AUBURN
ENGINEERING

ENGR 1110

Course Overview – Dr. Hendrix

Why are you here?

https://youtu.be/XggxeuFDaDU

Engineering

Engineering? A few definitions …

the science or profession of developing and using nature's power and resources in ways that are useful to people (as in designing and building roads, bridges, dams, or machines and in creating new products)

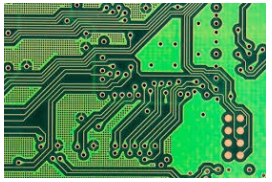
the application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to people

the design and manufacture of complex products
<software engineering>









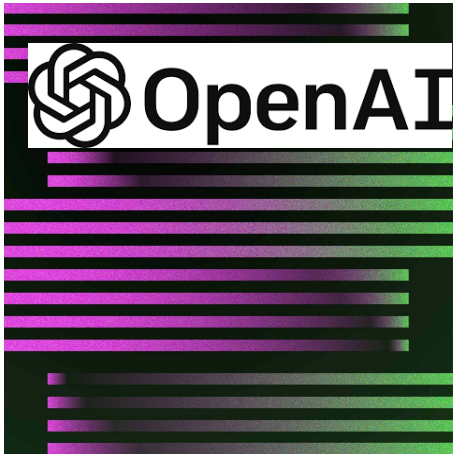

Software Engineering

A young field with exponential progress…

1951
Computing missile trajectories, sorting data

2011
Beating humans at Jeopardy

2022
ChatGPT



Course Overview

Course Description
ENGR 1110 Introduction to Engineering is required of all engineering majors. The course provides an introduction to engineering design, engineering teams, technical writing, oral presentation, and engineering ethics. The CSSE sections do this specifically in the context of software development.

Bulletin Description: Introduction to engineering design, engineering teams, graphical presentation, technical writing, oral presentation.
Credit Hours: 2 (LEC. 1, LAB. 3)
Prerequisite: None

Learning Outcomes
By the end of this course, students will demonstrate an ability to:

- Design and test a product or process according to the iterative engineering design process.
- Communicate technical information in written and oral format.
- Use spreadsheets to perform calculations, analyze data, and present results in graphs and tables.
- Work effectively on a team to execute design projects.
- Understand that effective engineering design includes consideration of ethical, global, cultural, economic, social, and environmental factors.
- Implement and evaluate computing-based solutions expressed in a programming language.
- Recognize the importance of cultural intelligence in a professional context.

Course Overview

Course Description
ENGR 1110 Introduction to Engineering is required of all engineering majors. The course provides an introduction to engineering design, engineering teams, technical writing, oral presentation, and engineering ethics. **The CSSE sections do this specifically in the context of software development.**

Bulletin Description: Introduction to engineering design, engineering teams, graphical presentation, technical writing, oral presentation.
Credit Hours: 2 (LEC. 1, LAB. 3)
Prerequisite: None

Learning Outcomes
By the end of this course, students will demonstrate an ability to:

- Design and test a product or process according to the iterative engineering design process.
- Communicate technical information in written and oral format.
- Use spreadsheets to perform calculations, analyze data, and present results in graphs and tables.
- Work effectively on a team to execute design projects.
- Understand that effective engineering design includes consideration of ethical, global, cultural, economic, social, and environmental factors.

Specific to CSSE Sections

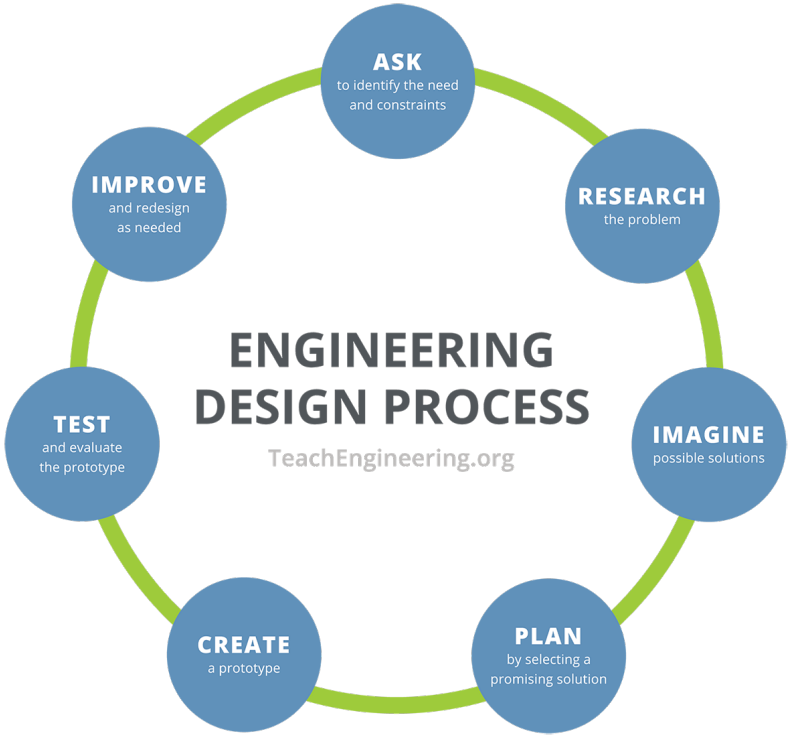
- Implement and evaluate computing-based solutions expressed in a programming language.
- Recognize the importance of cultural intelligence in a professional context.

Engineering Design

"The **engineering design process** is a common series of steps that engineers use in creating functional products and processes. The process is **highly iterative** - parts of the process often need to be repeated many times before another can be entered - though the part(s) that get iterated and the number of such cycles in any given project may vary."

