

NORTH CAROLINA CAREER AND TECHNICAL EDUCATION STANDARDS

Trade, Technology, Engineering, and Industrial Education

Grade: Grade 9 - 12

Course: Engineering Design **Updated**

NCCTE.2020.TE13 - Engineering Design

NCCTE.2020.TE13.01.00 - Fundamentals of Engineering Design: Understand the fundamental principles which impact human thinking and actions when engaged in the process of designing technological products.

NCCTE.2020.TE13.01.01 - Understand how human and Environmental Factors impact Design.

NCCTE.2020.TE13.01.02 - Understand how local, state and federal policies impact design

NCCTE.2020.TE13.01.03 - Understand how Industrial Factors impact design.

NCCTE.2020.TE13.01.04 - Understand Research techniques and tools.

NCCTE.2020.TE13.01.05 - Analyze Market and Profit Influence.

NCCTE.2020.TE13.01.06 - Apply the Engineering Design Process.

NCCTE.2020.TE13.01.07 - Identify and Prioritize Design Constraints.

NCCTE.2020.TE13.02.00 - Elements of Design: Apply scientific concepts and mathematical calculations used by engineers and designers for specific applications in Design.

NCCTE.2020.TE13.02.01 - Apply critical factors that lead to design improvements.

NCCTE.2020.TE13.02.02 - Analyze the 9 Core Technologies.

NCCTE.2020.TE13.02.03 - Apply the design process to fabricate a prototype to test a design concept.

NCCTE.2020.TE13.02.04 - Evaluate competing design values to optimize critical decisions.

NCCTE.2020.TE13.03.00 - Modeling, Prototyping, and Protecting Ideas: Apply structured design concepts to solve diverse engineering problems..

NCCTE.2020.TE13.03.01 - Analyze diverse examples of "Technology Transfer".

NCCTE.2020.TE13.03.02 - Understand the importance of the Patent Process, and technology spin offs

NCCTE.2020.TE13.03.03 - Apply engineering resources to solve specific design problems.

NCCTE.2020.TE13.03.04 - Apply scientific principle using material science concepts to solve design problems.

NCCTE.2020.TE13.03.05 - Evaluate the role of creativity in diverse design activities.

NCCTE.2020.TE13.03.06 - Understand patents, criteria, constraints and other design requirements.

NCCTE.2020.TE13.03.07 - Apply modeling and prototyping concepts to solve design problems

NCCTE.2020.TE13.04.00 - Product, Systems Engineering and Analysis Management: Apply project management through the Engineering Design Process.

NCCTE.2020.TE13.04.01 - Apply contemporary project management.

NCCTE.2020.TE13.04.02 - Apply a quality assurance methods to ensure optimum performance.

NCCTE.2020.TE13.04.03 - Apply the Engineering Design Process to produce a product or system.



NORTH CAROLINA CAREER AND TECHNICAL EDUCATION STANDARDS

NCCTE.2020.TE13.04.04 - Evaluate the results of the Engineering Design Process, using quality assurance processes.

