

Intro to Civil Engineering

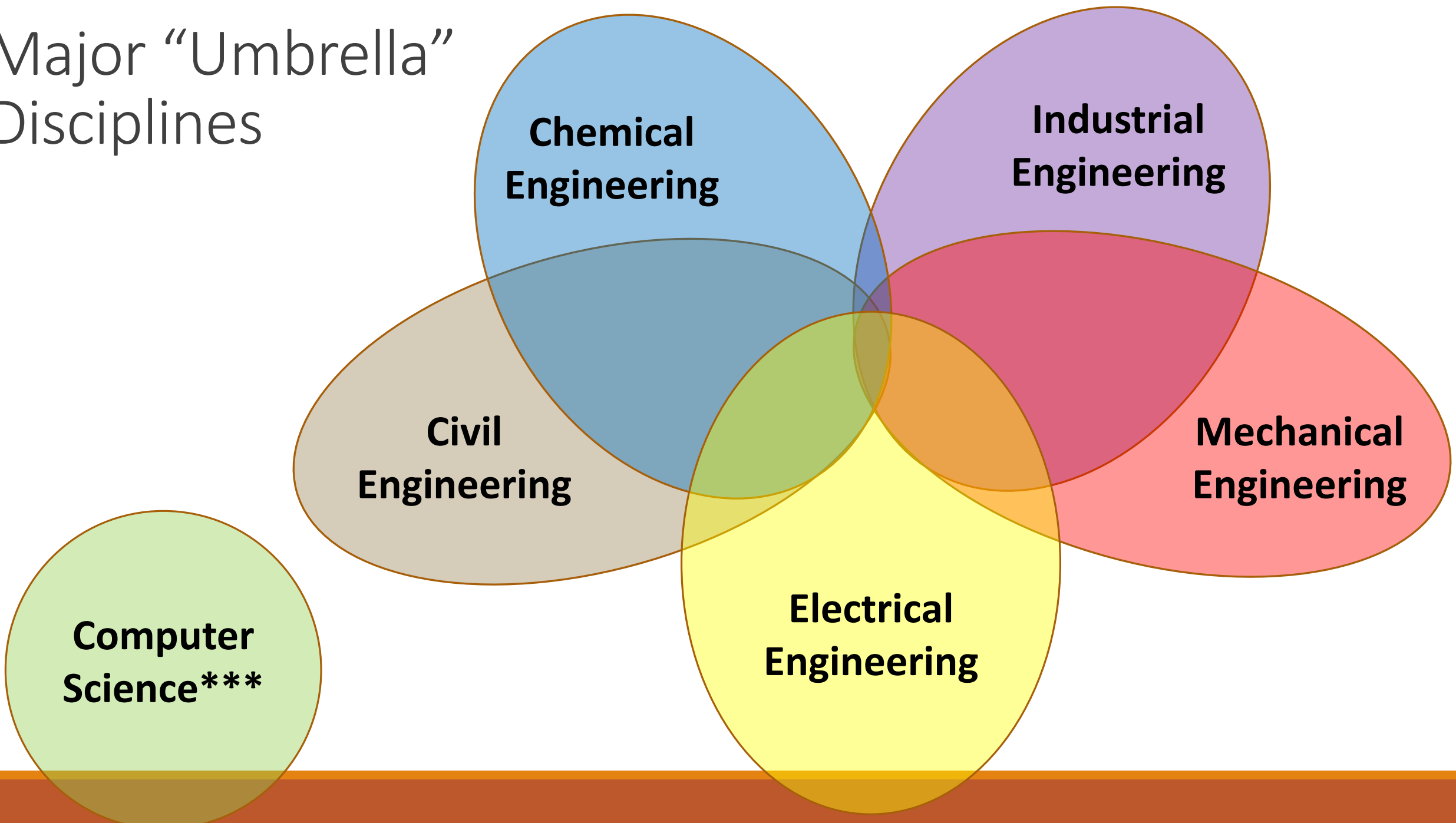
FOUNDATIONS OF ENGINEERING AND TECHNOLOGY

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Warmup: What is Civil Engineering?

<https://www.youtube.com/watch?v=-xbtnz4wdaA>

Major “Umbrella” Disciplines



Civil Engineering

Designing and supervising the construction of roads, buildings, airports, tunnels, bridges, and water and sewage systems

Civil Engineers

Environmental Engineers

Agriculture Engineers

Construction Engineers

Civil Engineering

Designing and supervising the construction of roads, buildings, airports, tunnels, bridges, and water and sewage systems

Main objective: design systems that are functional, efficient, durable, and minimize harm on the environment

Structural engineers are the most common type of civil engineers. They are concerned with the integrity of the structure of buildings, highways, and bridges

Other types of civil engineers are transportation engineers, surveyors, urban planning engineers, and construction engineers

Environmental Engineering

Apply engineering principles in order to improve and maintain the environment



Uses science to make the world a safer place for humans and animals

3 components of environmental engineering:

- Disposal – disposing industrial and residential waste
- Remediation – cleaning a contaminated site
- Prevention – reducing or eliminating the amount of waste from the manufacturing process

Requires knowledge of engineering fundamentals and environmental laws and regulations

Construction Engineering

Concerned with the management and operation of construction projects



Interested in improving construction methods and materials to make them safer, more reliable, cost effective, and environmentally friendly

Incorporate technical, financial, and legal requirements into a plan to meet project deadlines

Requires project management skills and knowledge of computer tools

Agricultural Engineering

Concerned with the production and processing of agricultural products, which are critical to our ability to feed the ever-expanding world population

Can specialize in many fields:

- Power machinery
- Bioengineering
- Soils and water
- Electrical technologies
- Food processing

An example of an agricultural engineer's work is designing and implementing an irrigation system for crop production



What we're doing

Scale drawing

Types of forces in static structures

Static Structures

- Towers
- Bridges

Surveying/city planning