North Polk Community Schools Pacing & Course Description Guide

Grade Level: (9-12)	**Content:** PRINCIPLES OF CONSTRUCTION 1	**Year: 2022-2023**

Course Description/Rationale

Prerequisite: Foundations of Construction
This course provides information related to the building of wooden structures. Students will learn skills for rough construction and finish work. Students learn to read blueprints, use tools and machines properly and safely and actually build a scale model in a small group effort. Students will also build an independent project of their choosing to demonstrate fine woodworking skills. (1 HS credit)

Name of Unit	Time Frame	Essential Learning Target	Standard(s)
Wood Procedures	2-4 weeks	Students can identify the proper wood techniques to complete their builds. Students can identify and safely use all wood tools..	1. Demonstrate basic employability skills 8. Demonstrate integrity and ethical behavior. 10. Assess one's own mastery of skills 11. Demonstrate accountability for individual performance. 10. Read and interpret construction drawings. 1. Recognize and identify basic construction drawing terms, components, and symbols. 2. Relate information on construction drawings to actual locations on the print. 3. Recognize

			different classifications of construction drawings.
Intro to CNC	2 weeks (depends on class size)	Students will be able to produce a project using the CNC router. Students will use math and critical thinking skills to successfully complete a project. Students will be able to produce a project using the Laser. Students will produce a hand woodburn project or display piece.	1. Demonstrate basic employability skills 4. Demonstrate knowledge of computer systems and explain common uses for computers in the construction industry. 5. Define effective relationship skills. 8. Demonstrate integrity and ethical behavior. 9. Use time efficiently to manage workload. 11. Demonstrate accountability for individual performance. 2. Demonstrate basic communication skills 1. Interpret information and instructions presented in both verbal and written form. 2. Communicate effectively in on-the-job situations using verbal and written skills. 4. Communicate effectively on the job using

			electronic communication devices. 6. Use different perspectives to increase innovation and the quality of work 6. Demonstrate competency in the mathematics and geometry required for construction layout, including machinery, cut lists, fractions, decimals, area, volume, and percentages. 7. Demonstrate competency in various measuring systems in the construction field, including English, metrics, engineers, and scales used in construction processes and basic surveying. 2. Use a standard ruler, a metric ruler, and a measuring tape to measure. 3. Add, subtract, multiply, and divide fractions. 9. Recognize and identify some of the basic power tools and their proper uses in the construction trade. 1. Demonstrate the ability to use the proper

			power tool for the application/process. 2. Visually inspect hand tools to determine if they are safe to use. 3. Safely use hand tools. 10. Read and interpret construction drawings. 2. Relate information on construction drawings to actual locations on the print.
Wood Processes	3-6 weeks	Students will be able to build a project from start to completion. Students can enhance the process of building something from scratch and completing it. Apply safety rules in a shop setting - including clean work area.	5. Understand the basic safety and safety operating procedures necessary for a construction project. 1. Explain the idea of a safety culture and its importance in the construction crafts. 9. Define safe work procedures to use around electrical hazards. 10. Demonstrate the use and care of appropriate personal protective equipment (PPE). 15. Clean and

			maintain work area and leave in safe condition. 16. Follow tool checkout and maintenance procedures. 6. Demonstrate competency in the mathematics and geometry required for construction layout, including machinery, cut lists, fractions, decimals, area, volume, and percentages. 7. Demonstrate competency in various measuring systems in the construction field, including English, metrics, engineers, and scales used in construction processes and basic surveying. 1. Add, subtract, multiply, and divide whole numbers, with and without a calculator. 9. Recognize some of the basic shapes used in the construction industry and apply basic geometry to measure them. 8. Recognize and identify some of the basic hand tools and their proper uses in the

			construction trade. 1. Demonstrate the ability to use the proper hand tool for the application/process. 2. Visually inspect hand tools to determine if they are safe to use. 3. Safely use hand tools. 12. Demonstrate the ability to safely handle materials 4. Choose appropriate materials-handling equipment for the task. 5. Recognize hazards and follow safety procedures required for materials handling.
Housing	3-5 weeks	Students will be able to name basic building parts to a House - like floors, walls, ceilings, and roofs. The house shell topics. Students will be able to communicate, work together, share responsibilities to complete the assignment.	1. Demonstrate basic employability skills 1. Explain the role of an employee in the construction industry. 3. Demonstrate critical thinking skills and the ability to solve problems using those skills. 5. Define effective relationship skills.

			8. Demonstrate integrity and ethical behavior. 9. Use time efficiently to manage workload. 11. Demonstrate accountability for individual performance. 3. Demonstrate knowledge regarding the interpretation of information from plans, specifications, environment and site location that affects safety processes and procedures. 1. Describe the impact of globalization on construction safety. 2. Identify and describe the pre-construction and construction processes that relate to the function of safety systems. 3. Utilize English Language Arts skills to read and interpret drawings and technical specifications and other technical information to determine safety requirements 4. Demonstrate knowledge regarding the essential components of

			sustainable design and construction 2. Define various components of energy consumption in buildings. 6. Incorporate and identify Universal Design Standards into the design and construction. 5. Understand the basic safety and safety operating procedures necessary for a construction project. 6. Explain fall protection, ladder, stair, and scaffold procedures and requirements. 15. Clean and maintain work area and leave in safe condition. 6. Demonstrate competency in the mathematics and geometry required for construction layout, including machinery, cut lists, fractions, decimals, area, volume, and percentages. 7. Demonstrate competency in various measuring systems in the construction field, including English, metrics,

			engineers, and scales used in construction processes and basic surveying. 5. Convert decimals to percentages and percentages to decimals. 6. Convert fractions to decimals and decimals to fractions. 10. Read and interpret construction drawings. 3. Recognize different classifications of construction drawings. 4. Interpret and use drawing dimensions. 12. Demonstrate the ability to safely handle materials 2. Establish a pre-task plan prior to moving a load. 3. Use proper materials-handling techniques. 4. Choose appropriate materials-handling equipment for the task. 5. Recognize hazards and follow safety procedures required for materials handling.
