



SCHOOL DISTRICT OF THE CHATHAMS CURRICULUM PROFILE TEMPLATE



CONTENT AREA(S): Design Technology

GRADE LEVEL(S): 12th Grade

COURSE: Design Studio

TIME FRAME: Half Year (2.5 Credits)

I. Course Overview

Design Studio gives students the opportunity to research a problem of personal interest while gaining a deeper understanding of the technological design process. After identifying their problem, students will meet in conference with the instructor and work through a design loop toward a solution. As students work through the design process, they will generate a portfolio they can use to pursue their educational or professional goals. This course may be taken more than once for credit.

II. Units of Study

Students will choose one of the following pathways:

- 1.) Architectural Studies
 - a. UNIT 1 - Residential Design and Redesign
 - b. UNIT 2 - Commercial/Industrial Design
 - c. UNIT 3 - Model Building
- 2.) Engineering & Design
 - a. UNIT 1 - Advanced Mechanical Engineering Design
 - b. UNIT 2 - 3D prototyping
 - c. UNIT 3 - Advanced software studies

II. Essential Questions *(The open-ended, provocative questions that help frame inquiry)*

Pathway 1: Architectural Studies

- How do architects design or redesign a home to fit client needs?
- How is commercial space designed effectively for various types of businesses?
- What is the design process and how can it be used in the design of architectural structures?
- How are architectural models useful in portraying a structure or livable space?
- What is the purpose of a portfolio of your work?
- How can a portfolio be used for your educational and/or professional endeavors?



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Pathway 2: Engineering & Design

- What is the purpose of being able to use various types of software in the design field?
- What is the purpose of a redesign and what information should be utilized and employed to successfully redesign and innovate an existing design?
- How does rapid prototyping play a role in the engineering design arena?
- What is the design process and is it used for the development of successful engineering designs?
- How can a portfolio be used for your educational and/or professional endeavors?

IV. Learning Objectives

NJCCCS:

- Technology Education – Engineering Design
 - 8.2 A, B, C, E, F, G
- Educational Technology
 - 8.1 A
- 21st Century
 - 9.1 A-D
 - 9.3 C
 - 9.4 B (Architecture & Construction Career Cluster)
 - 9.4 O (Science, Technology, Engineering & Mathematics Career Cluster)

Common Core:

- ELA Standards for Science & Technical Subjects

V. Instructional Materials

- Access to computer lab and LCD projector
- Software – Pathway 1:
 - AutoDesk Revit
 - AutoDesk 3DS Max
 - Google SketchUp
- Software – Pathway 2:
 - AutoDesk Inventor
 - AutoDesk 3DS Max
 - AutoCAD
 - Rapid Prototyping Software

VI. Key Performance and Benchmark Tasks

Pathway 1: Architectural Studies

- Sketching and Perspective Portfolio
- Redesign of a Townhome
- Redesign of a Commercial Structure
- Portfolio Development



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- Create and manage their own portfolio showcasing their work.

Pathway 2: Engineering & Design

- Sketching and Perspective Assignment
- Extreme Redesign Challenge
- Rapid Prototyping
- Portfolio Development
 - Create and manage their own portfolio showcasing their work.