Writing
20% Projects
20% Data Analysis Application
20% Professionalism

Course Calendar

Quarter	Units of Study
1	• Introduction to Engineering and Engineering Career Pathways • Roles & Responsibilities of Engineers • Ethics in Engineering
2	• Electricity and Electrical Circuits • Drive Systems • Hydraulics
3	• Technical Drawing and CAD Design • Use of Practical Measuring Tools • Simple Machines
4	• Failure Analysis • Data Collection and Analysis • Final Project Presentations

Syracuse City School District
Career and Technical Education Program
Scope and Sequence
PTP 200: P-TECH Pre-Engineering: Mechanical/Electrical 200

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
Week 1-2 **Introductions and Classroom Procedures**	• Who are you? • What do you think this course is about? • What procedures and safety practices will be important in this class? • What does respect and leadership mean?	• Understand and engage in icebreaker and "getting to know you" exercises • Explain the rationale for classroom rules and procedures • State and apply safety rules and procedures for the class and school • Discuss classroom respect and leadership	• Students will learn about other students and staff • Safety quiz • Compliance with safety rules and procedures	**Career Ready Practices** CRP2,4,7,10 **Cluster Standards** ST4,5 **Pathway Standards** ST-ET2	**Literacy** RST.9-10.1,2,4 WHST.9-10.2,7,8,9 **ELA** R.9-10.3,5 W.9-10.1 S.9-10.1,3,6 L.9-10.3,4,6 **Math** **Science**
Week 3 **Roles and Responsibilities of an Engineer**	• What are the roles and responsibilities of engineers? • What are the personal attributes of successful engineers? • What are the legal/ethical responsibilities for engineers? • What does teamwork look like in engineering with U.S. companies? • How do U.S. companies manage engineering teams with locations overseas?	• Describe the tasks engineers perform • Define the duties and obligations of engineers • Understand the personal attributes to consider when pursuing an engineering career • Explain the concept of teamwork in businesses employing engineers • Determine a plan for the management of U.S. based companies with sites abroad	• Guest speaker. Rubric • Quiz on roles and responsibilities of engineers • Group projects illustrating the personal attributes necessary for success in engineering with rationale about why the attributes are important • Teamwork problem solving activity: Strategic plan for collaborating with overseas teams Rubric	**Career Ready Practices** CRP1,2,4,8,10,12 **Cluster Standards** ST1,4,5 **Pathway Standards** ST-ET1,2	**Literacy** RST.9-10.1,2,4 WHST.9-10.2,7,8,9 **ELA** R.9-10.1,3,7 W.9-10.1,2,3,6,7,8 SL.9-10.1-5 L.9-10.1,2,4,6 **Math** **Science**
Week 4 **Engineering Careers**	• What types of engineering titles exist within the profession? • What is the demand for	• Describe duties of engineers • Understand the responsibilities and duties	• Research project and presentations on selected engineering careers	**Career Ready Practices** CRP1,2,4,7,10,11 **Cluster Standards** ST4,5	**Literacy** RST.9-10.1,2,,4,9 WHST.9-10.2,7,8,9

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
	engineers? • What are the duties of an engineer? • How do legal and ethical concerns impact the public? • What professional organizations and memberships are available to engineers?	of engineers • Explain the legal and ethical responsibilities of engineering • Identify the organizations for engineering professionals • Understand the need for policies and regulations for the profession	• Field trip to engineering company • 21st Century Rubric • Written assessment on roles and responsibilities in the profession • Discussion of legal and ethical responsibilities in engineering-Group Activity Rubric • Discussion of current articles and research in ethics in engineering - Group Activity Rubric	**Pathway Standards**	**ELA** R.9-10.1-7 W.9-10.1,2,4-8 SL.9-10.1,2,4-6 L.9-10.1,2,3,4,6 **Math** **Science**
Week 5-6 **Use of Practical Measuring Tools**	• What is the relationship between English and metric linear measurement? • What tools are used for measurements in engineering?	• Convert English to metric linear measurement • Apply metric measurement to design models • Identify measurement tools used in mechanical and electrical engineering	• Hands-on test of use of measuring instruments	**Career Ready Practices** CRP1,2,4,7,11 **Cluster Standards** ST2,6 **Pathway Standards** ST-SM2	**Literacy** RST.9-10.1,2,3 WHST.9-10.2,4 **ELA** R.9-10.3,4,6 W.9-10.4 SL.9-10.3 L.9-10.4,6 **Math** **Science**
Weeks 7-8: **Mechanical / Electrical Engineering**	• What is a mechanical/ electrical engineer? • How do engineers impact our daily lives?	• Define mechanical or electrical engineering • Describe the roles and responsibilities of	• Application of engineering terminology (Quiz) • Task analysis of the	**Career Ready Practices** CRP4 **Cluster Standards** ST4,5	**Literacy** RST.9-10.1,2,4 WHST.9-10.2,7,8, 9

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
	• What are the education and licensing requirements for mechanical/electrical engineers? • Where do mechanical engineers work?	mechanical or electrical engineers • Explain the education and licensing requirements for mechanical or electrical engineers • Understand the career paths for mechanical v engineers • Describe the physical settings and/or types of companies that employ mechanical or electrical engineers	engineering steps needed for the development of a selected product Rubric • Research paper on mechanical or electrical engineering career paths, education, and degree required • Field trip to engineering facility 21st Century Rubric	**Pathway Standards** ST-SM3	**ELA** R.9-10.1-4 W.9-10.1,2,4-8 SL.9-10.1,2,4,6 L.9-10.1,2,4,6 **Math** **Science**
Weeks 9-10 **Fundamentals of electricity**	• What is Ohm's Law? • What is magnetism? • What is a resistor and how are resistors measured? • What are volts, amps and resistance? • What are circuits? • What is electricity? • Can you name the differences between alternating and direct current? • What is engineering notation?	• Understand Ohm's Law • Identify volts, amps and resistance in electrical theory • Understand magnetism as it applies to electrical theory • Use a resistor color code chart • Define electricity • Explain ways in which electricity is generated, transmitted, and used • Describe the how AC and DC are different?	• Vocabulary of electrical terms assignment • Worksheets • Summative assessments • Performance evaluations • Skill sheet assessment • Quiz relating to electrical symbols	**Career Ready Practices** CRP1,2,4,7,11 **Cluster Standards** ST4,5 **Pathway Standards** ST-SM3	**Literacy** RST.9-10.1,2,4 WHST.9-10.2,7,8,9 **ELA** R.9-10.3,4,7 W.9-10.1,2,4,5 SL.9-10.1 L.9-10.1,2,3,4 **Math** A-CED.4 **Science** HS-PS 3-5 HS-PS 3-6
Weeks 11-12 **Electrical Circuit Components**	• What are the basic components of an Electrical circuit? • What are the types of power supplies? • What is an electrical schematic?	• Describe the function of the four basic components of an electrical circuit • Describe the operation of two types of power supplies • Draw a schematic sing the symbols for circuit components	• Electrical terminology quiz • Performance quiz on calculating and measuring volts, ohms, amps • Troubleshoot a simple circuit	**Career Ready Practices** CRP1,2,4 **Cluster Standards** ST1 **Pathway Standards** ST-ET2,4	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4 **ELA** R.9-10.3,4 W.9-10.1,2,4,5 SL.9-10.1,2

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
					L.9-10.1-4 **Math** A-CED.4 **Science** HS-PS 3-6 HS-ETS 1-2 HS-ETS 1-3
Week 13-14 **Input/output Devices**	• What are manual input devices? • What is the meaning of NO and NC? • Identify three manual input devices? • Why do engineers use electrical schematic drawings for manual input devices?	• Correctly identify each manual input device • Explain the difference between NO and NC • Draw an electrical schematic and legend • Construct a circuit using input and output device by reading a schematic	• Performance task to construct a simple circuit • Troubleshoot a simple circuit	**Career Ready Practices** CRP2,4,8,11 **Cluster Standards** MN6 **Pathway Standards**	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4 **ELA** R.9-10.3,4 W.9-10.4,8 SL.9-10.3 L.9-10.1-3 **Math** A-CED.4 **Science** HS-PS 3-6 HS-ETS 1-2 HS-ETS 1-3
Week 15 **Mechanical Drive Systems**	• What is the function of a mechanical drive? • Can you name the methods of rotary mechanical power? • Why are safety rules for power transmission equipment important? • When do we use Lockout/tagout? • What methods are applied to check RPM?	• Explain the function of a mechanical drive • Identify the mechanical advantage of each drive system • Give an example of for each type of drive system • Explain and demonstrate a lockout/tagout procedures • Name and assemble three types of foundations • Use set-up devices	• Performance evaluations • Application of safety rules practical situations • Quiz/test • Individual projects: Constructing a functioning simple machine	**Career Ready Practices** CRP2,4,8,11 **Cluster Standards** ST3 MN6 **Pathway Standards** MN-HSE1	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4 **ELA** R.9-10.1,3,5 W.9-10.1,2,4-8 SL.9-10.2-4 L.9-10.1-4,6

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
		• Identify and apply different fasteners in an installation • Calculate and verify RPMs			**Math** A-CED.4 F-IF.6
					Science HS-PS 3-3 HS-ETS 1-2 HS-ETS 1-3
Week 16 **Key Fasteners**	• What are the different types of fasteners? • What are keys and keyseats? • How are shafts assembled? • What are the methods of loading a mechanical drive system? • What is mechanical efficiency and how is it calculated?	• Identify and apply different types of fasteners • Identify and give an example of key • Measure and cut a key from stock • Assemble a motor coupling	• Vocabulary of fasteners terms assignment • Lab practicals • Worksheets • Unit Exam	**Career Ready Practices** CRP2,4,8,11	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4
				Cluster Standards ST3 MN6	**ELA** R.9-10.3,4-6 W.9-10.1,2,8 SL.9-10.3,6 L.9-10.3,4,6
				Pathway Standards MN-HSE1	**Math** S-IC.4 A-CED.4
					Science HS-PS 3-3
Week 17-18 **Power Transmission**	• How are shafts specified and used in machinery and what is the purpose of shaft alignment? • What is the function of a bearing and how are they loaded? • What are the types and	• Explain the function of a shaft and identify shaft sizes from samples • Categorize bearings from a sample • Install a motor shaft and bearing assembly • Recognize where and	• Vocabulary assignment • Worksheets • Unit exam • Performance evaluation	**Career Ready Practices** CRP2,4,8,11	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4
				Cluster Standards ST3 MN6	**ELA** R.9-10.1-4 W.9-10.1,2,4,5 SL.9-10.1,3 L.9-10.1-4
				Pathway Standards	

