*Unit 7: Design Team

Content Area: **Technology**
Course(s): **Engineering Design 2**
Time Period: **April**
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Enduring Understandings

Research derived from a variety of sources is used to facilitate effective development and evaluation of a design problem and a successful solution to the problem.

Effective design teams can improve the efficiency and effectiveness of the design process.

Virtual design teams include people in different locations who collaborate using communication methods other than face-to-face contact.

In order to be an effective team member, one must demonstrate positive team behaviors and act according to accepted norms, contribute to group goals according to assigned roles, and use appropriate conflict resolution strategies.

Project planning tools and management skills are often used in the process of solving engineering design problems.

Essential Questions

What strategies would you use to form a design team in order to obtain the best solution possible?

What are the challenges with working in a design team that cannot meet face to face?

Is it ever advantageous to create a design or solve a problem individually as opposed to using a team approach?

What does it mean to be “ethical” in your work? Do engineers need to be taught to be “ethical”?

Content

Vocabulary:

Arbitration, By-product, Critique, Consensus, Ethical, Ethics, Impact, Protocal, Synergy, Trade-off, Virtual team

Skills

Utilize research tools and resources to validate design decisions and justify a problem solution.

Summarize key ideas in information sources including scientific and engineering texts, tables, diagrams, and graphs.

Contribute to a group project proposal that addresses a specific topic.

Deliver a group presentation that summarizes a project proposal and research on a particular topic.

Demonstrate positive team behaviors and contribute to a positive team dynamic.

Create and utilize a Gantt chart to plan, monitor, and control task completion during a design project.

Resources

Desktop computers

2D & 3D CAD systems

3D printer

Laser cutter

CNC router

Prototyping equipment

Prototyping materials

Presentation device

Standards

TECH.8.1.12.C.CS2	Communicate information and ideas to multiple audiences using a variety of media and formats.
TECH.8.1.12.C.CS4	Contribute to project teams to produce original works or solve problems.
TECH.8.1.12.F.CS1	Identify and define authentic problems and significant questions for investigation.
TECH.8.1.12.F.CS2	Plan and manage activities to develop a solution or complete a project.
TECH.8.1.12.F.CS3	Collect and analyze data to identify solutions and/or make informed decisions.
TECH.8.2.12.B.2	Evaluate ethical considerations regarding the sustainability of environmental resources that are used for the design, creation and maintenance of a chosen product.
TECH.8.2.12.C.CS1	The attributes of design.

TECH.8.2.12.C.CS2	The application of engineering design.
TECH.8.2.12.D.1	Design and create a prototype to solve a real world problem using a design process, identify constraints addressed during the creation of the prototype, identify trade-offs made, and present the solution for peer review.
TECH.8.2.12.D.3	Determine and use the appropriate resources (e.g., CNC (Computer Numerical Control) equipment, 3D printers, CAD software) in the design, development and creation of a technological product or system.
TECH.8.2.12.D.CS1	Apply the design process.