

Syracuse City School District
Career and Technical Education Program
Course Syllabus
CNT 100: Construction Technology 100



Program Overview

At the completion of Construction Technology program, students will be able to apply the trade skills necessary for entry-level employment, apprenticeships and post-secondary education. Students will study and practice safety training, framing, roofing, door and window installation, hand and power tool use, concrete, masonry and bricklaying, blueprint reading, plumbing, electrical, and construction equipment and rigging. Students will learn the theory of the construction process and have the opportunity to put those theories into practice with authentic, hands-on, project-based activities. Students will also have the opportunity to earn the NCCER (National Center for Construction Education and Research) Construction Core as well as the OSHA 10 certifications, recognized throughout the construction industry as indicators that the individual is job ready.

Course Description

Construction Technology 100 provides basic technical knowledge and safety skills to begin preparing students for a career in the field. Student will learn about the importance of safety and personal protection in all aspects of construction. Students will learn and apply skills in math and measurement for construction, as well as project and materials estimating. Students will identify and safely use hand and power tools and common types of construction rigging for materials handling and processing. Students will learn to read and interpret construction drawings and apply that knowledge to construct projects based on drawings and specifications. Students will also learn about and practice skills for effective communication and customer service.

Work-Based Learning

Students will be connected with construction industry professionals in the community through Career Coaching, field trips and job shadowing which could lead to further opportunities for direct job training and real-world experience. Students will create and maintain a portfolio of their work-based learning experiences throughout the program to document the development of their skills.

Pre-Requisites

Entrance Application and Formal Interview
Acceptance into Program

Course Objectives

By the end of this course, students will:

1. Implement key safety procedures while working on a construction site.
2. Safely and accurately use hand and power tools in construction projects.
3. Apply basic math to calculate measurements in construction activities.
4. Read and interpret building plans to access information necessary to complete construction projects.
5. Identify and describe the working properties of materials used on a construction site.
6. Accurately handle and process various construction materials.
7. Qualify for OSHA (Occupational Safety and Health Administration) 10 certification.
8. Qualify to take the NCCER Core certification exam.

Integrated Academics

N/A

Equipment and Supplies

- **School will provide:** All necessary tools, materials and classroom equipment.
- **Student will provide:** Leather work boots or shoes (steel/composite toe preferred), long work pants with no holes that cover the top of the shoe or boot, notebook for taking and saving notes, pen/pencils.

Textbooks

- NCCER (National Center for Construction Education and Research). *Construction Technology Trainee Guide*. Hoboken, NJ: Pearson, 2009.
- *Core Curriculum-Basic Safety Training Guide*. Hoboken, NJ: Pearson, 2009.
 - *Core Curriculum-Introductory Craft Skills*. Hoboken, NJ: Pearson, 2015.
 - *Tools for Success-Critical Skills for the Construction Industry*. Hoboken, NJ: Pearson, 2009.

Grading

- Unit Classwork: 30%
- End of Unit Assessment: 30%
- Project Work: 20%
- Participation: 20%

Additional Course Policies

Students are required to follow all classroom professionalism and safety procedures.

Course Calendar

Quarter	Units of Study
1	<ul style="list-style-type: none">• Basic Safety• Safety Projects• Communication Skills• Employability Skills• Work-Based Learning: Career Coaching, Field Trip
2	<ul style="list-style-type: none">• Construction Math• Construction Math Project: Roofing• Hand Tools and Safety• Hand Tool Project• Work-Based Learning: Career Coaching
3	<ul style="list-style-type: none">• Power Tools and Safety• Power Tool Projects• Construction Drawings• Construction Drawing Project• Work-Based Learning: Career Coaching, Field Trip
4	<ul style="list-style-type: none">• Basic Construction Equipment Rigging• Construction Materials Processing and Handling• Materials Rigging and Handling Project• Communication and Employability Skills• Work-Based Learning: Career Coaching• NCCER Core Assessment Review and Assessment

**Syracuse City School District
Career and Technical Education Program
Scope and Sequence**



CNT100: Construction Trades Technology 100

Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	CCTC Standards	NYS Standards
Weeks 1-4 Basic Safety	<ul style="list-style-type: none"> What is the importance of safety in the building and construction trades? What is the role and responsibility of workers in in maintaining a safe work environment? What is OSHA? What purpose does OSHA serve in ensuring that workers are safe on a construction site? What is the function of the EPA? What is an SDS? 	<ul style="list-style-type: none"> Describe the importance of compliance with safety standards and explain how it effects overall production in an organization. Explain the importance of health, safety, and environmental management systems in organizations. Identify and interpret universal signs and symbols to ensure safety at job sites. Explain the purpose and function of OSHA. Review requirements for OSHA 10 Certification. Explain the function of the EPA. Describe the purpose and information contained in Safety Data Sheets. Comply with all safety policies and procedures. 	Written <ul style="list-style-type: none"> Research Project: Industry Safety Standards and Economic Impacts of Job-Related Accidents and Injuries Tests and Quizzes NCCER Basic Safety Module Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist 	Career Ready Practices CRP 1,2,3,4,7,8,10,11	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 3	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5 AC-DES 2 AC-MO 1	Math AI-S.ID.1,2,3,5,6
Week 5 Safety Projects	<ul style="list-style-type: none"> What are some common construction site hazards? What steps should be taken in assessing and correcting unsafe working conditions? How can good communication skills facilitate worker safety? 	<ul style="list-style-type: none"> Identify the types and sources of workplace hazards common to various construction settings. Identify universal signs and symbols related to safety precautions. Apply safety principles to correct identified hazards in a variety of construction related settings. Communicate potential or actual safety concerns to peers and supervisors. 	Written <ul style="list-style-type: none"> Workplace Hazard Identification Tests and Quizzes Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Safety Project 	Career Ready Practices CRP 1,2,3,4,8,11,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 3	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5 AC-DES 2 AC-MO 1	Math AI-S.ID.1,2,3,5,6
Weeks 6-7 Communication Skills	<ul style="list-style-type: none"> Why are written and verbal communication skills important in the construction industry? What types of written and verbal communication are commonly used at worksites? What are differences in communication between co-workers and between supervisors and workers? What strategies could be used to improve communication skills, 	<ul style="list-style-type: none"> Describe effective verbal communication skills necessary for successful employment. Analyze personal communication style and explore strategies to improve and enhance skills. Communicate effectively both verbally and in writing using the language of the construction industry. 	Written <ul style="list-style-type: none"> Research project: Communication and Customer Service Skills Tests and Quizzes Self-Assessment NCCER Module Assessment Guest Speaker Questions: HR Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist 	Career Ready Practices CRP 1,2,4,8,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,5	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5	Math

	especially when under stress at the job?		<ul style="list-style-type: none"> • Role Plays of Case Scenarios 		
Weeks 8-9 Employability Skills Work-Based Learning: Career Coaching, Field Trip	<ul style="list-style-type: none"> • What are the key personal characteristics of successful employees? • What does responsibility look like as it relates to employability? • What does teamwork mean at a job site? • What are the key elements of professionalism? • Why is the ability to solve problems important in employment? • What is the best way to prepare for a job interview? • What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> • Identify the roles, responsibilities and personal characteristics common in the construction industry. • Demonstrate responsibility, teamwork, respect and professionalism in the classroom and shop. • Work with peers and supervisors to problem solve and collectively accomplish tasks. • Participate in Career Coaching process. • Participate in field trip to local construction company. 	Written <ul style="list-style-type: none"> • Tests and Quizzes • NCCER Module Assessment • Guest Speaker Questions: Interview Preparation • Career Coaching Self-Assessment • Field Trip Reflection • Professional Portfolio Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Mock Interviews 	Career Ready Practices CRP 1,2,4,8,9,10,11,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,5	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 1,6 AC-DES 2,5 AC-MO 2	Math
Weeks 10-13 Construction Math	<ul style="list-style-type: none"> • Why is knowledge of basic Algebra and Geometry important in building and construction trades? • How do math skills relate to specific building and construction projects? • How can solid math skills increase opportunities for career advancement and higher wages? 	<ul style="list-style-type: none"> • Apply basic measurement functions. • determine ratios, fractions, and proportion measures using correct formulas. • Determine correct math application for specific construction-related scenarios. • Determine percentages and decimals using appropriate formulas. • Determine area and volume of various structures using mathematical formulas. • Complete construction tasks using basic math functions. 	Written <ul style="list-style-type: none"> • Measurement and Math Assignments • Tests and Quizzes • Self-Assessment • NCCER Module Assessment • Professional Portfolio Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Math Problem Scenarios 	Career Ready Practices CRP 1,2,4,8,11	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-DES 8	Math GEO-G.CO.1,5 GEO-G.SRT.6,8 GEO-G.GPE.5,7 GEO-G.MG.1,3
Week 14 Construction Math Project: Roofing	<ul style="list-style-type: none"> • What is needed to calculate materials for a roofing project? • What sequence of steps are necessary to calculate the material needed for a roof system? • Why is it important to communicate using the language and terminology of the construction industry? • What is the job description for roofers? • What are the working conditions, job opportunities and average wages for roofers? 	<ul style="list-style-type: none"> • Identify the steps in calculating materials estimates. • Estimate resources and materials required for a specific project or problem. • Accurately express and interpret information and ideas using appropriate technical terms and language. • Describe the work and career opportunities of roofers in the construction industry. 	Written <ul style="list-style-type: none"> • Research Project: Education, Wages and Responsibilities of Roofers • Project Description • Tests and Quizzes • Self-Assessment • Estimating Competition • Guest Speaker Questions: Roofing • Professional Portfolio Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Construction Math Project 	Career Ready Practices CRP 1,2,4,8,11	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,2	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-DES 2,8	Math GEO-G.CO.1,5 GEO-G.SRT.6,8 GEO-G.GPE.5,7 GEO-G.MG.1,3
Weeks 15-17 Hand Tools and	<ul style="list-style-type: none"> • What are the basic hand tools used in building and 	<ul style="list-style-type: none"> • Explain industry standards for hand tool safety. 	Written <ul style="list-style-type: none"> • Tool Identification and 	Career Ready Practices CRP 1,2,3,4,8,11	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7