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
	functions of couplings?	when to use a coupling • Problem solve shaft alignment and misalignment • Demonstrate the use of measuring devices in shaft alignment			**Math** A-CED.4 F-IF.4 A-REI.6 **Science** HS-ETS 1-2 HS-ETS 1-3
Week 19-20 **Spur Gears / Multiple Shaft Drives**	• How do the three components of a gear drive system function? • How are speed, torque, and ratios calculated? • What is a compound gear system? • How is gear rotation determined? • How is a multiple shaft system aligned? • What is Backlash and how does it determined?	• Describe the three functions of a gear drive system • Calculate pitch, speed, torque, and ratios • Calculate gear pitch, circle and diameters • Define the twelve dimensions of a gear • Describe the features of a gear drive system • Diagnose and correct backlash • Calculate speed and torques in a multiple shaft system • Describe a compound gear system	• Vocabulary assignment • Research project on the application of a gear drive system. (Rubric) • Worksheets • Unit exam • Performance evaluation	**Career Ready Practices** CRP2,4,8,11 **Cluster Standards** ST3 MN6 **Pathway Standards** ST-SM1	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4 **ELA** R.9-10.1-7 W.9-10.1,2,4-8 SL.9-10.1-5 L.9-10.1-4,6 **Math** A-REI.1 A-CED.2,4 F-IF.6 F-TF.1 **Science** **HS-PS2-1**
Week 21-22 **V-Belt and Chain Drives**	• What are the basic types and components of a Belt and Chain Drive? • How is a Belt size determined? • How might you describe Pitch? • What is tension and deflection?	• Identify belt and chain types • Identify the basic components of a belt or chain drive system • Measure and size V-belt	• Vocabulary of Belt and Chain Drives Worksheets • Quizzes • Unit Exam • Performance evaluation	**Career Ready Practices** CRP 2,4,8,11 **Cluster Standards** MN6 **Pathway Standards** ST-SM1	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4 **ELA** R.9-10.3,4,7 W.9-10.1,4,8 SL.9-10.1,3 L.9-10.1,2,4

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
					Math A-REI.1 A-CED.2,4 F-IF.6 F-TF.1 N-Q.1 **Science**
Weeks 23-25 **Introduction to Technical Drawings**	• What is the terminology of technical drawings? • What are isometric, oblique and orthographic drawings and designs? • What are basic line conventions? • What is the purpose of multi-view drawings? • How are geometric shapes used in technical drawings?	• List and explain the views of each drawing • Define isometric, oblique and orthographic as they apply to technical drawing • Explain basic line conventions • Understand uses for multi-view drawings • Apply basic drawing techniques to project design	• Class discussions using terminology in the context of the subject • Application of simple drawing techniques to basic projects	**Career Ready Practices** CRP2,4,8,11	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4
				Cluster Standards ST 1	**ELA** R.9-10.1,3,4 W.9-10.1,4,8 SL.9-10.1,2,3 L.9-10.1,4
				Pathway Standards ST-ET 2,4	**Math** N-Q.1
					Science **HS-PS3-1**
Weeks 26-27 **Intro to CAD**	• What is CAD and what makes it different? • What are some different types of CAD applications? • What is important to consider in using CAD?	• Describe essential drawing tools in CAD • Apply CAD drawing applications to basic designs • Differentiate between CAD and other drawing tools	• Quiz on terminology • Written critique on pros and cons of CAD • Application of CAD software in project design-Rubric	**Career Ready Practices** CRP2,4,8,11	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4
				Cluster Standards ST6	**ELA** R.9-10.1,3,4,5 W.9-10.1,2,4,7 SL.9-10.1,2,3 L.9-10.1,3,4,6
				Pathway Standards ST-ET1	**Math** N-Q.1
					Science **HS-PS3-1**
Weeks 28-29	• What is Fluid Power?	• Describe Hydraulics	• Lesson review sheets	**Career Ready Practices**	**Literacy** RST.9-10.1,2

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
Hydraulics	• Why are hydraulics used? • What are Pascal's laws? • What is viscosity?	• Explain the principles of hydraulics • List and explain the components used in a hydraulic system • Utilize the principles of Pascal's Laws • Explain viscosity	• Component identification worksheet	CRP1,2,4,8,9	WHST.9-10.2,4
				Cluster Standards ST3	
				Pathway Standards	**ELA** R.9-10.1,3 W.9-10.1,8 SL.9-10.3,6 L.9-10.1,4
					Math A-CED.4 A-REI.1 G-GMD.3,4 G-MG.2,3
					Science **HS-PS2-6**
Weeks 30-32 **Introduction to Problem Solving Failure Analysis**	• What is the importance of problem solving and how do engineers apply problem solving skills? • Why is failure analysis important to engineers and what are its impacts in engineering? • What is Rapid Root Cause Analysis (RRCA)? • How is data analysis applied to failure analysis?	• Understand the application of problem solving to the design process • Analyze and troubleshoot designs • Analyze structural integrity • Understand about why structures fail	• Technical drawings for bridge project (Rubric) • Summary report on bridge project	**Career Ready Practices** CRP1,2,4,8	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4
				Cluster Standards	**ELA** R.9-10.1,3,5 W.9-10.1,4,5 SL.9-10.1,3 L.9-10.1-4,5
				Pathway Standards ST-ET5	**Math** SIC.1 SID.1.2.4.6 S-CP.1 F-LE.1
					Science **HS-ETS1-2** **HS-ETS1-3**
Weeks 33-34 **Simple Machines**	• What are the six classic machines? • How are the six machines similar and different? • How can I apply what I	• Identify the six classic machines and explain their use • Distinguish similarities and differences of the six	• Group projects: Construct a functioning simple machine-Rubric • Written final project	**Career Ready Practices** CRP1,2,3,4,8,9	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4
				Cluster Standards ST6	**ELA** R.9-10.1,3,4-6 W.9-10.1,4,5

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
	know in a final project?	simple machines • Apply collaborative and critical thinking skills to project planning and development • Develop a final project proposal	proposal		SL.9-10.1,4 L.9-10.1,2,4
				Pathway Standards ST-ET2,5	**Math** G-SRT.6,.8 A-CED.4
					Science **HS-PS3-3** **HS-PS2-1** **HS-ETS1-2** **HS-ETS1-3**
Week 35 **Computer Programs**	• What are the common programs used in engineering? • How have they improved today's production processes?	• Compare and contrast traditional technical drawing and CAD • Explain how computer engineering software aids in the production process	• Application of engineering software in product design exercises-Rubric	**Career Ready Practices** CRP2,4	**Literacy** RST.9-10.1,2,3,7 WHST.9-10.2,4
				Cluster Standards ST2	
				Pathway Standards ST-ET2,5	**ELA** R.9-10.3,4 W.9-10.1,2,4 SL.9-10.1,4 L.9-10.1,4
					Math A-CED.1,4
					Science **HS-ETS1-2** **HS-ETS1-3**
Week 36 **Collecting and Analyzing Data, Statistics**	• What methods of data collection are used in product and production analysis? • What is Statistical Process Control (SPC) and how is it used by engineers? • How is the data analyzed?	• Understand the importance of Statistical Process Control to our society • Analyze product data to predict product outcomes • Compose product outcomes for sets of data	• Written report on root cause of failure through analysis of given problem and data	**Career Ready Practices** CRP2,4,8	**Literacy** RST.9-10.1,2,3 WHST.9-10.2,4
				Cluster Standards	**ELA** R.9-10.1,3,5 W.9-10.1,4,5 SL.9-10.1,3 L.9-10.1-4,5
				Pathway Standards ST-SM4	**Math** SIC.1 SID.1.2.4.6 S-CP.1 F-LE.1

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
					Science
Week 37 **Ethics**	• What are ethics? • What are the ethical obligations of engineers? • What are the results of non-ethical practices?	• Understand how engineering decision are based on ethical decisions • Understand the relationship between ethical decisions and product safety	• Research paper on ethical impact of product failures	**Career Ready Practices** CRP1,9 **Cluster Standards** ST3	**Literacy** RST.9-10.1,2,3 WHST.9-10.2.8.9
				Pathway Standards ST-ET6	**ELA** R.9-10.1,3,4 W.9-10.1,4 S.9-10.1,2 L.9-10.1,3,6 **Math** **Science** **HS-ETS1-1**
Weeks 38-39 **Final Project Presentations**	• How can I apply what I know in a final project?	• Apply engineering principles and knowledge to a topic as a final project • Evaluate peers projects and provide growth-producing feedback	• Final Project with peer and instructor rubrics	**Career Ready Practices** CRP1,2,4,7,8,9,11 **Cluster Standards** ST6	**Literacy** RST.9-10.1,2,3 WHST.9-10.2,7,8,9
				Pathway Standards ST-ET5	**ELA** R.9-10.1,3,4,6,7 W.9-10.1,4-7,9 SL.9-10.1,2,3,4,5 L.9-10.1,3,4,6 **Math** **Science** **HS-ETS1-2** **HS-ETS1-3**
Week 40 **Course Wrap-up and Evaluation**	• How can I apply what I know in a final project? • What have I learned?	• Apply engineering principles and knowledge to a final project topic • Review for final exam	• Final Exam	**Career Ready Practices** CRP1,2,4,7,8,9,11 **Cluster Standards** ST6	**Literacy** RST.9-10.1,2,3 WHST.9-10.2,7,8,9

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
				Pathway Standards ST-ET5	**ELA** R.9-10.3,4 W.9-10.6,9 SL.9-10.1,6 L.9-10.1,3,6 **Math** **Science**

Return to TOC

Syracuse City School District
Career and Technical Education Program
Course Syllabus
PTE300: Electrical Technology 300

Program Overview

Students will develop critical and analytical thinking, troubleshooting and problem solving skills through hands-on activities in this project-based curriculum. Electrical concepts and processes are taught and topics include ethics in engineering, technical drawing and cad design, measuring tools, simple machines, failure analysis, and data collection and analysis. Career pathways are explored and skills are enhanced through work-based experiences. The PTECH program offers the opportunity to earn college credits toward an Electrical Engineering degree. Upon successful completion of PTP100 & PTP200 and PTE300, students will earn 11th grade science credit. Following the successful completion of PTP100 & 200 and PTE300 & 400, students will be awarded specialized math and 12th grade ELA credits.

