PLTW CIVIL ENGINEERING/ARCHITECTURE

OMAHA NORTH HIGH MAGNET SCHOOL

Contact Information

Instructor: Ms. Wragge
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Number: ext. #3328807#
Plan Periods: A3 and B8
Office/Classroom Room 260/135
Best times to contact: During my plan periods or email

Course Description

Civil Engineering and Architecture is the study of the design and construction of residential and commercial building projects. The course includes an introduction to many of the varied factors involved in building and site design and construction including building components and systems, structural design, storm water management, site design, utilities and services, cost estimation, energy efficiency, and careers in the design and construction industry.

Students will use industry standard 3D architectural modeling software to facilitate site and building design and technical documentation. As the course progresses and the complexity of the design problems increase, students will learn more advanced computer modeling skills as they become more independent in their learning, more professional in their collaboration and communication, and more experienced in problem solving and design.

This course includes an innovative curriculum across English and engineering courses to prepare students for the fundamentals of public speaking, written expression, and critical thinking in correlation to the design process. Students will engage in technical writing activities, informational reading relevant to engineering topics, and formal/informal presentations in anticipation of post-secondary education and career studies.

Major Units of Study

Unit 1: Overview of Civil Engineering and Architecture
Lesson 1.1 History of Civil Engineering and Architecture
Lesson 1.2 Careers in Civil Engineering and Architecture

Unit 2: Residential Design
Lesson 2.1 Building Design and Construction
Lesson 2.2 Cost and Efficiency Analysis
Lesson 2.3 Residential Design

Unit 3: Commercial Applications
Lesson 3.1 Commercial Building Systems
Lesson 3.2 Structures
Lesson 3.3 Services and Utilities
Lesson 3.4 Site Consideration

Unit 4: Commercial Building Systems (ACE Mentor Project)
Lesson 4.1 Commercial Building Design Problem
Lesson 4.2 Commercial Building Design Presentation

Required Materials

♦ Writing Utensil
♦ Engineering Notebook

Recommended

♦ Scientific Calculator
♦ Folder

Classroom Expectations

**Grading Practices**

**Summative** (65%) — Unit Projects and Presentations

**Formative** (35%) — Journals and Assignments

**Practice** (0%) — Students are expected to complete coursework on time. Late assignments will be missing “M” which calculates as a zero in Infinite Campus until completed. Redone and late assignments will be accepted for full credit until the end of the unit.

**Projects** — Students are expected to turn in projects by the end of the unit.

**OPS Grading Scale 2018-2019**

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<th>Grade</th>
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**Food/Drink**

Food and drinks not allowed during class except for an individual closed drink. This is especially important since we will be working around computers many days. If this becomes an issue, there will be consequences.

**Electronics**

Cell phones should be out of sight during lecture and group work. If this is an issue, your parents and/or administrator will be contacted.

School computers are used for educational purposes only. We use computers a lot in this class so they need to be used appropriately.

**Experiential Learning**

Due to being apart of the engineering academy, there will be at least quarterly experiential learning trips to attend which include but not limited to college visits, site visits to engineering, architecture, or construction businesses, and career days.

**STEM Help Nights**

Every Tuesday there will be an Engineering and English teacher available in Room 131 from 3:15pm — 5:00pm to help with academic work. Homework Helproom is also available Tuesdays-Fridays from 3:15pm — 5:00pm.

**Academic Dishonesty**

Cheating, in any form, will not be tolerated. If I sense any degree of academic dishonesty in your work, I will investigate. If I discover evidence of cheating, you will receive a zero (0) for the assignment, quiz, assessment, etc. and may have additional consequences.

**Absences**

It is important to come to class EVERYDAY. If you know you are going to be absent for a school activity, you need to get the homework and assignments ahead of time. I am here to help you so please ask. If an absence occurs on a presentation day, the student is responsible to make arrangements to make up the presentation. During group projects, communication with group members is vital especially during an absence.