Safety	<p>construction trades?</p> <ul style="list-style-type: none"> • What is the function of each tool? • What are the correct techniques for using different hand tools? • What safety considerations apply to the use of hand tools? • What is PPE (Personal Protective Equipment) and how does it relate to hand tool use? 	<ul style="list-style-type: none"> • Identify and describe the function of hand tools. • Explain the importance of selecting the right tool(s) for specific tasks. • Use basic hand tools in compliance with all safety standards. • Explain the importance of tool maintenance and safety. • Analyze and describe the effects of unsafe tool applications for workers. • Describe what PPE should be utilized when using hand tools. 	<p>Use</p> <ul style="list-style-type: none"> • Tests and Quizzes • Self-Assessment • Professional Portfolio <p>Performance</p> <ul style="list-style-type: none"> • Tool Selection and Application • Safety Checklist • Teacher Observation Checklist 		<p>9-10SL 1,2,4,5,6 9-10L 1,2,3,6</p> <p>Cluster Standards AC 1,3</p> <p>Pathway Standards AC-CST 8,9 AC-MO 2,4,5</p> <p>Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7</p> <p>Math GEO-G.MG.3 AI-S.ID.1,2,3,5,6</p>
<p>Weeks 18-19</p> <p>Hand Tool Project</p> <p>Work-Based Learning: Career Coaching</p>	<ul style="list-style-type: none"> • How can basic hand tools be used to solve a problem? • How are appropriate tools selected for specific projects? • Why is safety in hand tool use important? • What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> • Select and justify the use of specific hand tools to complete a task. • Demonstrate safe hand tool use to complete tasks. • Develop a technical description of project to be completed. • Participate in Career Coaching process. 	<p>Written</p> <ul style="list-style-type: none"> • Tool Identification and Use • Project Description • Tests and Quizzes • Career Coaching Self-Assessment • Professional Portfolio <p>Performance</p> <ul style="list-style-type: none"> • Tool Selection and Application • Safety Checklist • Teacher Observation Checklist • Hand Tool Project 	<p>Career Ready Practices CRP 1,2,4,6,8,10,11</p> <p>Cluster Standards AC 1,2,3</p> <p>Pathway Standards AC-CST 8,9 AC-MO 2,4,5</p>	<p>ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6</p> <p>Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7</p> <p>Math GEO-G.MG 3 AI-S.ID.1,2,3,5,6</p>
<p>Weeks 20-22</p> <p>Power Tools and Safety</p>	<ul style="list-style-type: none"> • What are the basic power tools used in the building and construction trades? • What is the function of each power tool? • What safety rules apply to different power tools? • What PPE should be used when using power tools? • What are the potential safety issues in the use of power tools? 	<ul style="list-style-type: none"> • Describe the basic power tools used in the building and construction trades and their function. • Describe the safety rules that apply to different power tools. • Describe the PPE should be used when using power tools. • Apply safety protocols as prescribed for different power tools. • Explain potential safety issues for power tool use and make recommendations for their prevention. 	<p>Written</p> <ul style="list-style-type: none"> • Tool Identification and Use • Tests and Quizzes • Career Coaching Self-Assessment • Professional Portfolio • NCCER Module Assessment <p>Performance</p> <ul style="list-style-type: none"> • Tool Selection and Application • Safety Checklist • Teacher Observation Checklist 	<p>Career Ready Practices CRP 1,2,3,4,8,11</p> <p>Cluster Standards AC 1,3</p> <p>Pathway Standards AC-CST 8,9 AC-MO 2,4,5</p>	<p>ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6</p> <p>Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7</p> <p>Math GEO-G.MG.3 AI-S.ID.1,2,3,5,6</p>
<p>Weeks 23-24</p> <p>Power Tool Projects</p>	<ul style="list-style-type: none"> • How can basic power tools be used to complete a task? • How are the correct power tools selected for a job? • Why are safety checks and PPE important when working with power tools? 	<ul style="list-style-type: none"> • Select and justify the use of specific power tools to complete a task. • Demonstrate safe power tool use to complete tasks. • Develop a technical description of project to be completed. 	<p>Written</p> <ul style="list-style-type: none"> • Tool Identification • Project Description • Tests and Quizzes • Career Coaching Self-Assessment • Professional Portfolio <p>Performance</p> <ul style="list-style-type: none"> • Tool Selection and Application 	<p>Career Ready Practices CRP 1,2,4,6,8,11</p> <p>Cluster Standards AC 1,2,3</p> <p>Pathway Standards AC-CST 8,9</p>	<p>ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6</p> <p>Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7</p> <p>Math GEO-G.MG.3</p>

			<ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Power Tool Project 	AC-MO 2,4,5	AI-S.ID.1,2,3,5,6
Weeks 25-27 Construction Drawings	<ul style="list-style-type: none"> • What are construction drawings? • How are project building requirements communicated accurately? • What are the industry standards for construction drawings? • How do industry standards affect construction drawings? 	<ul style="list-style-type: none"> • Explain how construction drawing specifications and standards are used. • Explain what the industry standards are for construction drawings. • Read and interpret construction drawings. • Create construction drawings including specifications. • Use technical drawings and specifications to plan a project. 	Written <ul style="list-style-type: none"> • Tests and Quizzes • Guest Speaker Questions: Architect • Professional Portfolio • NCCER Module Assessment Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Construction Drawings 	Career Ready Practices CRP 1,2,4,8,11	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,6	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-DES 2,6,7	Math GEO-G.CO.9,12,13 GEO-G.SRT.1 GEO-G.MG.3 AI-N.Q.3
Weeks 28-29 Construction Drawing Project Work-Based Learning: Career Coaching, Field Trip	<ul style="list-style-type: none"> • Why is the ability to read and interpret building plans a necessary skill for the construction worker? • What are some commonly used software applications in construction drawings and plans? • How do basic skills in Computer-Aided Design (CAD) assist in the process of creating suitable building plans? • What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> • Use architect's plan, manufacturer's illustrations and other materials to communicate specific data and visualize proposed work. • Describe current computer software used to develop building and construction plans. • Explain how Computer-Aided Design has affected the construction industry. • Participate in Career Coaching process. • Participate in field trip to architectural firm. 	Written <ul style="list-style-type: none"> • Tests and Quizzes • Career Coaching Self-Assessment • Field Trip Reflection • Professional Portfolio • NCCER Module Assessment Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Construction Drawings 	Career Ready Practices CRP 1,2,4,8,10,11,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,6	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-DES 2,6,7	Math GEO-G.SRT.6,8 GEO-G.CO.2,6 GEO-G.GPE.6,7
Weeks 30-31 Basic Construction Equipment Rigging	<ul style="list-style-type: none"> • What is construction equipment rigging and how is it used in the industry? • Why is it important to determine how to safely move large, heavy loads? • What role does effective verbal and written communication play in working with peers and customers? 	<ul style="list-style-type: none"> • Explain and demonstrate principles of physics as they relate to working with materials and load applications. • Explain and demonstrate the effects of statics and loads on planning. • Select and justify the use of appropriate equipment for a specific construction project. • Explain the role of effective verbal and written communication in working with peers and customers. 	Written <ul style="list-style-type: none"> • Rigging Equipment Identification and Function • Tests and Quizzes • Career Coaching Self-Assessment • Guest Speaker Questions: Rigging • Professional Portfolio • NCCER Module Assessment Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Student worksheets • Rigging Equipment Selection 	Career Ready Practices CRP 1,2,4,8,11,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,3	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5,8,9	Math AI-N.Q.1,3 GEO-G.CO.9 GEO-G.MG.1,2,3
Week 32	<ul style="list-style-type: none"> • What is meant by materials 	<ul style="list-style-type: none"> • Identify the physical properties that 	Written	Career Ready Practices CRP 1,2,4,8,11	ELA 9-10R 1,2,4,7