Course Description

Electrical Technology is an introduction to basic concepts underlying the computer and its applications in technology and science fields. The focus is on studying the computer for acquiring and presenting information, using spreadsheets to solve problems, collecting and storing data and word processing documents. Topics include: Hardware and software computer concepts, introduction to internet to acquire and share information, introduction to spread sheet applications for solving problems and charting, and using text editors in word processing documents. Introduction to technical presentations, use of application programs for organizing data, and drawing charts and schematics are also covered. Student will develop professional skills along with the application of electrical engineering theory into practice.

Pre-Requisites

PTP 100, PTP 200 and Regents Math

Course Objectives

Students will:

1. Demonstrate the ability to use Microsoft (MS) Office applications through hands-on activities including the use of the Windows operating system.
2. Build quality reports with MS Word.
3. Analyze technical data with MS Excel.
4. Integrate information from both MS Word and Excel.
5. Prepare PowerPoint presentations.
6. Manipulate flat file data with MS Excel.
7. Produce and deliver MS PowerPoint presentations.

Integrated Academics

11th grade integrated Science Credit

Equipment and Supplies

- **School will provide:** Laptop Computers, and software programs.
- **Student will provide:** *Notebook and writing utensils.*

Textbook

No Textbook is required

Grading

First and Second Quarter		Third and Fourth Quarter	
25%	Assigned Coursework	20%	Assigned Coursework
25%	Lab Projects	20%	Lab Projects
25%	Quizzes and Assessments	20%	Participation
25%	Professionalism & Participation	20%	Quizzes and Assessments
		20%	Professionalism

Additional Course Policies

Missed Classes: You are responsible for the activities of each class period. If you know of a conflict ahead of time, you are welcome to submit projects early. If you do not take a test on the scheduled day, contact me for a makeup.

Assignments: All assignments are due at the end of class on the date due. Late assignments receive partial credit.

Academic Dishonesty: Plagiarism and cheating are serious offenses and may be penalized by failure on exam, paper or project.

Course Calendar

Quarter	Units of Study
1	• Introduction to Engineering and Engineering Career Pathways • Personal & Professional Characteristics in Electrical Technology • Intro to Basic Computer Applications • Inputting and Modifying Data, Basic Formatting & Formulas • Using Averages, Percent Weighting, and IF statements • Technical Reports & PowerPoint Presentations • Percent Error, Elementary Statistics & Plotting Data Results • Industry Cert Assessment (NOCTI) • Understanding Formulas and Plots in Excel
2	• Conversion and Calculation • Engineering Lists & Historical Logs • Intermediate Formulas and Electrical Analysis
3	• Product Proposals and Marketing • Electrical Plotting and Analysis • Advanced Statistics and Data Analysis in Excel
4	• Engineering Functions in Excel • Curve Fitting and Plotting in Excel • Tables and Selecting Data for Engineering Calculation • Final Comprehensive Project with Industry Professionals

Syracuse City School District
Career and Technical Education
Scope and Sequence
PTE300: Electrical Technology 300

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Week 1 **Introduction to Manufacturing Technology**	• Who are you? • What are the course expectations? • What are the classroom procedures and safety practices? • What are the objectives of this course? • Can you identify the benefit of this course in a future professional environment?	• Communicate & engage in "getting to know you" exercises • Understand, explain and follow classroom procedures • Identify and explain safety rules and procedures for the class, lab area and school • Identify hazards of a manufacturing shop floor • Interpret the course syllabus, and identify the course objectives • Discuss the application of this course to a professional environment	• Participation in "getting to know you" activity • Safety quiz • Poster and Presentation • Student compliance with classroom procedures and safety practices	**Career Ready Practices** CRP1,2,4,5,6,8,9,11 **Cluster Standards** ST2,3,4,6 **Pathway Standards** ST-SM1,2,4	**Literacy** RST.11-12.4,9 WHST.11-12.4,6 **ELA** R.I.3,4,7 L.1,2,4 SL.1,2,4,5 **Math** **Science**
Week 2 **Unit 2** **Personal & Professional Characteristics in Mechanical Technology**	• What is time management? • Can you name the professional characteristics necessary for success in the engineering field? • How do your habits influence the way you present yourself to others? • What habits and	• Discussion of personal and professional attributes • Reflect and self-assess personal habits and attitudes • Develop employability goals appropriate for the profession • Student will learn to open the excel program, save, and modify documents.	• Class room worksheets. • Student discussion • Development of a employability profile	**Career Ready Practices** CRP1,2,4,5,6,8,9,11 **Cluster Standards** ST2,3,4,6	**Literacy** RST.11-12.4,9 WHST.11-12.4,6 **ELA** RI.1,4,7 W.2,5,6 SL.1,4,5 L.1,2,6 **Math**

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
	practices do you need to work on during this course?			**Pathway Standards** ST-SM1,2,4	**Science**
Week 3 **Unit 3** **Introduction to Basic Computer Applications**	• What is the function of Microsoft Excel and Word? • How is data analysis useful to the engineering industry? • Can you describe connections between process improvement and data statistics? • How has excel revolutionized the analysis of engineered data previously completed without computers?	• Describe the primary purpose of Microsoft Excel and Word applications • Explore menus, tools and functional capabilities of Excel and Word • Open, create, and save documents • Perform basic formatting Excel and Word	• Lab application of basic Excel and Word functions • Creation of a basic weekly schedule • Creation of a business letter template	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
				Cluster Standards ST 1,2,3,4,6	**ELA** L 1,2,3,4,6 SL 1,2,4,5 RI 3,4,7 W 2,4,5,6
				Pathway Standards ST-SM1,2,4	**Math** S-ID.7
					Science HS-ETS1-4
Week 4 **Unit 4** **Inputting and Modifying Data, Basic Formatting & Formulas**	• Are you able to describe gross income? • How is net pay defined and calculated? • How are percentages converted to decimals? • How can unit conversion be important to engineers utilizing complex equations in calculations?	• Discuss how data analysis affects the choices applied to engineered designs or processes • Generate a pay stub table, identify gross vs net pay, utilize basic math calculations, and utilize percentages in excel • Create linear equation plots • Explore Excel as it applies to data and chart plotting • Plot results as a graphical	• Students will apply techniques learned within assignments for submittal and feedback • Lab: Assigned application projects (Rubric) • First Submission to “Office 365 One Note”	**Career Ready Practices** CRP 1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA L.11-12.1,2,3,4,6 SL.11-12.1,2,4,5 RI.11-12.3,4,7 W.11-12.2,4,5,6
				Cluster Standards ST1,2,3,4,5,6	**Math** N-Q.1

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
	• In what ways does a graphical plot assist data or engineering analysts perform tasks more effectively?	representation		**Pathway Standards** ST-SM 1,2,4	**Science** HS-ETS1-4
Week 5 **Unit 5** **Using Averages, Percent Weighting, and IF statements**	• How are averages calculated? • How can percentages be used to weight grades? • What is the purpose or benefit of organized data tables, summary tables, and auto updating formulas? • In what ways might an Excel template be useful for engineers who frequently perform similar data analyses?	• Create gradebook with formulas for average and weighted final average • Utilize IF statements to return a text string from a conditional formula • Input information into organized excel spreadsheet • Identify and use shortcut keys, Excel tools, ribbon functions • Discuss advantages of using templates for analyzing data in daily engineering operations	• Project/Lab: Students apply functions and tools (Rubric) • Cloud computing submittal of assignment • Written summaries of improved efficiency in the use of electronic data analysis	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6 **ELA** RI.11-12.4,5,7 W.11-12.1,8 SL.11-12.1,3,5 L.11-12.1,2,6 **Math** S-ID.2
				Cluster Standards ST1,2,3,4,5,6 **Pathway Standards** ST-SM1,2,4	**Science** HS-ETS1-2 HS-ETS1-3 HS-ETS1-4
Week 6 **Unit 6** **Technical Reports & PowerPoint Presentations**	• What can we learn from an inspiring engineer of the past? • What are important attributes of a good public speaker? • Is it possible to save time through advanced skill in Microsoft Office programs?	• Demonstrate use of title page templates • Create an "auto updating" table of contents, citations, and bibliography in Microsoft Word • Create and present a short 3-4 min PowerPoint on selected subject	• PowerPoint presentations • Student self-assessment with a presentation rubric • Technical reports • Completed list of sources cited in a bibliography MLA or APA style	**Career Ready Practices** CRP1,2,4,5,6,7,8,9,1,12	**Literacy** RST.11-12.4,9 WHST.11-12.4,6 **ELA** RI.11-12.1,2,3,5,7 W.11-12.1-8 SL.11-12.1,2,4,5 L.11-12.1,2,3,6
				Cluster Standards ST1,2,3,4,5,6	**Math**

