

NORTH CAROLINA CAREER AND TECHNICAL EDUCATION STANDARDS

Trade, Technology, Engineering, and Industrial Education

Grade: Grade 9 - 12

Course: Technological Design **Updated**

NCCTE.2020.TE12 - Technological Design

NCCTE.2020.TE12.01.00 - Introduction to Technological Design: Using a STEM approach to understand research methods in a global society to create a well-informed, creative, innovative, technologically literate citizen.

NCCTE.2020.TE12.01.01 - Understand emerging technologies.

NCCTE.2020.TE12.01.02 - Evaluate fundamentals of STEM.

NCCTE.2020.TE12.01.03 - Understand research, design and development.

NCCTE.2020.TE12.01.04 - Evaluate universal design.

NCCTE.2020.TE12.02.00 - Technological Design Skills: Implement a management process to plan, design, create, analyze and refine a product through modeling.

NCCTE.2020.TE12.02.01 - Understand and interpret the impact of product design and development.

NCCTE.2020.TE12.02.02 - Apply the design process to solve a technological problem.

NCCTE.2020.TE12.02.03 - Apply the design process to fabricate a prototype to test a design concept.

NCCTE.2020.TE12.02.04 - Understand mathematical modeling and other techniques used to test and refine design concepts.

NCCTE.2020.TE12.02.05 - Understand how to collect data to evaluate the quality of a product or services.

NCCTE.2020.TE12.03.00 - Technological Design Fundamentals: Apply systems thinking and the universal systems model to meet criteria and constraints.

NCCTE.2020.TE12.03.01 - Apply systems thinking through compromise and optimization by analyzing a system.

NCCTE.2020.TE12.03.02 - Evaluate communication systems.

NCCTE.2020.TE12.03.03 - Assess complex systems thinking.

NCCTE.2020.TE12.03.04 - Understand patents, criteria, constraints and other design requirements.

NCCTE.2020.TE12.04.00 - Technology and Society: Understand the effects of the use of technology on society and the environment include consequences that can have both positive and negative impacts.

NCCTE.2020.TE12.04.01 - Understand technology trade-offs and transfers.

NCCTE.2020.TE12.04.02 - Examine how technology impacts the community.

NCCTE.2020.TE12.04.03 - Evaluate how technology impacts the environment.

NCCTE.2020.TE12.05.00 - The Designed World: Understand the areas of the design world using the engineering design process to plan, organize, develop and control productivity to maximize efficiency.

NCCTE.2020.TE12.05.01 - Analyze types of bio-related and agricultural technologies.



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NCCTE.2020.TE12.05.02 - Analyze types of energy, power and transportation.

NCCTE.2020.TE12.05.03 - Maximize resources in lean manufacturing.

NCCTE.2020.TE12.05.04 - Design using sustainable construction procedures.