Construction Materials Processing and Handling	<ul style="list-style-type: none"> processing and handling? Why is pre-task planning important for safe materials processing and handling? What factors should be considered in determining correct materials handling? 	<ul style="list-style-type: none"> need to be considered for handling materials safely, effectively and efficiently. Apply concepts of material handling based on physical properties. 	<ul style="list-style-type: none"> Materials and Physical Properties Identification Tests and Quizzes Career Coaching Self-Assessment Guest Speaker Questions: Rigging Professional Portfolio NCCER Module Assessment Performance Safety Checklist Teacher Observation Checklist Student worksheets Processing and Handling Selection 	<ul style="list-style-type: none"> Cluster Standards AC 1,2,3 Pathway Standards AC-CST 5 	<ul style="list-style-type: none"> 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6 Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7 Math GEO-G.GMD.4 GEO-G.MG.1,2,3
Week 33 Materials Rigging and Handling Project	<ul style="list-style-type: none"> How can mechanical advantage be used to move a heavy load? What are five considerations involved in pre-task planning? How would the best lifting or moving aid for a specific material be determined? 	<ul style="list-style-type: none"> Explain how mechanical advantage can be used to move a heavy load. List and describe five considerations involved in pre-task planning. Explain and demonstrate how to determine the best lifting or moving aid for a specific material. 	<ul style="list-style-type: none"> Written Tests and Quizzes Professional Portfolio Performance Safety Checklist Teacher Observation Checklist Materials Rigging and Handling Project 	<ul style="list-style-type: none"> Career Ready Practices CRP 1,2,4,8,11,12 Cluster Standards AC 1,2,3 Pathway Standards AC-CST 5 	<ul style="list-style-type: none"> ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6 Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7 Math GEO-G.MG.1,2,3
Week 34 Communication and Employability Skills	<ul style="list-style-type: none"> What kinds of information should be included in a resume? What is included in a cover letter and how is it used? What are the key elements to include in a professional email? What are some possible career opportunities in the construction industry? 	<ul style="list-style-type: none"> Describe the kinds of information that should be included in a resume. Explain what is included in a cover letter and how is it used. Describe the key elements to include in a professional email. Identify and research possible career opportunities in the construction industry. 	<ul style="list-style-type: none"> Written Resume and Cover Letter Tests and Quizzes Professional Portfolio Performance Safety Checklist Teacher Observation Checklist Materials Rigging and Handling Project 	<ul style="list-style-type: none"> Career Ready Practices CRP 1,2,4,8,10,11 Cluster Standards AC 1,5 Pathway Standards AC-CST 1,6 AC-DES 2,5 AC-MO 2 	<ul style="list-style-type: none"> ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6 Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7 Math
Weeks 35-40 Work-Based Learning: Career Coaching NCCER Core Assessment Review and Assessment	<ul style="list-style-type: none"> What can be learned from construction industry professionals? How does professional certification prepare the student for additional training through an apprenticeship or post-secondary education? 	<ul style="list-style-type: none"> Participate in Career Coaching process. Identify training, education and certification requirements for industry careers. Review key learning targets to prepare for NCCER Assessment. Complete NCCER Construction Core: Introductory Craft Skills Assessment. 	<ul style="list-style-type: none"> Written Career Coaching Self-Assessment Professional Portfolio NCCER Construction Core: Introductory Craft Skills Assessment Performance Safety Checklist Teacher Observation Checklist 	<ul style="list-style-type: none"> Career Ready Practices CRP 1,2,4,8,10,11 Cluster Standards AC 1,4,5,7 Pathway Standards AC-CST 8,9 	<ul style="list-style-type: none"> ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6 Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7 Math

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CNT200: Construction Technology 200



Program Overview

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Course Description

In Construction Technology 200, students will build on the knowledge and skills they learned in Construction Technology 100. Students will learn the basic skills, tools, and materials necessary to work in concrete, masonry and carpentry and will practice in a project-based learning environment to gain hands on experience. Students will practice with projects such as forming and pouring concrete, building block and stone retaining walls, and framing floors, walls and roofs. Students will continue to practice safety in all aspects of the construction site and will focus on effective communication skills.

Work-Based Learning

Students will be connected with construction industry professionals in the community through Career Coaching, field trips and job shadowing which could lead to further opportunities for direct job training and real-world experience. Students will create and maintain a portfolio of their work-based learning experiences throughout the program to document the development of their skills.

Pre-Requisites

CNT100 Construction Technology 100

Course Objectives

By the end of this course, students will:

1. Differentiate types of concrete and their components and identify appropriate uses for each type.
2. Select appropriate tools and equipment for completing concrete and masonry projects.
3. Apply carpentry skills to the construction of floor, wall and roof systems.
4. Apply math formulas to estimate materials needed or procedures to construct sound building systems.
5. Use construction plans to read important information about a building site.
6. Safely secure and move materials through the use of Construction rigging procedures.
7. Communicate with others on the job site and be able to demonstrate the characteristics necessary for employment.
8. Qualify for OSHA (Occupational Safety and Health Administration) 10 certification.
9. Qualify to take the NCCER Core certification exam.

Integrated Academics

N/A

Student Equipment and Supplies

- **School will provide:** All necessary tools, materials and classroom equipment.
- **Student will provide:** Leather work boots or shoes (steel/composite toe preferred), long work pants with no holes that cover the top of the shoe or boot, notebook for taking and saving notes, pen/pencils.

Textbooks

- NCCER (National Center for Construction Education and Research). *Construction Technology Trainee Guide*. Hoboken, NJ: Pearson, 2009.
- *Core Curriculum-Basic Safety Training Guide*. Hoboken, NJ: Pearson, 2009.
 - *Core Curriculum-Introductory Craft Skills*. Hoboken, NJ: Pearson, 2015.
 - *Tools for Success-Critical Skills for the Construction Industry*. Hoboken, NJ: Pearson, 2009.

Grading

- Unit Classwork: 30%
- End of Unit Assessment: 30%
- Project Work: 20%
- Participation: 20%

Additional Course Policies

Students are required to follow all classroom professionalism and safety procedures.

Course Calendar

Quarter	Units of Study
1	<ul style="list-style-type: none">• Introduction to Concrete Work: Tools, Equipment and Safety• Introduction to Concrete Construction and Finishes• Site Layouts• Work-Based Learning: Career Coaching, Job Shadow
2	<ul style="list-style-type: none">• Forming Concrete• Placing Concrete• Work-Based Learning: Career Coaching, Job Shadow
3	<ul style="list-style-type: none">• Introduction to Masonry• Introduction to Carpentry Floor Systems• Work-Based Learning: Career Coaching, Job Shadow
4	<ul style="list-style-type: none">• Wall Systems• Roof Systems• Work-Based Learning: Career Coaching, Job Shadow• Final Assessment

Syracuse City School District
Career and Technical Education Program
Scope and Sequence
CNT200: Construction Technology 200



Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	CCTC Standards	NYS Standards
Weeks 1-2 Introduction to Concrete Work: Tools, Equipment and Safety	<ul style="list-style-type: none"> How should concrete tools and equipment be used and maintained? What are the specific safety concerns that are important to be aware of while working with concrete? What is an SDS? What sort of Personal Protection Equipment (PPE) is necessary to have when working with concrete? 	<ul style="list-style-type: none"> Identify concrete tools and use in compliance with safety standards. Identify common concrete equipment and determine the appropriate equipment for each application at a construction site. Care for and maintain the tool inventory at the end of the project. Read and interpret safety data sheets. Describe the PPE needed when working with concrete. Implement personal and jobsite safety rules and regulations to maintain safe working conditions. 	Written <ul style="list-style-type: none"> Group Project Module Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Campus-Based Project 	Career Ready Practices CRP 1,2,3,4,7,8,11,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,3	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5 AC-MO 1	Math
Weeks 3-5 Introduction to Concrete Construction and Finishes	<ul style="list-style-type: none"> What are different types of concrete and their components? What is Portland cement and how is it made? What are two advantages of using additives in concrete? How do climate and soil conditions affect concrete construction? What does steel reinforcement bar do to the strength of concrete in a building system? 	<ul style="list-style-type: none"> Distinguish differentiate types of concrete and their components. Describe Portland cement. Explain the value of additives in concrete applications. Explain how climate and soil conditions affect concrete construction. Explain the principles of reinforcement bar in concrete projects. Apply math measurement, area, and volume calculations to a project. Select tools, machinery, equipment, and resources to meet the requirements of the project. Use data and measurements to solve a construction problem. 	Written <ul style="list-style-type: none"> Research Project and Presentation: Concrete Products, Uses and Finishes Module Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Concrete Project 	Career Ready Practices CRP 1,2,4,8,11,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,3	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5,8,9 AC-DES 8 AC-MO 1	Math GEO-G.GMD.1,3
Weeks 6-10 Site Layouts Work-Based Learning: Career Coaching, Job Shadow	<ul style="list-style-type: none"> What is the function of foundations? Why is it vital that the footings and foundation of a structure be absolutely level and square? What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> Explain the purpose of foundations in project layouts. Analyze the effects of footings and foundations on a jobsite. Identify government regulations and building codes that apply to a specific jobsite. Interpret drawings used in project planning. Apply math measurement, area, and volume calculations to a project. Participate in Career Coaching process. Participate in job shadow with construction industry professionals. 	Written <ul style="list-style-type: none"> Research Project: Building Codes and Regulatory Agencies Project Approval Documents Measurement Assessment Module Assessment Career Coaching Self-Assessment Job Shadow Reflection Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation 	Career Ready Practices CRP 1,2,4,8,10,11,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,6	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 1,2,3,5,8	Math GEO-G.MG.1,3 GEO-G.GMD.4 GEO-G.GPE.5,6 GEO-G.CO.1,11,12

			<ul style="list-style-type: none"> Checklist Campus-Based Project 		
Weeks 11-15 Forming Concrete	<ul style="list-style-type: none"> What are the key differences between pre-cast and cast-in-place concrete? How is concrete form work typically built? How are the resources and materials for a specific project determined? 	<ul style="list-style-type: none"> Distinguish between pre-cast and cast-in-place concrete and the advantages and disadvantages of each type. Explain why form work is typically built by carpenters and not masons. Estimate resources and materials required for a specific project. Apply math measurement, area, and volume calculations to a project. 	Written <ul style="list-style-type: none"> Project Description Estimate Assignment Module Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Campus-Based Project 	Career Ready Practices CRP 1,2,4,8,11,12 Cluster Standards AC 1,2,3,5,6 Pathway Standards AC-CST 5,6,9 AC-DES 2,8	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6 Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7 Math GEO-G.MG.3 GEO-G.C.5 GEO-G.CO.1,11,12
Weeks 16-20 Placing Concrete Work-Based Learning: Career Coaching, Job Shadow	<ul style="list-style-type: none"> How are the number of yards of concrete that are required to complete a project calculated? What are the tools and materials used to pour concrete? Why is it important that concrete be aerated as it is being poured? What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> Perform calculations for determining the number of yards of concrete for a specific project. Apply math measurement, area, and volume calculations to a project. Select tools, machinery, equipment, and resources that match requirements of the project. Explain the importance of aerating concrete as it is being poured. Participate in Career Coaching process. Participate in job shadow with construction industry professionals. 	Written <ul style="list-style-type: none"> Group Project Module Assessment Career Coaching Self-Assessment Job Shadow Reflection Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Campus-Based Project 	Career Ready Practices CRP 1,2,4,8,10,11,12 Cluster Standards AC 1,2,3, Pathway Standards AC-CST 5,6,9 AC-DES 2,8	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6 Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7 Math GEO-G.MG.2,3 GEO-G.CO.11
Weeks 21-24 Introduction to Masonry	<ul style="list-style-type: none"> What are the major concrete masonry units (CMU) used in construction? What is the purpose of the foundation system in structural design and construction? 	<ul style="list-style-type: none"> Explain the major concrete masonry units (CMU) used in construction. Explain the purpose of the foundation system in design and construction. Examine building systems and components to evaluate their usefulness to a project. Incorporate appropriate building systems into a construction project Apply math measurement, area, and volume calculations to a project. 	Written <ul style="list-style-type: none"> Research Project: Structure Failure Module Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Campus-Based Project 	Career Ready Practices CRP 1,2,4,8,11,12 Cluster Standards AC 1,2,3 Pathway Standards AC-CST 5,8,9 AC-DES 8 AC-MO 1	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6 Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7 Math GEO-G.MG.2,3 GEO-G.C.5
Weeks 25-30 Introduction to Carpentry Floor Systems Work-Based Learning: Career Coaching, Job Shadow	<ul style="list-style-type: none"> What is the purpose of the wood framed floor system in building construction? What are the key components of a floor system? How does a carpenter determine the sizes of lumber needed for the construction of a floor system? 	<ul style="list-style-type: none"> Explain the purpose of the wood framed floor system in building construction. List and describe the key components of a floor system. Describe and demonstrate how to determine the sizes of lumber needed for the construction of a floor system. Identify building systems needed to complete a construction project. Read, interpret, and use technical drawings, documents, and specifications to plan a project. Identify government regulations and 	Written <ul style="list-style-type: none"> Project Plan Module Assessment Career Coaching Self-Assessment Job Shadow Reflection Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Campus-Based Project 	Career Ready Practices CRP 1,2,4,8,10,11,12 Cluster Standards AC 1,3 Pathway Standards AC-CST 5,8,9 AC-DES 8 AC-MO 1	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6 Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7 Math GEO-G.MG.3 GEO-G.CO.1

	<ul style="list-style-type: none"> What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> building codes that apply to a specific jobsite. Apply math measurement, area, and volume calculations to a project. Participate in Career Coaching process. Participate in job shadow with construction industry professionals. 			
Weeks 31-33 Wall Systems	<ul style="list-style-type: none"> How is the wall system integral to an energy efficient building envelope? What do headers do and why are they important? What does 16 inches on center mean and why is it important? 	<ul style="list-style-type: none"> Explain how the wall system is integral to an energy efficient building envelope. Explain what headers do and why are they important. Explain 16 inches on center and why it is important. Identify building systems needed to complete a construction project. Read, interpret, and use technical drawings, documents, and specifications to plan a project. Identify government regulations and building codes that apply to a specific jobsite. Apply math measurement, area, and volume calculations to a project. 	Written <ul style="list-style-type: none"> Group Project Module Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Campus-Based Project 	Career Ready Practices CRP 1,2,4,8,11.12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,3	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5,8,9 AC-DES 8 AC-MO 1	Math GEO-G.MG.3 GEO-G.GMD.4 GEO-G.GPE.6 GEO-G.CO.1
Weeks 34-38 Roof Systems Work-Based Learning: Career Coaching, Job Shadow	<ul style="list-style-type: none"> Why are weather and climate key factors in determining roof systems? What is the difference between a roof rafter and roof truss design in roofing systems? What is pitch in roof design? What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> Explain why weather and climate are key factors in determining roof systems. Describe the difference between a roof rafter and roof truss design. Explain pitch in roof design. Identify building systems needed to complete a construction project. Read, interpret, and use technical drawings, documents, and specifications to plan a project. Identify government regulations and building codes that apply to a specific jobsite. Apply math measurement, area, and volume calculations to a project. Participate in Career Coaching process. Participate in job shadow with construction industry professionals. 	Written <ul style="list-style-type: none"> Research Project: Roof Systems Module Assessment Career Coaching Self-Assessment Job Shadow Reflection Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Campus-Based Project 	Career Ready Practices CRP 1,2,4,8,10,11,12	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 1,3	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5,8,9 AC-DES 8 AC-MO 1	Math GEO-G.GPE.5 GEO-G.MG.3 GEO-G.CO.1,7,8,10
Weeks 39-40 Final Assessment	<ul style="list-style-type: none"> How does professional certification prepare the student for additional training through an apprenticeship or post-secondary education? 	<ul style="list-style-type: none"> Review key learning targets to prepare for Final Assessment. Complete Final Assessment. 	Written <ul style="list-style-type: none"> Research Project: Career Pathways Self-Assessment Resume, Cover Letter and Applications Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Final Assessment 	Career Ready Practices CRP 1,2,4,8,10,11	ELA 9-10R 1,2,4,7 9-10W 2,4,5,6,7 9-10SL 1,2,4,5,6 9-10L 1,2,3,6
				Cluster Standards AC 7	Literacy 9-10RST 1,2,4,7 9-10WHST 2,4,5,6,7
				Pathway Standards AC-CST 5,8,9 AC-DES 4,8	Math