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
				Pathway Standards ST-SM1,2,4	**Science**
Week 7 **Unit 7** **Percent Error, Elementary Statistics & Plotting Data Results**	• Are you able to define histogram? • What is percent error used for? • What is the difference between SORT and FILTER in Excel? • Why is data analysis important in industry?	• Generate simple experimental data • Examine error or differences between theoretical and experimental data • Utilize Excel to SORT results, generate a scatter plot and a frequency histogram plot	• Project/Lab application of Excel functions to assigned documents (Rubric) • Vocabulary Quiz	**Career Ready Practices** CRP1,2,4,5,6,8,9,11,12	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA RI.11-12.1,3,7 W.11-12.1,6,8 SL.11-12.1,3,5 L.11-12.1,2,3,6
					Math N-Q.3 S-ID.1,2,4,6
				Cluster Standards ST1,2,3,4,5,6	**Science** HS-PS3-1 HS-PS3-6
				Pathway Standards ST-SM1,2,4	
Week 8 **Industry Certification Assessment**	• NOCTI Manufacturing Technology Assessment	• NOCTI Manufacturing Technology Assessment	• Summative Industry Testing	**Career Ready Practices** CRP2	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA RI.11-12.1-4 SL.11-12.2 L.11-12.1,6
					Math
				Cluster Standards ST 5,6	**Science**
Weeks 9-10 **Unit 8**	• What is Amortization plotting used for?	• Understand the variables of an amortization plot and	• Project/Lab application of assigned formulas	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Understanding Formulas and Plots in Excel	• How could understanding a loan payment schedule be important to manufacturing facilities? • When expensive equipment is procured by a company, could they use amortization plotting to finance their purchase?	generate loan payment schedules • Assess and analyze data • Use and apply math formulas to analyze data tables in excel	and plotting activities (Rubric) • Terminology Quiz		**ELA** RI.11-12.1,3,4,7 W.11-12.1, 8 SL.11-12.1,2,3 L.11-12.1,3,6
				Cluster Standards ST 1,2,3,4,5,6	**Math** A-SSE.3 F-IF.6,8 F-BF.1,2
				Pathway Standards ST-SM 1,2,4	**Science** HS-PS2-1 HS-PS3-5
Week 11-12 **Unit 9** **Conversions and Calculation**	• How could excel be beneficial as a quick unit conversion calculator? • What are common equations that utilize unit conversion? • Do people do unit conversion in daily life with time, distance, or money?	• Perform fundamental unit conversion and utilize excel for basic multivariable calculations • Identify where unit conversion is required or necessary • Formulate a plan to convert units using Excel application	• Project/Lab in conversions and calculations (Rubric) • Word problem and unit conversion assignments	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA RI.11-12.3,7 W.11-12.4,5 SL.11-12.1,4 L.11-12.1,6
				Cluster Standards ST1,2,3,4,5,6	**Math** A-CED.4 N-Q1
				Pathway Standards ST-SM1,2,4	**Science** HS-PS2-1 HS-PS3-5 HS-PS3-6
Week 13-14 **Unit 10** **Engineering Lists & Historical Logs**	• What is the definition of a List? • What is the purpose of an engineering log template? • Why would a	• Apply key terms and engineering vernacular • Create important engineering lists and historical data logs commonly created in	• Creation of excel database • Project/Lab application of Excel functions and tools (Rubric) • Terminology Quiz	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
				Cluster Standards ST2,4,5,6	**ELA** RI.11-12.1,3,4,7 W.11-12.2,4,6 SL.11-12.1,2,4,6

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
	manufacturing facility need an "Approved Vendor List"? • What issues would occur if we design and build a product without a proper "Bill of Materials?" • How could an engineer be more effective in his/her role using a "Lessons Learned Log?"	industry • Pull important information from engineering motor database. • Utilize the FILTER and FREEZE PANES tools in Excel			L.11-12.1,3,6
				Pathway Standards ST-SM1,2,4	**Math**
					Science HS-ETS 1-3 HS-ETS 1-4
Week 15-18 **Unit 11** **Intermediate Formulas and Mechanical Analysis in Excel**	• What is a spring constant? • Are material selections important to engineers when designing a car suspension? • Can you define oscillation? • What is resonance and how could it be catastrophic to engineering design? • What is a dampening system? • How can civil engineers use calculations in project design to prevent damage from earthquakes?	• Mathematically model spring constant data • Analyze critical information for solution of the model • Understand the differential equation variables provided • Discuss how civil engineers use calculations in project design	• Students will apply intermediate formulas in Excel • Project/Lab with write up and excel plots • Analysis of mechanical data using Excel • Terminology quiz	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA RI.11-12.3,4,7 W.11-12.1,2,4,9 S.11-12.1,2,3,4 L.11-12.1,2,6
				Cluster Standards ST1,2,4,5,6	**Math** A-SSE.1
				Pathway Standards ST-SM1,2,4	**Science** HS-PS2-1
Week 19-20 **Unit 12**	• What is the fundamental	• Develop rectified wave plot from engineered data	• Terminology Quiz • Rectified Wave plot	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4, 9 WHST.11-12.4, 6

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Intermediate Formulas and Electrical Analysis in Excel	difference between AC and DC current • Why do electrical engineers rectify voltage? • What is the “period” of a wave equation? • What is amplitude and how is phase shift defined?	source • Create a lexicon of electrical engineering terminology • Demonstrate competence in data analysis using higher level formulas	activity • Project/Lab with write up and excel plots.		**ELA** RI.11-12.3,4,7 W.11-12.1,4,8 SL.11-12.1,2,4
					Math A-CED.4 F-TF.5 N-Q.1
				Cluster Standards ST1,2,3,4,5,6	**Science** HS-PS4-1 HS-PS4-2 HS-PS3-6
				Pathway Standards ST-SM1,2,4	
Week 21-23 **Unit 13** **Product Proposals and Marketing**	• What is included in an engineer’s "Career Profile," in addition to a resume? • Why does a company that manufactures engineered products provide customers with a technical product proposal? • How can you distinguish the difference between technical and commercial proposals?	• Support attractiveness to employer recruiting with an all-inclusive career profile • Develop a technical product proposal • Compare the difference between technical and commercial information	• Student presentations of product proposals • Student self-evaluation (rubric) • Development of Career Profiles	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA RI.11-12.3,4 W.11-12.1,2,4,5 SL.11-12.1-5 L.11-12.1,2,3,6
				Cluster Standards ST1,2,3,4,5,6	**Math**
				Pathway Standards ST-SM1,2,4	**Science** HS-ETS 1-3
Week 24-26 **Unit 14**	• In the International System of Units, what	• Create a saw tooth wave plot in Excel	• Student Projects/Lab exercises (Rubric)	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Continuing Electrical Plotting and Analysis	is a unit of electric charge called? • Who is Charles-Augustin de Coulomb what was his contribution to the electrical engineering field? • What is Fourier Analysis?	• Develop a square wave function with plot in Excel • Compare and contrast wave differences • Create a short technical report describing work completed • Discuss the contributions of Charles Augustin de Coulomb	• Fourier Analysis Activity		**ELA** RI.11-12.1,3,6,7 W.11-12.1,2,3,6,7 SL.11-12.1-5 L.11-12.1-4,6
				Cluster Standards ST1,2,3,4,5,6	**Math** F-TF.5
				Pathway Standards ST-SM1,2,4	**Science** HS-PS3-5
Week 27-30 **Unit 15** **Advanced Statistics and Data Analysis in Excel**	• What is Regression Analysis used for? • What is P Value telling us? • What is the difference between overhead (fixed) costs and variable costs? • What is a significant indicator?	• Model, develop, interpret, and evaluate regression analysis of actual industry data • Calculate and predict future electrical consumption in a manufacturing facility	• Project/Lab for students to apply understanding of advanced concepts/functions in excel (Rubric) • Electrical consumption analysis of a real manufacturing facility with empirical data	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST11-12.4,9, WHST.11-12.4,6
					ELA RI.11-12.1,3,4,7 W.11-12.1,6,8 SL.11-12.1,2,3,5 L.11-12.1,4,6
				Cluster Standards ST1,2,3,4,5,6	**Math** N-Q.3 S-IC.2 S-ID.1,2,4
				Pathway Standards ST-SM1	**Science** HS-ETS 1-3 HS-ETS 1-4
Week 31-32 **Unit 16** **Engineering Functions in Excel**	• What is a Bessel Function? • What is the VLOOKUP function used for? • How is normalization used in data analysis?	• Build tables in Excel utilizing the BESSEL function • Perform a vertical lookup of data by searching for a value in the first column of a table and returning the value • Develop plots after	• Project/Lab with write up and excel plots. (Rubric)	**Career Ready Practice** CRP 1,2,4,5,6,8,9,11 **Cluster Standards** ST1,2,3,4,5,6 **Pathway Standards** ST-SM1,2,4	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA RI.11-12.1,3,4 W.11-12.1,8 SL.11-12.1,3,5 L.11-12.1,6

