

# **Industrial Technology Course of Study 2014**



Wickliffe City School District  
2221 Rockefeller Road  
Wickliffe, Ohio 44092

**Wickliffe City Schools**  
Engineering Industrial Technology-Pacing Guide

<b>Quarter 1</b>	
Unit	Standards
Engineering Career Exploration	<p>Standard 1. Students will develop an understanding of the characteristics and scope of technology. 1.K. The rate of technological development and diffusion is increasing rapidly.</p> <p>Standard 7. Students will develop an understanding of the influence of technology on history. 7.H The evolution of civilization has been directly affected by, and has in turn affected, the development and use of tools and materials. 7.1 Throughout history, technology has been a powerful force in reshaping the social, cultural, political, and economic landscape</p>
Engineering Communication	<p>Standard 9: Students will develop an understanding of engineering design. K: A prototype is a working model used to test a design concept by making actual observations and necessary adjustments.</p> <p>Standard 17: Students will develop an understanding of and be able to select and use information and communication Q: Technological knowledge and processes are communicated using symbols, measurement, conventions, icons, graphic images, and languages that incorporate a variety of visual, auditory and tactile stimuli.</p> <p>Competency 19.1 <i>Practice effective oral communication techniques</i> Discuss the impact of voice variation, eye contact, posture and attire when delivering an oral presentation Demonstrate the following communication techniques: voice variation, eye contact, posture, attire, practice and preparation, and projecting confidence</p> <p>Competency 23.3 Prepare and deliver a technical presentation Design and deliver a presentation utilizing appropriate materials supporting a research project. Create and assemble support materials to appropriately demonstrate concepts in the presentation.</p>
Problem Solving	<p>Standard 8 H: The design process includes defining a problem, brainstorming, researching and generating ideas, identifying criteria and specifying constraints, exploring possibilities, selecting an approach, developing a design proposal, making a model or prototype, testing and evaluating the design using specifications, refining the design, creating or making it, and communication</p>

	<p>processes and results.</p> <p>Standard 8</p> <p>J: The design needs to be continually checked and critiqued, and the ideas of the design must be redefined and improved</p> <p>K: Requirements of a design, such as criteria, constraints, and efficiency, sometimes compete with each other.</p> <p>Standard 11</p> <p>Q: Develop and produce a product or system using a design process.</p> <p>R: Evaluate final solutions and communicate observation, processes, and results of the entire design process, using verbal, graphic, quantitative, virtual, and written means, in addition to three-dimensional models.</p>
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**Quarter 2**

Unit	Standard
Material Science	<p>Standard 2: Students will develop an understanding of the core concepts of technology.</p> <p>2.CC New technologies create new processes.</p> <p>Standard 3: Students will develop an understanding of the relationships among technologies and the connections between technology and other fields of study.</p> <p>3.H Technological innovation often results when ideas, knowledge, or skills are shared within a technology, among technologies, or across other fields.</p> <p>3.J Technological progress promotes the advancement of science and mathematics.</p> <p>Standard 7: Students will develop an understanding of the influence of technology on history.</p> <p>7.H The evolution of civilization has been directly affected by, and has in turn affected, the development and use of tools and materials.</p> <p>7.K The Iron Age was defined by the use of iron and steel as the primary materials for tools.</p> <p>Standard 10: Students will develop an understanding of the role of troubleshooting, research and development, invention and innovation, and experimentation in problem solving.</p> <p>10.L Many technological problems require a multidisciplinary approach.</p> <p>Standard 13: Students will develop abilities to assess the impact of products and systems.</p> <p>13.J Collect information and evaluate its quality.</p> <p>13.L Use assessment techniques, such as trend analysis and experimentation to make decisions about the future development of technology.</p> <p>Standard 19: Students will develop an understanding of and be able to select and use manufacturing technologies.</p> <p>19.M Materials have different qualities and may be classified as natural, synthetic, or mixed.</p> <p>19.Q Chemical technologies provide a means for humans to alter or modify materials and to produce chemical products.</p>

**Wickliffe City Schools**  
Metals 1 Industrial Technology-Pacing Guide

<b>Quarter 1</b>	
Unit	Standards
<p>Measurement</p> <p>Sheet Metal</p>	<p>7/C/9/6 6 Identify and investigate a variety of technological tools, equipment, machines, materials, and technical processes used in manufacturing technologies to manufacture/fabricate products or systems. COMMON CORE: MATH GRADE 4 Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. 1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit.</p> <p>7/C/9/1-3 1 Describe the careers available in manufacturing technological systems and the education needed to pursue them. 2 Produce a product using the manufacturing system appropriate to the context. 3 Identify and apply appropriate safety measures when working with manufacturing technologies. 6 Identify and investigate a variety of technological tools, equipment, machines, materials, and technical processes used in manufacturing technologies to manufacture/fabricate products or systems.</p> <p>7/C/10/1-2 1 Explain the manufacturing processes of casting and molding, forming, separating, conditioning, assembling, and finishing. 2 Demonstrate the ability to acquire, store, allocate, and use materials or space efficiently. Common Core Math Grade3 4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves, or quarters.</p>
<b>Quarter 2</b>	
Unit	Standards
<p>Lathe</p>	<p>Competency 61.1: Apply technical skills to bench operations. Competency 61.2: Apply technical skills to machining operations. Competency 61.3: Demonstrate preventive and breakdown maintenance procedures. Competency 62.2: Demonstrate power metalworking machinery. Competency 25.1: Demonstrate the basic math skills essential to precision machining. Competency 25.3: Identify, explain and utilize measuring tools that are basic to precision machining.</p>

**Wickliffe City Schools**  
Woods 1 Industrial Technology-Pacing Guide

<b>Quarter 1</b>	
Unit	Standards
Tools Manufacturing	<p>Competency 55.7: Operate power equipment.</p> <p>7/C/9/1-3,6 ...1 Describe the careers available in manufacturing technological systems and the education needed to pursue them. 2 Produce a product using the manufacturing system appropriate to the context 3 Identify and apply appropriate safety measures when working with manufacturing technologies 6 Identify and investigate a variety of technological tools, equipment, machines, materials, and technical processes used in manufacturing technologies to manufacture/fabricate products or systems. 7/C/10/1-3 1 Explain the manufacturing processes of casting and molding, forming, separating, conditioning, assembling and finishing. 2 Demonstrate the ability to acquire, store, allocate, and use materials or space efficiently. 3 Identify and investigate modern production technology practices and equipment in manufacturing technologies. STUDIES 6. Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.</p>
<b>Quarter 2</b>	
Unit	Standards
Project Finishing	<p>7/C/9/1-3, 6 ...1 Describe the careers available in manufacturing technological systems and the education needed to pursue them. 2 Produce a product using the manufacturing system appropriate to the context 3 Identify and apply appropriate safety measures when working with manufacturing technologies 6 Identify and investigate a variety of technological tools, equipment, machines, materials, and technical processes used in manufacturing technologies to manufacture/fabricate products or systems 7/C/10/1-3 1 Explain the manufacturing processes of casting and molding, forming, separating, conditioning, assembling and finishing. 2 Demonstrate the ability to acquire, store, allocate, and use materials or space efficiently. 3 Identify and investigate modern production technology practices and equipment in manufacturing technologies. Common Core Social Studies 6. Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.</p>