Syracuse City School District
Career and Technical Education Program
Course Syllabus
CNT 300: Construction Technology 300



Program Overview

At the completion of Construction Technology program, students will be able to apply the trade skills necessary for entry-level employment, apprenticeships and post-secondary education. Students will study and practice safety training, framing, roofing, door and window installation, hand and power tool use, concrete, masonry and bricklaying, blueprint reading, plumbing, electrical, and construction equipment and rigging. Students will learn the theory of the construction process and have the opportunity to put those theories into practice with authentic, hands-on, project-based activities. Students will also have the opportunity to earn the NCCER (National Center for Construction Education and Research) Construction Core as well as the OSHA 10 certifications, recognized throughout the construction industry as indicators that the individual is job ready.

Course Description

In Construction Technology 300, students will continue to expand their knowledge and skills of the construction industry. Students will learn the skills necessary to work safely in plumbing, electrical, building envelope, and green building. Students will use the tools and materials for the four skill areas in a project-based learning environment to complete authentic projects, such as plumbing a bathroom, wiring a room with lights and receptacles, designing and creating an energy efficient wall system, and experimenting with alternative energy models, including energy conservation. Students will continue to practice safety in all aspects of the construction site and will focus on effective communication skills.

Work-Based Learning

Students will be connected with construction industry professionals in the community through Career Coaching, field trips and job shadowing which could lead to further opportunities for direct job training and real-world experience. Students will create and maintain a portfolio of their work-based learning experiences throughout the program to document the development of their skills.

Pre-Requisites

CNT100 Construction Technology 100
CNT200 Construction Technology 200

Course Objectives

By the end of this course, students will:

1. Demonstrate skill with plumbing tools, equipment and materials in the application of basic plumbing activities.
2. Apply skills in electrical theory to perform basic electrical activities in residential construction.
3. Apply the concepts of building envelope systems and weatherization techniques.
4. Apply concepts of green building and alternative energy practices to construction projects.
5. Use math formulas for accurate measurements and performing estimates for construction projects.
6. Perform all work activities in compliance with OSHA safety regulations.
7. Apply effective communication and relationship management skills with supervisors, peers and customers as necessary for sustained employment in the construction field.
8. Qualify for OSHA (Occupational Safety and Health Administration) 10 certification.
9. Qualify to take the NCCER Core certification exam.

Integrated Academics

1 Integrated CTE Math Credit

Equipment and Supplies

- **School will provide:** All necessary tools, materials and classroom equipment.
- **Student will provide:** Leather work boots or shoes (steel/composite toe preferred), long work pants with no holes that cover the top of the shoe or boot, notebook for taking and saving notes, pen/pencils.

Textbooks

- NCCER (National Center for Construction Education and Research). *Construction Technology Trainee Guide*. Hoboken, NJ: Pearson, 2009.
- *Core Curriculum-Basic Safety Training Guide*. Hoboken, NJ: Pearson, 2009.
 - *Core Curriculum-Introductory Craft Skills*. Hoboken, NJ: Pearson, 2015.
 - *Tools for Success-Critical Skills for the Construction Industry*. Hoboken, NJ: Pearson, 2009.

Grading

- Unit Classwork: 30%
- End of Unit Assessment: 30%
- Project Work: 20%
- Participation: 20%

Additional Course Policies

Students are required to follow all classroom professionalism and safety procedures.

Course Calendar:

Quarter	Units of Study
1	<ul style="list-style-type: none">• Introduction to the Plumbing Profession• Plumbing Safety• Tools and Equipment of the Plumbing Trade• Plastic Pipe and Fittings• Work-Based Learning: Career Coaching, Job Shadow
2	<ul style="list-style-type: none">• Copper Pipe and Fittings• Introduction to the Electrical Trades• Electrical Safety• Introduction to Electrical Circuits• Work-Based Learning: Career Coaching, Job Shadow
3	<ul style="list-style-type: none">• Electrical Theory• Electrical Projects• Introduction to Building Envelope Systems• Work-Based Learning: Career Coaching, Job Shadow
4	<ul style="list-style-type: none">• Green Building Environments• Capstone Project• Work-Based Learning: Career Coaching, Job Shadow

Syracuse City School District
Career and Technical Education Program
Scope and Sequence
CNT300: Construction Technology 300



Time Frame Unit of Study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	CCTC Standards	NYS Standards
Weeks 1-2 Introduction to the Plumbing Profession	<ul style="list-style-type: none"> What are the career opportunities in the plumbing profession? What are the names of associations in the plumbing profession? What education and training is required for plumbers? What personal attributes are important for success in the plumbing trade? 	<ul style="list-style-type: none"> Explain the education and training levels for the plumbing trade. Describe the skills and personal attributes necessary for success in the plumbing profession. Explain the rationale for licensing and certification in the plumbing trade. Explain the advantages and disadvantages of a career in the plumbing trade Assess personal attributes and compare to those required of the profession. Use of plumbing-related vocabulary accurately and effectively. 	Written <ul style="list-style-type: none"> Research Project: Plumbing Careers Group Presentations: Plumbing Topics Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist 	Career Ready Practice CRP 1,2,4,7,8,10,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,4,7	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 1	Math
Weeks 3-5 Plumbing Safety	<ul style="list-style-type: none"> What specific safety concerns should workers be aware of when installing plumbing? What are the reasons for building codes for plumbing? What are common jobsite plumbing accidents and the reasons for them? What are the costs to employers, employees and society for jobsite plumbing accidents? 	<ul style="list-style-type: none"> Describe specific safety concerns that workers should be aware of when installing plumbing. Explain the reason for standardized plumbing codes and describe the penalties to contractors for noncompliance. List common jobsite plumbing accidents and explain why they occur. Explain who bears the costs of accidents at each level: contractors, employees, and society. Describe and comply with all safety rules, including required PPE. 	Written <ul style="list-style-type: none"> Research Project: Economic Impact of Lost Time Accidents Safety Signs and Hazard Symbols Identification Unit Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Plumbing Project 	Career Ready Practice CRP 1,2,3,4,8,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,3	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 5,9	Math
Weeks 6-7 Tools and Equipment of the Plumbing Trade	<ul style="list-style-type: none"> What are the common hand tools used in plumbing? What are the common power tools used in the plumbing? How are plumbing tools and equipment used and maintained? What safety rules and regulations apply to the use of hand and power tools? 	<ul style="list-style-type: none"> Identify and demonstrate the use of common hand tools used in plumbing. Identify and demonstrate the use of common power tools used in plumbing. Properly maintain plumbing tools and equipment. Explain and demonstrate safe use of plumbing hand and power tools and equipment. Demonstrate effective use of hand and power tools to complete a task or project. 	Written <ul style="list-style-type: none"> Unit Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Plumbing Project 	Career Ready Practice CRP 1,2,4,8,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,3	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 5,9	Math
Weeks 8-9 Plastic Pipe and Fittings Work-Based Learning:	<ul style="list-style-type: none"> What are the different types of plumbing pipes and fittings? What are the different types of plastic pipes and fittings? What are the advantages 	<ul style="list-style-type: none"> Describe the different types of plumbing pipes and fittings and their properties. Describe different types of plastic pipes and fittings and their properties, including ABS, PVC, CPVE, PE, PEX and PB piping. 	Written <ul style="list-style-type: none"> Measurement Assessment Unit Assessment Career Coaching Self-Assessment Job Shadow Reflection 	Career Ready Practice CRP 1,2,4,8,10,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,2,3	Literacy 11-12RST 1,2,4,7