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
		normalizing data sets			**Math** S-ID.4 S-CP.1
					Science
Week 33 **Unit 17** **Curve Fitting and Plotting in Excel**	• What is Array Curve Fitting used for? • What does a 2nd order polynomial equation look like? • What are the slope and y-intercept variables in a linear equation?	• Identify the difference between linear and non-linear equations • Create a best fit equation for differing order equations • Utilize the LINEST function in excel	• Project/Lab with write up and excel plots. (Rubric) • Applied Engineering Math Assignments	**Career Ready Practice** CRP1,2,4,5,6,8,9,11 **Cluster Standards** ST1,2,3,4,5,6 **Pathway Standards** ST-SM1,2,4	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA RI.11-12.4 W.11-12.1,4 SL.11-12.1,3 L.11-12.1,6
					Math A-CED.2 F-LE.1,2,5
					Science HS-PS3-5
Week 34 **Unit 18** **Tables and Selecting Data for Engineering Calculation**	• Where do reference tables come from? • Why would engineers use reference tables? • What information is found on Steam Tables?	• Read and pull critical information from reference tables • Solve for missing reference information using interpolation • Understand and describe the importance of engineering reference tables	• Quiz on excel functions • Project/Lab skill application (Rubric) • Extracting important data from text strings of raw unfiltered data	**Career Ready Practices** CRP1,2,4,5,6,8,9,11	**Literacy** RST.11-12.4,9 WHST.11-12.4,6
					ELA RI.11-12.1,3,4,5,6 W.11-12.1,4,6 SL.11-12.1,2 L.11-12.1,4,6
				Cluster Standards ST1,2,3,4,5,6	**Math** N-Q.1
				Pathway Standards ST-SM1,2,4	**Science** HS-PS1-9

Time Frame/Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, Science
Week 35-40 **Final Comprehensive Project with Industry Professionals**	• What have we learned about the important Excel tools in this course? • Why are technical reports so important in the engineering industry? • How have we improved our professionalism and public speaking through the course?	• Generate experimental data and examine percent error between theoretical vs experimental data • Utilize engineering reference tables, interpolation, and theoretical derivation of engineering equations • Calculate results using engineering formulas and variables in Excel • Produce a presentation and technical report	• Mentor-based project utilizing industry partners for supply of authentic data and analysis requirements • Technical research & report documentation • Excel data analysis and plotting • Completion of a list of professional references, including mentor interview • Final PowerPoint presentation to professional panel	**Career Ready Practices** CRP1,2,4,5,6,8,9,11 **Cluster Standards** ST1,2,3,4,5,6 **Pathway Standards** ST-SM1,2,4	**Literacy** RST.11-12.4 9 WHST.11-12.4,6 **ELA** RL.11-12.1,3,6,7 W.11-12.1,3,4,5,6,7,8 SL.11-12.1,2,4,5,6 L.11-12.1,2,3,6 **Math** A-CED.4 N-Q.1,3 S-ID.1,2,4,6 **Science** HS-ETS1-1 HS-ETS1-2 HS-ETS1-3 HS-ETS1-4

Return to TOC

Syracuse City School District
Career and Technical Education Program
Course Syllabus
PTE400: Electrical Technology 400

Program Overview

Students will develop critical and analytical thinking, troubleshooting and problem solving skills through hands-on activities in this project-based curriculum. Electrical and mechanical concepts and processes are taught and topics include ethics in engineering, technical drawing and cad design, measuring tools, simple machines, failure analysis, and data collection and analysis. Career pathways are explored and skills are enhanced through work-based experiences. The PTECH program offers the opportunity to earn college credits toward Electrical Engineering or Mechanical Technology degrees. Upon completion of PTP 100-300, students will earn 11th grade science credit, and following the successful completion of PTP 100-400, students will be awarded specialized math and 12th grade ELA credits.

Course Description

The Professional Technology and Cooperative Work Experience Program component expands and enhances skills taught throughout the P-TECH program. Students will be assigned mentors and work with specific manufacturing industry professionals who will facilitate growth opportunities according to the needs of mentoring enterprise. Topics include employability, professionalism, teamwork, time management, design theory problem and solving/analysis. Students will develop 21st Century skills with the application of engineering theory in authentic industry environments within the Syracuse Manufacturing field. Students will perform these internship experiences 5 periods per week.

Pre-Requisites

PTP 100, PTP 200, PTP 300

Course Objectives

1. Students will demonstrate professionalism in an industry environment with professionals.
2. Students will analyze technical data and apply engineering theory.
3. Students will prepare PowerPoint presentations.
4. Students will present results in front of a group.
5. Students will produce and deliver a high quality assignments meeting and exceeding expectations of industry mentors.

Integrated Academics

12th Grade integrated ELA Credit

Equipment and Supplies

- **School will provide:** Laptop Computers, and software programs.
- **Student will provide:** Notebook and writing utensils.

Textbook

No Textbook is required

Grading

First and Second Quarter

25%	Assigned Coursework
25%	Mentor Projects
25%	Quizzes and Assessments
25%	Professionalism & Participation

Third and Fourth Quarter

20%	Assigned Coursework.
20%	Mentor Projects
20%	Employability Skills
20%	Quizzes and Assessments
20%	Professionalism

Additional Course Policies

Missed Classes: Students are responsible for the activities of each class period. If you know of a conflict ahead of time, you are welcome to submit projects early. If you do not take a test on the scheduled day, contact me for a makeup.

Assignments: All assignments are due at the end of class on the date due. Late assignments receive partial credit.

Academic Dishonesty: Plagiarism and cheating are serious offenses and may be penalized by failure on exam, paper or project.

Course Calendar

Quarter	Units of Study
1	• Professionalism & Employability • Mentor Lab Project 1 • Safety in the Manufacturing Facility
2	• NOCTI Certification Assessment • Time Management • Team Presentations
3	• Cooperative Work Experience with Industry Mentors • Mentor Lab Project 2 • Project Solving & Analysis
4	• Cooperative Work Experience with Industry Mentors • Comprehensive Team Project & Presentation • Mentor Lab Project 3 • Design and Decision Theory

Syracuse City School District
Career and Technical Education Program
Scope and Sequence
PTE 400: P-TECH Electrical 400

Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	Related Standards	CCLS Literacy, Math, ELA
Quarter 1 & 2 **Core courses consisting of (College English, Math, College Science, Economics)** **College Technical course sequence** **Job Shadow** **Senior independent project**	• Core courses follow each scope and sequence • College technical course follow college sequence time line • Why are job shadows important to my success? • What are the opportunities available for employment? • Student portfolio wrap-up	• Core High School and College classes follow course syllabus • Compose and present a rational for or against the use of job shadows in the program • Students finalize portfolios and prepare for future college or career	• Job shadow evaluations will be based on career coaches, business partners and company representative feedback and student reflections • Students present portfolios to career coaches, perspective employers and instructors	**Career Ready Practices** CRP2,4,7,10 **Cluster Standards** ST4,5 **Pathway Standards** ST-ET2	**Literacy** RST.9-10.1,2,4 WHST.9-10.2,7,8,9 **ELA** R.9-10.3,5 W.9-10.1 S.9-10.1,3,6 L.9-10.3,4,6 **Math** **Science**
Quarter 3 & 4 **Core courses consisting of (College English, Math, College Science, Economics)** **College Technical course sequence** **Job Shadow** **College or Career preparation**	• Core courses follow each scope and sequence • College technical course follow college sequence time line • Where do I go from here? • Student focus on technical writing • Student will develop an individual culminating project relating to their field of study.	• Core High School and College classes follow course syllabus • Student develop technical and report writing skills based on their job shadow experiences • Develop a comprehensive individual research project. Present project proposal to instructor for approval	• Job shadow evaluations will be based on career coaches, business partners and company representative feedback and student reflection • Evaluation of student projects based on rubric	**Career Ready Practices** CRP2,4,7,10 **Cluster Standards** ST4,5 **Pathway Standards** ST-ET2	**Literacy** RST.9-10.1,2,4 WHST.9-10.2,7,8,9 **ELA** R.9-10.3,5 W.9-10.1 S.9-10.1,3,6 L.9-10.3,4,6 **Math** **Science**

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.htm

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

Account Information

Person Information

Name	BENJAMIN A BLANKENSHIP	**SSN**	[redacted]
		Date of Birth	
Teacher Id	[redacted]	**Gender**	Male
Address			

Certificates

Credential	Status	Application Type	Issued / Effective Date	Original Exp. Date	Time Extended Exp. Date	Control Number
Electro-Mechanical Equipment Occupations (Repair & Installation) 7-12, Transitional A Certificate	Issued	CERTIFICATE	12/02/2017	01/31/2021		1189652171

Applications are valid for three years or two evaluations, whichever comes first.

Applications

Credential	Cert Path	Application Type	Status	Application Date	Evaluation History	Application Paid?

No Data Found

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

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

Return to TOC

NOCTI CTE®

Measuring What Matters in CTE

Job Ready Assessment Blueprint

Electronics Technology

Test Code: 4035 / Version: 01

General Assessment Information

Blueprint Contents

Test Type: The Electronics Technology industry-based credential is included in NOCTI's Job Ready assessment battery. Job Ready assessments measure technical skills at the occupational level and include items which gauge factual and theoretical knowledge. Job Ready assessments typically offer both a written and performance component and can be used at the secondary and post-secondary levels. Job Ready assessments can be delivered in an online or paper/pencil format.

Revision Team: The assessment content is based on input from secondary, post-secondary, and business/industry representatives from the states of California, Connecticut, Kentucky, North Carolina, and Pennsylvania.

CIP Code

15.0303- Electrical, Electronic and Communications Engineering Technology/Technician

Learning that works for America CTE™

Career Cluster 15- Science, Technology, Engineering, and Mathematics

o*net™ in*it

17-3023.01- Electronics Engineering Technicians

NATIONAL COLLEGE CREDIT RECOMMENDATION SERVICE
University of the State of New York - Regents Research Fund

In the lower division baccalaureate/associate degree category, 3 semester hours in Electronics or General Technology.

(Continued on the following page)

General Assessment Information (continued)

Association for Career and Technical Education
ACTE
www.acteonline.org

The Association for Career and Technical Education (ACTE), the leading professional organization for career and technical educators, commends all students who participate in career and technical education programs and choose to validate their educational attainment through rigorous technical assessments. In taking this assessment you demonstrate to your school, your parents and guardians, your future employers and yourself that you understand the concepts and knowledge needed to succeed in the workplace. Good Luck!