"It is a **decision-making process** (often iterative) in which the basic sciences, mathematics, and engineering sciences are applied to convert resources optimally to meet a stated objective. Among the fundamental elements of the design process are the establishment of objectives and criteria, synthesis, analysis, construction, testing and evaluation."

https://en.wikipedia.org/wiki/Engineering_design_process



https://www.teachengineering.org/populartopics/designprocess

Culture

Cultural intelligence

Cultural intelligence or cultural quotient (CQ) is the ability to relate and work effectively across cultures, bearing similarity to the term cultural agility. The term has been used in business, education, government, and academic research contexts.

https://en.wikipedia.org/wiki/Cultural_competence

Cultural agility

Cultural agility is a term employed in talent management to design a complex competency based on skills whose command allows an individual or an organization to perform successfully in cross-cultural situations. The concept appears to overlap with others such as cross-cultural competence and cultural intelligence.

https://en.wikipedia.org/wiki/Cultural_agility

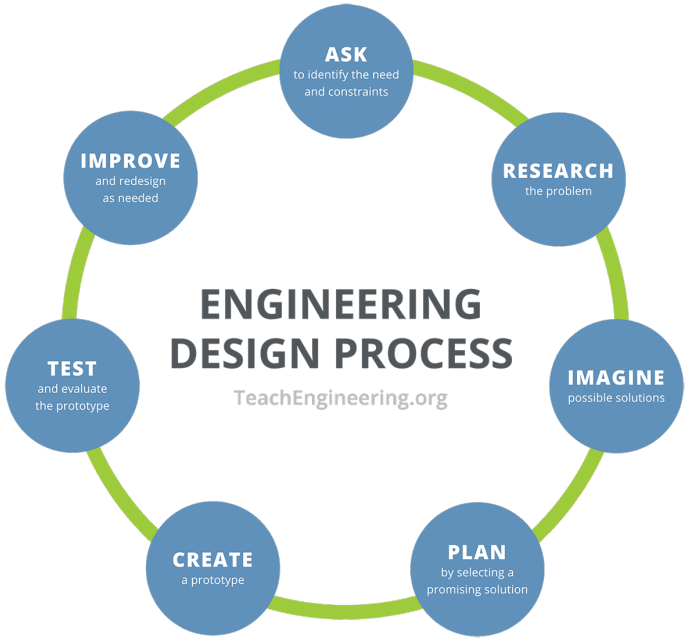
Cultural competence

Cultural competence, also known as intercultural competence, is a range of cognitive, affective, and behavioral, skills that lead to effective and appropriate communication with people of other cultures. Intercultural or cross-cultural education are terms used for the training to achieve cultural competence.

https://en.wikipedia.org/wiki/Cultural_competence

Culture

Why is this important in engineering?

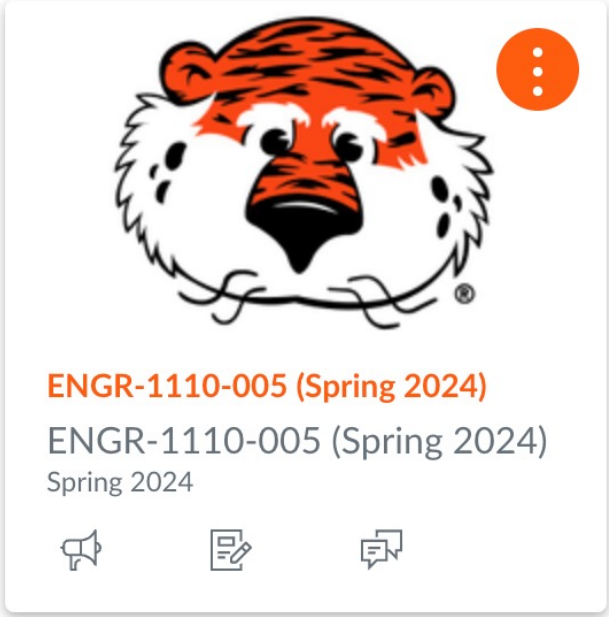


https://www.teachengineering.org/populartopics/designprocess

Class materials

All course materials and assignments will be available in Canvas.

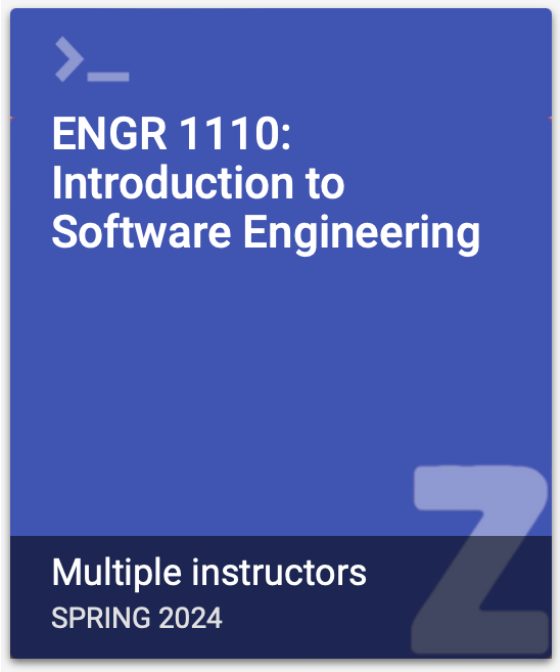
CANVAS
BY INSTRUCTURE



Course texts

Payment via AU All Access; Interaction via Canvas

zyBooks
A Wiley Brand



Accessing zyBooks:

1. Click any zyBooks assignment link in Canvas. Do not go to the zyBooks website and create a new account.
2. Subscribe.