Career Coaching, Job Shadow	<p>and disadvantages of using plastic pipe compared to metal pipe (copper, galvanized and cast iron)?</p> <ul style="list-style-type: none"> • When should plastic pipe be used in plumbing applications? • How is plastic pipe measured, cut and joined? • Do plumbing codes apply to plastic pipe use? • What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> • Explain the advantages and disadvantages of using plastic pipe compared to metal pipe (copper, galvanized and cast iron)? • Explain when should plastic pipe be used in plumbing applications and what building codes apply. • Determine the appropriate type of plastic pipes and fittings for a given project. • Accurately measure, cut and join plastic pipe for a specific project • Apply appropriate math formulas for calculating measurements • Accurately apply plumbing vocabulary to describe and complete tasks. • Participate in Career Coaching process. • Participate in job shadow with construction industry professionals. 	<ul style="list-style-type: none"> • Professional Portfolio Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Plumbing Project 	Pathway Standards AC-CST 3,7,8	11-12WHST 2,4,5,6,7 Math GEO-G.MG.3
Weeks 10-12 Copper Pipe and Fittings	<ul style="list-style-type: none"> • What properties of copper make it a suitable material for plumbing pipes and fittings? • How are valves used in copper pipe systems? • What methods are used for cutting and joining copper pipe? • Why has the composition of solder changed over the years? • How is insulation used with copper pipes? • What building codes apply to the use of copper pipes? • What information is contained in an SDS? 	<ul style="list-style-type: none"> • Describe the properties of copper pipe. • Explain how valves are used in copper pipe systems. • Measure, cut, and join copper pipe for a project. • Explain the composition of solder as it relates to joining copper pipes. • Determine when to insulate copper piping in various situations. • Describe the building codes that apply to the use of copper pipes. • Demonstrate safe use of copper pipe in completing a project. • Use SDS (Safety Data Sheets) information to manage, use and dispose of materials used in a project. • Use of trade-related vocabulary accurately. 	Written <ul style="list-style-type: none"> • Unit Assessment • Interpretation of selected products SDS sheets • Self-Assessment • Professional Portfolio Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist • Plumbing Project 	Career Ready Practice CRP 1,2,4,5,8,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,2,3	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 5,9	Math GEO-G.MG.3
Weeks 13-14 Introduction to the Electrical Trades	<ul style="list-style-type: none"> • What are the career paths available for electrical workers? • What are the career specific requirements to become a qualified electrician? • What is the IBEW? • What are common working environments for electricians? • How do different trades and professions work together to complete a project. 	<ul style="list-style-type: none"> • Explore available electrical trade career and employment opportunities. • Research career specific requirements to become a qualified electrician. • Explain the role of the IBEW. • Describe various work environments for electrical workers • Explain different trades and professions work together to complete a project. 	Written <ul style="list-style-type: none"> • Unit Assessment • Questions for Panel: Electricians and Employment Expectations • Self-Assessment • Professional Portfolio Performance <ul style="list-style-type: none"> • Safety Checklist • Teacher Observation Checklist 	Career Ready Practice CRP 1,2,4,8,10,11	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,7	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 5	Math
Weeks 15-17 Electrical Safety	<ul style="list-style-type: none"> • Who determines safety standards for electricians? • What are the specific safety 	<ul style="list-style-type: none"> • Describe OSHA's role in electrical worker safety. • Describe standard electrical precautions 	Written <ul style="list-style-type: none"> • Unit Assessment • Self-Assessment 	Career Ready Practice CRP 1,2,3,4,8,11	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6

	<p>considerations to be aware of before and during the installation of electrical systems at a construction site?</p> <ul style="list-style-type: none"> What is lockout/tagout? 	<p>and hazards found at a job site.</p> <ul style="list-style-type: none"> Explain lockout/tagout procedures. Interpret standard safety and hazard symbols related to electrical workers. Explain and demonstrate with all safety precautions in assigned projects. 	<ul style="list-style-type: none"> Professional Portfolio <p>Performance</p> <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist 	<p>11-12L 1,2,3,6</p> <p>Cluster Standards AC 1,3,</p> <p>Pathway Standards AC-CST 5,9</p>	<p>Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7</p> <p>Math</p>
<p>Weeks 18-20</p> <p>Introduction to Electrical Circuits</p> <p>Work-Based Learning: Career Coaching, Job Shadow</p>	<ul style="list-style-type: none"> What is Ohm's law? What is resistance? How is math used in electric power equations? What are the different types of electrical circuits? What is a GFCI (Ground Fault Circuit Interrupter)? Why is it important to know what the load on a circuit will be before a circuit is designed and installed? What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> Explain and apply Ohm's law to assigned tasks. Explain electrical resistance and how it is measured. Apply electrical math formulas in solve problems. Identify different types of circuits in electrical applications. Explain the function and purpose of a GFCI. Accurately calculate load in the design and installation of a circuit. Participate in Career Coaching process. Participate in job shadow with construction industry professionals. 	<p>Written</p> <ul style="list-style-type: none"> Electrical Formula Assessment Electrical Lab Assignments Unit Assessment Career Coaching Self-Assessment Job Shadow Reflection <p>Professional Portfolio</p> <p>Performance</p> <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist 	<p>Career Ready Practice CRP 1,2,4,8,10,11</p> <p>Cluster Standards AC 1,3,6</p> <p>Pathway Standards AC-CST 3,9</p>	<p>ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6</p> <p>Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7</p> <p>Math AI-A.CED.4</p>
<p>Weeks 21-22</p> <p>Electrical Theory</p>	<ul style="list-style-type: none"> How is Ohm's law applied when installing electrical systems? What is voltage? What is the purpose of the NEC (National Electrical Code)? What are NEC tables and how are they used? 	<ul style="list-style-type: none"> Explain how Ohm's law is applied when installing electrical systems. Explain what voltage is and how it is measured. Explain what the NEC is and its purpose. Describe the NEC tables and how they are used. Apply NEC codes in an assigned project. 	<p>Written</p> <ul style="list-style-type: none"> Electrical Formula Assessment Electrical Lab Assignments Questions for Guest Lecturer: IBEW Unit Assessment Self-Assessment <p>Professional Portfolio</p> <p>Performance</p> <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Electrical Project 	<p>Career Ready Practice CRP 1,2,4,8,11,12</p> <p>Cluster Standards AC 1,2,5,7</p> <p>Pathway Standards AC-CST 5</p>	<p>ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6</p> <p>Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7</p> <p>Math AI-A.CED.1</p>
<p>Weeks 23-24</p> <p>Electrical Projects</p>	<ul style="list-style-type: none"> What are the steps in planning for the installation of a residential electrical system? What considerations are important in these planning decisions? 	<ul style="list-style-type: none"> Explain the steps in planning for the installation of a residential electrical system. Describe the considerations that are important in planning decisions. Plan, implement, and complete an electrical projects. 	<p>Written</p> <ul style="list-style-type: none"> Self-Assessment Job Shadow Reflection <p>Professional Portfolio</p> <p>Performance</p> <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Electrical Project 	<p>Career Ready Practice CRP 1,2,4,8,11,12</p> <p>Cluster Standards AC 1,2,3,4,6</p> <p>Pathway Standards AC-CST 1,2,4,8,9</p>	<p>ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6</p> <p>Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7</p> <p>Math GEO-G.GMD.4</p>
<p>Weeks 25-28</p> <p>Introduction to Building Envelope Systems</p> <p>Work-Based</p>	<ul style="list-style-type: none"> What does building envelope mean? What factors are considered in improving a building's energy efficiency? What sequence of steps should be taken to 	<ul style="list-style-type: none"> Explain what a building envelope is. Describe the skills and concepts used in energy audits. Describe the audit process and results to consumers. Explain the effects of sealing, heat loss, and insulating materials to energy 	<p>Written</p> <ul style="list-style-type: none"> Lab Assignment: Weatherization Techniques Unit Assessment Career Coaching Self-Assessment Job Shadow Reflection 	<p>Career Ready Practice CRP 1,2,4,5,8,11</p> <p>Cluster Standards AC 1,4</p>	<p>ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6</p> <p>Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7</p>