Electronics Technicians Association® International (ETA®) represents and supports electronics professionals with industry-recognized certifications. ETA offers over 80 certifications within the field of electronics that align with international standards and industry best practices, military and business resource initiatives, as well as career and technical education curriculum. An ETA certification confirms the technical knowledge and skills necessary to be successful in today's electronics industry. ETA certifications are set apart in that they are vendor-neutral third party assessments, developed by industry experts that test both knowledge and hands-on skills. Students passing NOCTI assessments in the area of electronics, industrial electronics, and electronics technology are prime candidates to achieve success earning ETA certification and will be qualified to enter today's workforce. www.eta-i.org

ISA®
International Sign Association
www.signs.org

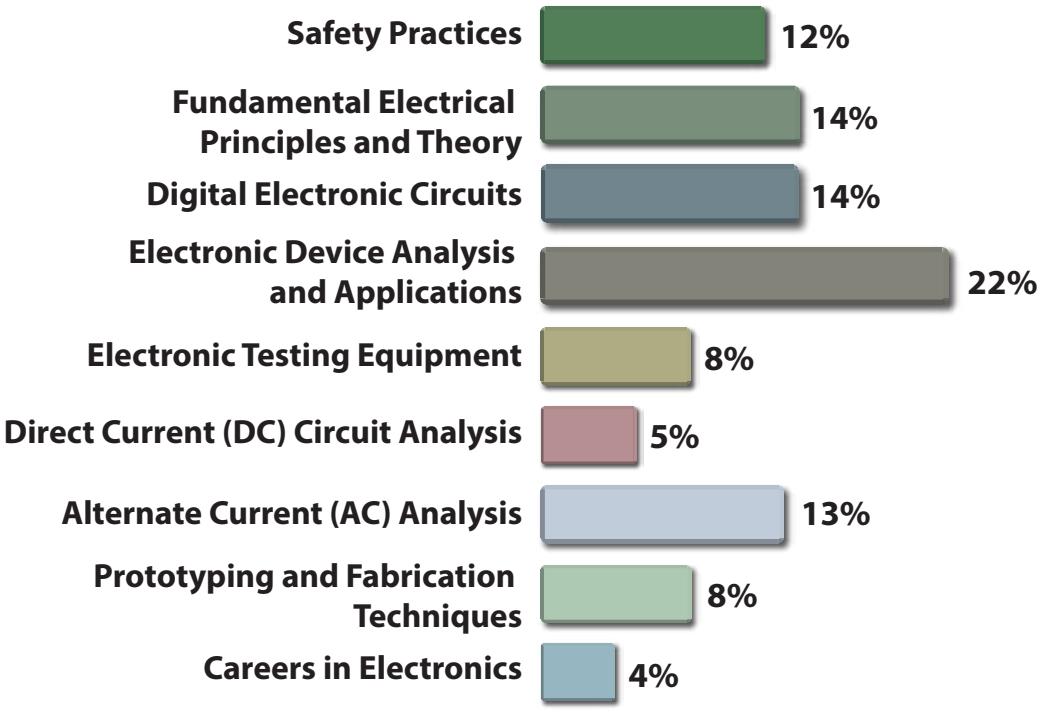
The International Sign Association (ISA) represents manufacturers, suppliers and users of on-premise signs and sign products from all 50 states and around the globe. The sign and visual communications industry is a $37.5 billion business that employs more than 200,000 individuals. One of ISA's long term goals is to showcase and promote the many exciting and diverse career opportunities that exist within the sign and visual communications industry and to apprise students of the abundant employment opportunities that are present to skilled and qualified candidates. ISA strongly encourages and supports students that work to enhance their educational achievements by completing NOCTI assessments.

Written Assessment

NOCTI written assessments consist of questions to measure an individual's factual theoretical knowledge.

Administration Time: 3 hours
Number of Questions: 155
Number of Sessions: This assessment may be administered in one, two, or three sessions.

Areas Covered



Specific Standards and Competencies Included in this Assessment

Safety Practices

- Demonstrate safe working procedures
- Explain the purpose of OSHA and how it promotes safety on the job
- Identify electrical hazards and how to avoid or minimize them in the workplace
- Explain safety issues concerning lockout/tagout procedures
- Safely discharge electronic equipment
- Explain the chemical and environmental hazards of electronics equipment

Fundamental Electrical Principles and Theory

- Explain basic electrical theory, including Ohm's Law and Watt's Law
- Describe magnetism and electromagnetism
- Identify schematic symbols
- Identify sources of electricity, including renewable sources
- Interpret color codes
- Describe conductors, resistors, and insulators
- Apply proper scientific and engineering notations

Digital Electronic Circuits

- Demonstrate knowledge of fundamental logic gates and functions
- Demonstrate knowledge of Boolean logic
- Demonstrate knowledge of sequential logic (flip flops)
- Demonstrate knowledge of digital circuitry
- Demonstrate knowledge of different number systems
- Convert between different number systems

(Continued on the following page)

Please note, due to a shift in OSHA terminology, that any references to "Material Safety Data Sheets (MSDS)" will be changed to "Safety Data Sheets (SDS)" during the next scheduled revision.

Specific Standards and Competencies (continued)

Electronic Device Analysis and Applications

- Identify diodes, rectifier, and power supply circuits
- Identify bipolar transistors and bipolar transistor circuits
- Demonstrate knowledge of Field Effect Transistors (FETs) and FET circuits
- Demonstrate knowledge of thyristors and control circuits
- Identify optoelectronic devices and light functions
- Identify Op-Amps, principles, and applications (including oscillators)
- Demonstrate knowledge of Electromagnetic Interference (EMI)
- Describe circuit protection methods
- Interpret a manufacturer's data sheet

Electronic Testing Equipment

- Identify, select, and demonstrate proper hand tool use
- Display knowledge and proper use of multimeters
- Display knowledge and proper use of oscilloscopes
- Display knowledge and proper use of function generators, frequency counters, testers, etc.

Direct Current (DC) Circuit Analysis

- Analyze and troubleshoot DC series circuits
- Analyze and troubleshoot DC parallel circuits
- Analyze and troubleshoot DC combination/complex circuits

(Continued on the following page)

Specific Standards and Competencies (continued)

Alternate Current (AC) Analysis

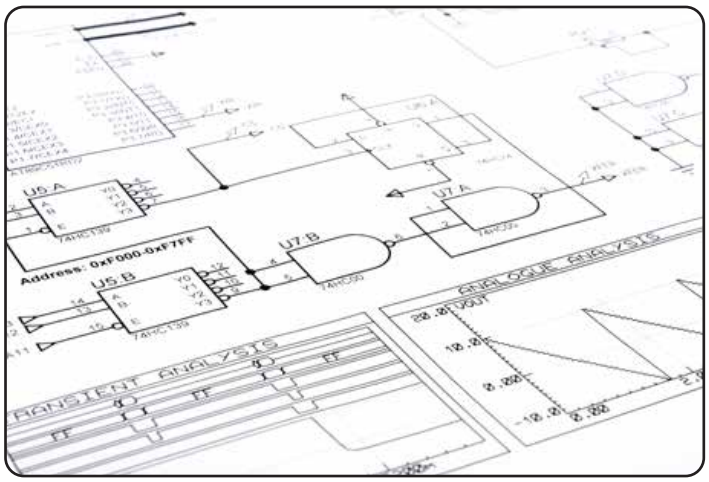
- Analyze AC circuits and waveforms
- Troubleshoot an AC circuit
- Demonstrate knowledge of inductance, capacitance, and resonance
- Explain current and voltage phase relationships
- Describe the operation of transformers, including troubleshooting

Prototyping and Fabrication Techniques

- Layout components on a printed circuit board according to a schematic
- Demonstrate knowledge of proper soldering and de-soldering techniques
- Repair or replace a component or foil on a printed circuit board
- Prototype electrical circuits using schematics and breadboards

Careers in Electronics

- Identify available careers in electronics technology (i.e., Nanotechnology, Industrial Automation, Biomedical Electronics, Robotics, etc.)
- Describe entry level requirements for various electronics technology careers



Sample Questions

To ensure that a capacitor has been fully discharged, the technician should

A. notice the spark at the tip of the shorting probe
B. check for residual voltage with a voltmeter
C. re-energize the equipment to see if it works
D. use a voltage sensor at the top of the capacitor

A battery produces electricity by

A. thermo energy
B. proton potential
C. electron potential
D. chemical reaction

An 8 bit DAC has a resolution of

A. 8
B. 80
C. 255
D. 1024

What does an FET do?

A. makes the silicon on PCBs
B. amplifies weak signals
C. maintains a stable voltage
D. works in parallel with a capacitor

The phase relationship between voltage and current in a purely resistive circuit is

A. 0 degrees
B. 90 degrees
C. 180 degrees
D. 270 degrees

(Continued on the following page)

Sample Questions (continued)

The change of mechanical pressure into electrical energy is called the

A. armature reaction
B. photovoltaic cell
C. piezoelectric effect
D. Lenz's Law

A switching mode that changes between two states, such as on and off, is called

A. threshold
B. triggered
C. toggle
D. stability

A Class C amplifier compared to a Class A amplifier

A. has more distortion
B. operates over a greater part of input cycle
C. requires more driving power
D. is less efficient

The acronym, "EMI," stands for

A. electro-mechanical interface
B. energized-material integration
C. electro-magnetic interference
D. energized-motor induction

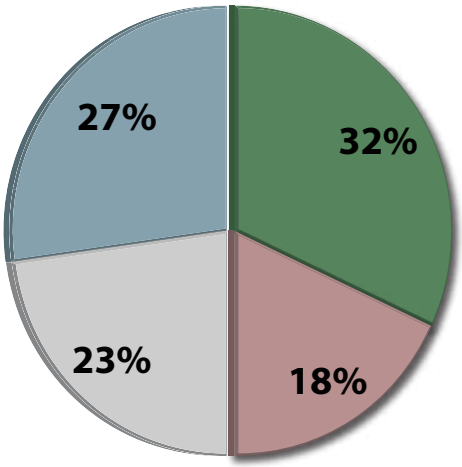
When soldering or desoldering components that are made of sensitive material, use a/an _____ to prevent damage.