Learning: Career Coaching, Job Shadow	determine a building's energy efficiency? <ul style="list-style-type: none"> What can be learned from construction industry professionals? 	efficiency. <ul style="list-style-type: none"> Participate in Career Coaching process. Participate in job shadow with construction industry professionals. 	<ul style="list-style-type: none"> Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist 	Pathway Standards AC-CST 3,8	Math GEO-G.GMD.3
Weeks 29-34 Green Building Environments	<ul style="list-style-type: none"> What does green environment mean in a building project? What does sustainability mean? What are alternative and renewable energy sources? What is the system for rating buildings for green environment? What does LEED stand for? 	<ul style="list-style-type: none"> Explain what a green environment means in a building project. Explain what sustainability means Describe different alternative and renewable energy sources. Describe advantages and disadvantages of alternative and renewable energy sources. Describe standards for green building design and construction. Define LEED and cite the process for LEED certification. 	Written <ul style="list-style-type: none"> Group Projects: Alternative Energy and Sustainability Unit Assessment Self-Assessment Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Lab Projects 	Career Ready Practice CRP 1,2,4,5,8,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
Weeks 35-40 Capstone Project Work-Based Learning: Career Coaching, Job Shadow	<ul style="list-style-type: none"> What sorts of organizational systems should be employed when starting a large project? How can effective team work be encouraged while completing a group project? In what ways can knowledge and skills of building construction be demonstrated? What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> Plan, implement and complete a Capstone Project including application of knowledge and skills learned throughout the year. Work effectively with a team while completing a project. Employ planning and time management skills and tools to enhance results and complete work tasks. Participate in Career Coaching process. Participate in job shadow with construction industry professionals. 	Written <ul style="list-style-type: none"> Project Plan and Progress Reports Career Coaching Self-Assessment Job Shadow Reflection Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Capstone Project 	Career Ready Practice CRP 1,2,4,8,10,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,2,3,4,5,6	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 1,2,3,4,5,6 AC-DES 1,2,3,4,6,7	Math GEO-G.MG.3

Syracuse City School District
Career and Technical Education Program
Course Syllabus
CNT400: Construction Technology 400



Program Overview

At the completion of Construction Technology program, students will be able to apply the trade skills necessary for entry-level employment, apprenticeships and post-secondary education. Students will study and practice safety training, framing, roofing, door and window installation, hand and power tool use, concrete, masonry and bricklaying, blueprint reading, plumbing, electrical, and construction equipment and rigging. Students will learn the theory of the construction process and have the opportunity to put those theories into practice with authentic, hands-on, project-based activities. Students will also have the opportunity to earn the NCCER (National Center for Construction Education and Research) Construction Core as well as the OSHA 10 certifications, recognized throughout the construction industry as indicators that the individual is job ready.

Course Description

In this course, students will take their knowledge and skills to greater depths by participating in a variety of project-based activities and work-based learning experiences. Students will practice work safety in all aspects of the construction trades while enhancing their skills. Students will participate in projects that integrate job readiness practices, including effective verbal and written communication, critical thinking and problem solving. Students will prepare for post-secondary training, education and careers by completing professional resumes, cover letters, and job interviews. Students will have the opportunity to complete OSHA 10 certification as well as NCCER Core certification.

Work-Based Learning

Students will be connected with construction industry professionals in the community through Career Coaching, and internships which could lead to further opportunities for direct job training and real-world experience. Students will create and maintain a portfolio of their work-based learning experiences throughout the program to document the development of their skills.

Pre-Requisites

CNT100 Construction Technology 100
CNT200 Construction Technology 200
CNT300 Construction Technology 300

Course Objectives

By the end this course, students will:

1. Complete an internship with a local construction industry business.
2. Demonstrate practices and behaviors consistent with employer expectations.
3. Apply effective communication and relationship management skills with supervisors, peers and customers as necessary for sustained employment in the construction field.
4. Communicate with employers and worksite supervisors in the technical language of the profession.
5. Complete all project-based activities in compliance with local building codes and regulations.
6. Perform all work activities in compliance with OSHA safety regulations.
7. Understand how various construction-related career areas interconnect during the various phases of building projects.
8. Use math formulas for accurate measurements and performing estimates for construction projects.
9. Complete OSHA (Occupational Safety and Health Administration) 10 certification.
10. Complete NCCER Core certification.

Integrated Academics

1 Integrated CTE ELA Credit

Equipment and Supplies

- **School will provide:** All necessary tools, materials and classroom equipment.
- **Student will provide:** Leather work boots or shoes (steel/composite toe preferred), long work pants with no holes that cover the top of the shoe or boot, notebook for taking and saving notes, pen/pencils.

Textbook

- NCCER (National Center for Construction Education and Research). *Construction Technology Trainee Guide*. Hoboken, NJ: Pearson, 2009.
- *Core Curriculum-Basic Safety Training Guide*. Hoboken, NJ: Pearson, 2009.
 - *Core Curriculum-Introductory Craft Skills*. Hoboken, NJ: Pearson, 2015.
 - *Tools for Success-Critical Skills for the Construction Industry*. Hoboken, NJ: Pearson, 2009.

Grading

- Unit Classwork: 30%
- End of Unit Assessment: 30%
- Project Work: 20%
- Participation: 20%

Additional Course Policies

Students are required to follow all classroom professionalism and safety procedures.

Course Calendar

Quarter	Units of Study
1	<ul style="list-style-type: none">• Course Expectations and Career Preparation• OSHA Safety Review• Site Layout: Differential Leveling• Slab-On-Grade Foundations• Internship and Career Preparation• Work-Based Learning: Career Coaching
2	<ul style="list-style-type: none">• Workplace Communication• Floor Installation and Finishing Project• Stair Layout Projects• Wall Systems and Application Projects• Work-Based Learning: Career Coaching
3	<ul style="list-style-type: none">• Drywall Installation and Finishing• Career Readiness• Roof Framing and Applications Projects• Exterior Finishing Applications• Work-Based Learning: Internship
4	<ul style="list-style-type: none">• Legal and Ethical Practices in the Trades• Final Project Proposals• Project Proposal Resubmissions• Individual Project Work• Portfolios• Project Presentations• Work-Based Learning: Career Coaching

**Syracuse City School District
Career and Technical Education Program
Scope and Sequence
CNT400: Construction Technology 400**



Time Frame Unit of study	Key Questions	Key Learning Targets (Students will know and be able to)	Assessment Evidence of Learning	CCTC Standards	NYS Standards
Weeks 1-4 Course Expectations and Career Preparation OSHA Safety Review Site Layout: Differential Leveling	<ul style="list-style-type: none"> What are the outcomes and expectations for students in Construction Technology 400? What career opportunities are available in carpentry and construction? What are ways to prepare for a career interview? How important is worker safety in construction trades? What equipment and methods are used in differential leveling? 	<ul style="list-style-type: none"> List and describe the outcomes and expectations for Construction 400 students. Identify career opportunities and training levels for carpentry and construction workers. Prepare for a career interview. Review OSHA safety regulations and explain their importance for the construction trades. Describe the equipment and methods used in differential leveling. Apply principles and methods in differential site leveling accurately operate equipment. Describe responsibilities of surveyors, field engineers and carpenters in differential leveling. 	Written <ul style="list-style-type: none"> Research Project: Career Opportunities Questions for Guest Speakers Interview Questions Interview Report Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Differential Leveling Project Career Interview 	Career Ready Practices CRP 1,2,3,4,7,9,10	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,2,4,5,6,7	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 1,2,4,5,6,8,9	Math GEO-G.MG.1,3 GEO-G.GMD.4 GEO-G.GPE.5,6 GEO-G.CO.1,11,12,13
Weeks 5-6 Slab-On-Grade Foundations	<ul style="list-style-type: none"> How are safety, tools and forms different in slab-on-grade applications? Where are slab-on-grade applications used? What safety and building code regulations should be considered for slab-on-grade applications? 	<ul style="list-style-type: none"> Identify and describe tools and methods in foundation and slab-on-grade projects. Distinguish appropriate foundation type based on site layout. Identify foundation related codes and safety regulations in a construction project. 	Written <ul style="list-style-type: none"> Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Slab-On-Grade Project 	Career Ready Practices CRP 1,2,3,4,8,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,2,5,6	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 9	Math GEO-G.MG.2 GEO-G.CO.11
Weeks 7-10 Internship and Career Preparation Work-Based Learning: Career Coaching	<ul style="list-style-type: none"> What kinds of information should be included in a résumé? What is the function of a cover letter and what are its key elements? How should a professional email correspondence look? How can knowledge of construction drawings be applied to a project? What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> Identify appropriate responsibilities and personal characteristics by researching workplace and jobsite information. Identify the essential elements of the resume and cover letter. Explain what information is required to complete the job application. Design and construct a project based on student developed drawings. Participate in Career Coaching process. 	Written <ul style="list-style-type: none"> Resumes and Cover Letters Questions for Guest Speakers Career Coaching Self-Assessment Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Shop Project 	Career Ready Practices CRP 1,2,4,7,8,9,10,11	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC1,5	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 1,6 AC-DES 2,5 AC-MO 2	Math GEO-G.CO.9,12,13 GEO-G.SRT.1 GEO-G.MG.3 AI-N.Q.3
Weeks 11-14			Written	Career Ready Practices	ELA