A. damp cloth
B. heat sink
C. circuit cooler
D. thermal sensor

Performance Assessment

NOCTI performance assessments allow individuals to demonstrate their acquired skills by completing actual jobs using the tools, materials, machines, and equipment related to the technical area.

Administration Time: 3 hours and 15 minutes
Number of Jobs: 4



Areas Covered:

27% De-Soldering and Soldering
Participants will select components, de-solder and solder (re-solder) using appropriate tools, identify components, and adhere to safety procedures.

23% Power Supply Construction and Circuit Analysis
Participants will select components, use tools and equipment correctly following safety procedures, construct circuit with correct measurements, install capacitors, and measure voltages.

18% Op Amp Construction and Analysis
Participants will select correct components, use tools and equipment properly following safety procedures, measure output voltage, display input versus output, and calculate and measure gain.

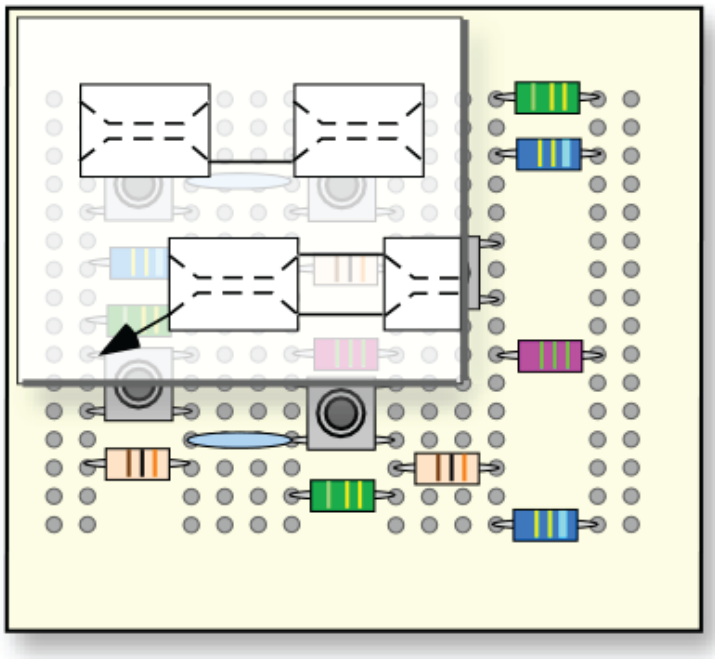
32% Design and Build a Combinational Logic Circuit
Participants will develop and simplify a Boolean expression, draw the gate logic diagram, and build and test the circuit.

Sample Job

Power Supply Construction/Circuit Analysis

Maximum Time: 45 minutes

Participant Activity: The participant will refer to the diagram provided and build the circuit, choose proper components from the selection given, measure and record the full RMS Secondary Voltage, measure the DC voltage and record the correct polarity from X to the ground and from Y to the ground.



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 compliment 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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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

ONONDAGA
COMMUNITY COLLEGE

A College of the State University of New York
4585 West Seneca Turnpike Syracuse, New York 13215-4585
(315) 498-2622 www.sunyocc.edu

July 12, 2017

Mr. Jamie Alicea, Superintendent
Syracuse City School District
725 Harrison St.
Syracuse, NY 13204

Re: Memorandum of Understanding
SCSD/ITC
College Credit Now

Dear Mr. Alicea:

Attached for your files, please find one (1) fully executed copy of the above referenced Memorandum of Understanding.

If you have any questions, please contact Ms. Amy Kremenek at 315-498-6062 or me directly at 498-2371.

Sincerely,

Michael P. McMullen
Assistant Vice President
Office of Management Services

MPM/mj

Attachment (1)

Cc: Amy Kremenek, VP Enrollment Development

MEMORANDUM OF UNDERSTANDING
Between
Onondaga Community College
And
SCSD/ITC High School

It is the goal of Onondaga Community College, in accordance with its Strategic Plan, to partner with Central New York school districts to offer a variety of Onondaga Community College credit courses for the benefit of qualifying high school students in our community.

This Agreement is the mechanism through which programs at the secondary and post-secondary levels will interface. The school district and college will provide equal access for all students, including "at-risk" students and students with disabilities. Students will not be discriminated against based on gender or any other legally protected classification or characteristic.

The following courses are approved for the 2017-18 academic year at SCSD/ITC High School:

- MET 150 Introduction to Engineering
- CIS 100 Information and Computer Literacy
- CMT 101 Introduction to Computers and Applications

Onondaga Community College will partner with the SCSD/ITC High School (the "School District") to provide services which fulfill the purpose of the Onondaga Community College Credit Now ("CCN") concurrent enrollment program. The parties to this Memorandum of Understanding have reached the following understanding:

Statement of Work:

SCSD/ITC High School will:

- Communicate and send all School District requests and associated correspondence to the *College Credit Now* program office at Onondaga Community College.
- Designate a School District contact for the purpose of the administration of the CCN program.
- Provide classroom facilities and laboratory space.
- Select the prospective instructors who will teach the classes at the high school. The credentials for the instructors will be reviewed by Onondaga, as well as high school administration. Onondaga will make the final determination if the instructor's credentials meet the academic requirements.
- Notify the *College Credit Now* program office in a timely fashion of instructor replacements in order for the approval process to be completed for each new instructor prior to the commencement of the School District's academic year.
- Complete and submit all student course registrations by the designated deadlines.
- Provide a learning environment where all course requirements/pre requisites are met, including Placement Testing, Onondaga Community College approved textbooks and class size limitations where appropriate.
- Provide district and student data necessary for SUNY General Education Assessment and program accreditation by the National Alliance for Concurrent Enrollment Partnerships (NACEP).

Onondaga Community College will:

- Provide a point of contact for all communication for the CCN program.
- Implement and communicate the procedure and timeline for the course enrollment process.
- Maintain student records as related to college credit earned.
- Assign a content area mentor who will provide course information including required texts, exams, a grading rubric, classroom materials as well as training for the successful delivery of the college course. The mentor will assist the School District instructors in the development of an appropriate course syllabus.
- Supply an official grade roster to School District instructors to confirm registrations. The roster will be submitted to Onondaga Community College at the end of the course with student grades.
- Select and provide an Onondaga Community College designee to administer training/mentoring for School District instructors. The designee will make site visits to each high school class in accordance with the accreditation standards set forth by the National Alliance for Concurrent Enrollment Partnerships (NACEP). Onondaga Community College will work collaboratively with the School District and the instructor to schedule such training and mentoring.
- Provide a list of approved courses and instructors each year for the participating school district. The School District will determine, in its discretion, which of the approved courses, if any, to offer throughout an academic year.

Student Eligibility

- High school students will meet all college placement requirements and course pre-requisites as stated in the official college course description.
- Students who register for college credit will be registered as a non-matriculated, part-time student of Onondaga.
- Students will be required to receive a minimum of 15 contact hours per one credit hour of instruction.
- A Certificate of Residency will be required by Onondaga Community College at the time of registration from any student who has been a New York State resident for one year prior to registration, but has not been a resident of Onondaga County for the previous six months. The student will be responsible for submitting a Certificate of Residency when appropriate. The School District will not be responsible for any fees or charges imposed upon a student who fails to submit a required Certificate of Residency.

Marketing and Publicity:

- The parties will, when possible, provide information to their constituencies.

Dates: Classes will be held September through June of each calendar year (i.e., during the School District's "academic year") as agreed upon by both parties.

Classes, Tuition, and Payments:

- The parties agree that classes may be comprised of students who register for credit and those who have elected not to register for Onondaga Community College credit.
- The parties agree that the minimum number of students will be 6. Should the number of students in an individual class fall below 6, the class will be evaluated for cancellation.

- The per credit hour tuition rate recorded for each student will be $63.00 which represents one third of the College's per credit hour rate for the classes being offered during the 2017-2018 academic year. It is mutually agreed that the cost of the leased space along with janitorial expense, utility expense and the School District's cost of student support and instructional services will not be less than the cost of the tuition per student for each class.

Nature of Relationship

Faculty members provided by Onondaga Community College to assist the School District with the CCN program shall be and remain employees of Onondaga. As such, Onondaga Community College employees shall not be considered employees of the School District and shall not be eligible for any compensation or benefits from the School District. Neither party shall have, or hold itself as having, the power or authority to bind or create liability for the other by its negligent or intentional act or omission.

Compliance with Law

The parties will comply with all applicable requirements regarding the confidentiality of student records, including the Family Educational Rights and Privacy Act, HIPAA and regulations of the New York State Education Department. The School District will ensure that any and all Onondaga Community College employee(s) who are reasonably expected to have direct, face-to-face, in-person contact with the School District's students for more than five days during any school year are fingerprinted and criminally cleared by the State Education Department prior to having contact with the School District's students, as set forth in applicable law, including but not limited to the regulations of the Commissioner of Education. Onondaga Community College agrees to cooperate fully with the fingerprinting and criminal clearance process.

Term of the Agreement: The agreement is in effect from September 1, 2017 through June 30, 2018. Extension or continuation of the agreement will be determined by mutual consent of the parties.

Termination: The School District and Onondaga Community College reserve the right to terminate this Agreement with written notice submitted within thirty days of the date of the termination. In this event, the date of termination will be the day after the end of the semester during which the 30-day period expires.

The School District covenants and agrees to indemnify, defend and hold harmless Onondaga Community College and the County of Onondaga; its officers, agents, and employees from and against any and all loss or expense that may arise by reason of liability for damage, injury or death, or for invasion of personal or property rights, of every name and nature, and whether casual or continuing trespass or nuisance, and any other claim for damages arising at law and equity alleged to have been caused or sustained in whole or in part by or because of any omission of duty, negligence or wrongful act on the part of its agents in connection with this Agreement.

Onondaga Community College will indemnify, defend and hold harmless the School District, its officers, agents, and employees from and against any and all loss or expense that may arise by reason of liability for damage, injury or death, or for invasion of personal or property rights, of every name and nature, and whether casual or continuing trespass or nuisance, and any other claim for damages arising at law and

equity alleged to have been caused or sustained in whole or in part by or because of any omission of duty, negligence or wrongful act on the part of its agents in connection with this Agreement.

Each party shall be responsible for obtaining insurance coverage (or an equivalent program of self-insurance with appropriate reserves) that is reasonably adequate to cover potential claims arising out of the activities contemplated by this Agreement.

If any provision of this Agreement is invalid, illegal or incapable of being enforced, by reason of any rule of law, administrative order, judicial decision or public policy, all other conditions and provisions of this Agreement shall remain in full force and effect. No covenant or provision shall be deemed dependent upon any other covenant or provision unless so expressed herein. No modification made after execution of this Agreement shall be enforceable unless it is in writing and signed by both parties to this Agreement.

The parties to the Memorandum of Understanding agree to cooperate in a manner indicating their mutual legitimate educational interests for purposes of sharing information legally under the provisions of the Family Rights and Educational Privacy Act (FERPA).

Authorized Signature and Title

SCSD/ITC High School

Title: Superintendent

Date: 6/30/17

Authorized Signature and Title

Mark R. Manning
Onondaga Community College

Title: CFO

Date:

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

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SYRACUSE CITY SCHOOL DISTRICT

Career and Technical Education

CTE

Internship Handbook

Preparing today's students for tomorrow's careers.

Table of Contents

Syracuse City School District

Career and Technical Education Internship

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 University report, 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 monitored by 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 the traditional classroom learning. Work based learning activities promote 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 skills development. 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 assess student performance
- Develop career ready practices and provide opportunities for reflection
- Be supported and documented by appropriate planning 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 of promoting:

- The exploration of and experience in a field of interest
- Exposure to a wide range of careers and jobs within an industry
- Opportunities to develop, practice and demonstrate new skills
- The acquisition of occupational knowledge and awareness of the skills and education needed to be successful in the industry

Career & Technical Program/ Teacher Guidelines

Legal Requirements of SCSD CTE Internship Program

All Career and Technical Education Internship Programs have 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 and needs.

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) labor laws and regulations
- Employer is provided a Certificate of Insurance from school 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 per NYSDOL 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's visitors or volunteer insurance.
- Worksite must be in compliance with Occupational Safety and Health Administration (OSHA) regulations. Health and safety instruction/training appropriate 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 identifies the 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 probation will participate in the internship.
- Employment Certificate (Working Papers) for students provide verification that a student under age 18 is eligible for employment. The student, employer, and school must complete the form. Employment certificates are obtained at the high school – typically the 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 be maintained for each student.
- An intern evaluation will be done by the CTE teacher before the internship, at the midpoint of the internship and at the end of the internship. This same form will be completed by the on-site supervisor in the midpoint and 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 that safe practices are stressed and followed. However, it is impossible to guarantee that no injuries resulting in medical expenses 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 appropriate safety training before beginning their internship.
2. Any sites used for SCSD CTE internships will be reviewed 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 as defined by the USDOL.
4. Provisions for student safety must be included as part of 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 of Employer

Before

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

During

- Provide student with a Work Site Orientation to organization and any required training
- Train student intern for your work site, including all work 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 decide on an ongoing communications strategy
- Evaluate intern work and provide constructive criticism
- Assist student in working toward learning outcomes
- Coordinate student schedule, approve weekly timesheets
- Communicate successes and opportunities at the workplace that the teacher can use to enhance the value of classroom connections
- Complete a student evaluation midway through internship and discuss with student

After

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

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 permission slips 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 security concerns
- Perform all duties, jobs and assigned tasks; treat internship 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 your worksite supervisor
- Participate in ongoing reflection journal activities and skill building classroom assignments
- Communicate with your teacher/coordinator and worksite supervisor if issues arise
- Keep copies of all necessary paperwork (work journal, training plan, Weekly Time Log/Record of Attendance, and evaluations)

After

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

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

- ☐ Obtain NYSED Application for Employment Certificate (usually available in school counseling office, application attached)
- ☐ A written Memorandum of Agreement is in effect between the cooperating business, the education agency, and signed by student and parents (**Form #1**)
- ☐ Return Internship Application (**Form #2**) and all permission slips with appropriate signatures
- ☐ Develop skill specific learning outcomes with your worksite supervisor
- ☐ Meet with your teacher/coordinator and worksite supervisor to finalize an Internship Training Plan for the internship (**Form #4**)
- ☐ Attend orientation at the worksite (**Form #7**)
- ☐ Observe all workplace rules and regulations particularly those applicable to safety and security concerns
- ☐ Perform all duties, jobs and assigned tasks; treat internship like a real job
- ☐ Maintain regular work schedule and notify supervisor in advance of any vacation/appointments
- ☐ Track you hours as instructed on time log/record of attendance (**Form #8**)
- ☐ Participate in ongoing reflection activities and skill building classroom 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/Record of 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 STATE EDUCATION 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

PART I – 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.

Date……

I, …… Age ……..…
[Applicant]

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 day school.

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……
[Specify]

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 RETURNED 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]

…… Starting 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 certificate.

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, Farmworker, 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 of 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 machinery; 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 farmwork 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 of 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 maximum 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 <u>on days followed by a school day</u> without written consent of parent of guardian <u>and</u> 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 <u>on days not followed by a school day</u> without written consent of 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."

ACORD® CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/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 (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	

INSURED	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A :	
	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

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 TERMS, 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	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	**GENERAL LIABILITY**						EACH OCCURRENCE	$
	☐ COMMERCIAL GENERAL LIABILITY						DAMAGE TO RENTED PREMISES (Ea occurrence)	$
	☐ CLAIMS-MADE ☐ OCCUR						MED EXP (Any one person)	$
	500,000 Retained						PERSONAL & ADV INJURY	$
							GENERAL AGGREGATE	$
	GEN'L AGGREGATE LIMIT APPLIES PER:						PRODUCTS - COMP/OP AGG	$
	☐ POLICY ☐ PRO-JECT ☐ LOC							$
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	$
	☐ ANY AUTO						BODILY INJURY (Per person)	$
	☐ ALL OWNED AUTOS ☐ SCHEDULED AUTOS						BODILY INJURY (Per accident)	$
	☐ HIRED AUTOS ☐ NON-OWNED AUTOS						PROPERTY DAMAGE (Per accident)	$
								$
	☐ **UMBRELLA LIAB** ☐ OCCUR						EACH OCCURRENCE	$
	☐ **EXCESS LIAB** ☐ CLAIMS-MADE						AGGREGATE	$
	☐ DED ☐ RETENTION $							$
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY Y / N	N / A					☐ WC STATU-TORY LIMITS ☐ OTH-ER	
	ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ **(Mandatory in NH)**						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 / LOCATIONS / 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

Teacher

Employer

Student

Syracuse City School District

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

Memorandum of Agreement

(Form #1)

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)_____ .

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 work placement.
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 the Program.

The parties/signatories hereby agree that good communication and understanding between them is vital if the objectives of this Program are to be met and that joint conferences between the Student, Employer, Parent/Guardian, Instructor, and others 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 party upon 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

Teacher

Student

Syracuse City School District

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

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

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 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.
- A student with a junior license must only drive to school if they go directly to work following the school day and they must carry with 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

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

CTE Internship Ready to Work Assessment

(Form #3)

Teacher | Employer | Student

Name _____ Program _____ Date ___/___/___

Scale

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

		Student	Teacher	Onsite Supervisor
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			

		Student	Teacher	Onsite Supervisor
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.	☐	☐	☐	☐

(Form #4 Continued)

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

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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 students are not due any wages per New York State Department of Labor.

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

Syracuse City School District

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 CERTIFICATIONS		Date
OSHA 10	☐	/ /
Safe Serv	☐	/ /
First Aid	☐	/ /
CPR	☐	/ /
Other	☐	/ /

Teacher

Employer

Student

Syracuse City School District

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

SCSD Internship Worksite Orientation
(Form #7)

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 plan
- ☐ Introductions 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 policies
- ☐ Location 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 the phones and 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 handbook
- ☐ Organizational 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
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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

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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… _____

Syracuse City School District

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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

- ☐ Exceptionally good
- ☐ Appropriate
- ☐ Too much
- ☐ Too little

Suggestions for improvement: _____

Additional comments: _____

Return to CTE teacher: _____
CTE Teacher Email

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NOTICE OF NON-DISCRIMINATION

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(315) 435-4131

Email: CivilRightsCompliance@scsd.us

Return to TOC

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

Electrical Technology

Industry Based Skill Standards

Proficiency Definitions

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

History of Engineering	9th	10th	11th	12th
Identify the different professions associated with Engineering.				
Understands the origins and development of Engineering.				
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.				
Manufacturing Math and Science Measurements	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				
Quality Assurance	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				
Blueprint Production and 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				
Knows how to extract information from a title block				
Can identify the type of lines used on a drawing				

Manufacturing Fundamentals	9th	10th	11th	12th
Can demonstrate basic hand tool care and use (Drills, Saws, Wrenches, etc)				
Can perform basic troubleshooting maintenance procedures				
Can identify specific machine tools and their function				
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	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				
Can interpret basic ladder diagrams				
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				
Measuring tools	9th	10th	11th	12th
Demonstrate mastery of measuring instruments; scale and tape measure				
Can identify precision measuring devices. (Vernier Calipers, Micrometers, etc.)				
Demonstrate mastery of Vernier Calipers and Micrometers.				

Electrical Technology
EMPLOYABILITY PROFILE

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 ☐

Industry Credential(s) Awarded _____

Special Recognitions or Scholarships _____

Student Leadership Organization _____

Return to TOC