Workplace Communication Floor Installation and Finishing Project Stair Layout Projects	<ul style="list-style-type: none"> What are the components of effective communication with site supervisors and coworkers? When should a worker ask for help at an internship or job? What factors should be considered when deciding which floor finish to use at a construction job? What are the steps in planning and building stairs? 	<ul style="list-style-type: none"> Exchange verbal and written information using technical language. Describe and demonstrate effective communication with site supervisors and peers applying technical and career ready practice skills. Explain when and how a worker should ask for help on a job. Explain and demonstrate how to select appropriate floor finishes in multi-room settings. List and explain the steps in planning and building stairs. 	<ul style="list-style-type: none"> Assignment: Employer Communication Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Roleplay: Effective Communication Shop Project 	CRP 1,2,4,7,9,10,11,12 Cluster Standards AC 1,5,6 Pathway Standards AC-CST 1,5,9 AC-DES 2,3,6	11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6 Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7 Math GEO-G.MG.3 GEO-G.CO.1	
	Weeks 18-20 Wall Systems and Application Projects Work-Based Learning: Career Coaching	<ul style="list-style-type: none"> What is essential to know about wall framing, including window and door openings? What information is needed to complete a materials estimate? How should the walls be supported? What techniques are used to keep walls square? What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> Apply construction concepts to wall framing project. Follow procedures for door and window openings. Explain what information is needed to complete a materials estimate. Complete a detailed estimate for a shop project. Select and utilize materials, tools and methods for wall construction, including bracing and corner construction. Participate in Career Coaching process. 	Written <ul style="list-style-type: none"> Detailed Estimates for Shop Project Materials List Materials Estimate for Wall Project Career Coaching Self-Assessment Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Wall Project 	Career Ready Practices CRP 1,2,4,6,7,8,9,10,11,12 Cluster Standards AC 1,2,3,6 Pathway Standards AC-CST 1,5,9 AC-DES 2,3,6	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6 Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7 Math GEO-G.MG.3 GEO-G.GMD.4 GEO-G.GPE.6 GEO-G.CO.1
		Weeks 21-24 Drywall Installation and Finishing Career Readiness	<ul style="list-style-type: none"> What information is needed to install and finish drywall? Where is drywall used and how many different types of gypsum are used? Why are Career Ready Practices important in construction trades? 	<ul style="list-style-type: none"> Identify and explain drywall types and uses, fasteners and installation methods. Select materials and tools to finish installed drywall. Accurately measure, cut, and install drywall. Demonstrate dry wall finish techniques. Cite examples for the twelve Career Ready Practices. Apply effective communication skills with employers and peers. 	Written <ul style="list-style-type: none"> Research and Presentation: Current Construction Job Listings Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Dry Wall Project 	Career Ready Practices CRP 1,2,4,5,7,9,10,11 Cluster Standards AC 1,2,3,6 Pathway Standards AC-CST 5,6,9 AC-DES 2,3,6
Weeks 25-27 Roof Framing and Applications Projects			<ul style="list-style-type: none"> How does climate affect the type of roofing materials? What factors should be considered to determine which methods and materials to use for a specific job? How is roof pitch 	<ul style="list-style-type: none"> Explain how climate affects the type of roofing materials used. Explain how to determine which methods and materials to use for a specific roofing job. Explain and calculate correct roof pitch. Use correct tools, materials and procedures for selected jobs. 	Written <ul style="list-style-type: none"> Pitch Calculation Materials Estimate Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist 	Career Ready Practices CRP 1-12 Cluster Standards AC 1-5,7 Pathway Standards

	determined?	<ul style="list-style-type: none"> Plan and construct a roof. 	<ul style="list-style-type: none"> Roofing Project 	AC-CST 4,5,9	GEO-G.CO.1,5 GEO-G.SRT.6,8 GEO-G.GPE.5,7 GEO-G.MG.1
Weeks 28-30 Exterior Finishing Applications Work-Based Learning: Internship	<ul style="list-style-type: none"> Why is the correct exterior finish an important part of a construction project? What are the local building codes for exterior finishing? What are common questions a typical job interview? What is the best way to follow up after a job interview? What can be learned from construction industry professionals? Why are internships necessary? How does an internship experience contribute to a professional portfolio? 	<ul style="list-style-type: none"> Explain the importance of correct exterior finish to a construction project. List and describe local building codes for exterior finishing. Describe and apply moisture barriers and insulation. Compare and contrast siding applications, including characteristics, advantages and disadvantages. Describe and install a variety of sidings. Determine appropriate type and install flashing material. Participate in a professional interview. Explain how various construction industry professionals work together for the common goal of customer service. Explain the importance of professionalism and ethics in the workplace. Comply with workplace policies and regulations. Participate in internship with construction industry business. Apply knowledge and skills from the classroom to internship situations. 	Written <ul style="list-style-type: none"> Research: Siding Applications Interview Questions and Reflection Internship Self-Assessment Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Exterior Finishing Project 	Career Ready Practices CRP 1-12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1-5,7	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 4,5,9 AC-DES 2,3,8	Math GEO-G.MG.3
Weeks 31-32 Legal and Ethical Practices in the Trades Final Project Proposals	<ul style="list-style-type: none"> What are the consequences of illegal or unethical practices in the construction industry? How will the projects be selected and what should they include? How will they be evaluated? What resources are needed to complete an independent project? 	<ul style="list-style-type: none"> Explain the consequences illegal or unethical practices in the construction industry. Research potential construction projects. Develop proposal for independent construction project, including resources and timeline need for completion. 	Written <ul style="list-style-type: none"> Summary: Current Legal and Ethical Cases Position Paper: Legal or Ethical Case Study Project Proposal Project Progress Checks Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Project 	Career Ready Practices CRP 1-12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1,2,5,7	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 4,5,9 AC-DES 1,9	Math
Week 33 Project Proposal Resubmissions	<ul style="list-style-type: none"> What changes need to be made in the project proposal for resubmission? 	<ul style="list-style-type: none"> Review project proposal feedback and edit as required. Submit final proposals. 	Written <ul style="list-style-type: none"> Final Project Proposal Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist 	Career Ready Practices CRP 1,2,3,4,5,6,8,9,11,12	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
Cluster Standards AC 1	Literacy 11-12RST 1,2,4,7				

			<ul style="list-style-type: none"> Teacher Observation Checklist Shop Project 	11-12WHST 2,4,5,6,7	
Weeks 34-38 Individual Project Work Portfolios	<ul style="list-style-type: none"> What are the best resources for the independent project? What help will be needed to organize and complete the project? What portfolio documents will be needed for the final portfolio review? 	<ul style="list-style-type: none"> Locate resources to support project. Plan, organize and complete independent construction projects. Organize portfolio documents for presentation to a professional panel. 	Written <ul style="list-style-type: none"> Project Progress Checks Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Shop Project 	Pathway Standards AC-CST 4,9	
				Career Ready Practices CRP 1,2,4,5,6,7,8,9,11	ELA 11-12R 1,2,4,7 11-12W 2,4,5,6,7 11-12SL 1,2,4,5,6 11-12L 1,2,3,6
				Cluster Standards AC 1	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
Weeks 39-40 Project Presentations Work-Based Learning: Career Coaching	<ul style="list-style-type: none"> What are the components of an informative presentation? What key elements make up effective speeches? What does a presenter need to know about the target audience and why is it important? What can be learned from construction industry professionals? 	<ul style="list-style-type: none"> Complete independent project and develop presentation. Present to peers and construction industry professionals. Participate in Career Coaching process. 	Written <ul style="list-style-type: none"> Project Progress Checks Presentation: Project and Portfolio Career Coaching Self-Assessment Employability Profile Professional Portfolio Performance <ul style="list-style-type: none"> Safety Checklist Teacher Observation Checklist Shop Project 	Career Ready Practices CRP 1,2,4,6,7,8,9,11	
				Cluster Standards AC 1	Literacy 11-12RST 1,2,4,7 11-12WHST 2,4,5,6,7
				Pathway Standards AC-CST 4,9	Math