Lecture 3

The Civil Engineering Curriculum

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September 6, 2023

Lecture Overview

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2 Curriculum Structure

The Civil Engineering Curriculum

Curriculum Description

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- explain the importance of professional licensure

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- Energy and Environmental Engineering
- Civil Engineering Education

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121 units of technical courses (mathematics, natural/physical sciences, basic engineering sciences, allied courses, and professional courses, and OJT)

50 units for non-technical courses (General Education Curriculum (GEC), PE, & NSTP)

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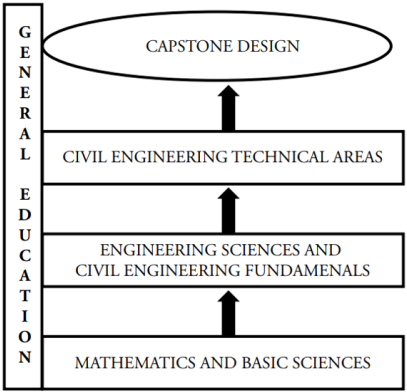

Figure: Curriculum Structure

General Education

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college graduate should have knowledge and skills in areas vital to understanding of modern society

Mathematics and Basic Sciences

Mathematics courses includes basic calculus courses, differential equations, statistics, and numerical methods.

Basic sciences requirements can be satisfied by either biology, chemistry, or other science courses.

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- **Dynamics** - deals with motion of objects and its relationship with forces
- **Fluid Mechanics** - studies the movement of fluids in open and enclosed environment

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Courses required for Civil Engineering but are not for most other engineering disciplines. Typically includes:

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- **Hydrology** - studies and quantifies the circulation and movement of water

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- **Basic Electric Engineering** - covers electric circuit analysis, tranformers, power supply, etc
- **Thermodynamics** - studies the conversion among different forms of energy
- **Computer Programming** - covers either fundamentals of computer programming or tools of computing for civil engineers

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- **Structural Theory** - studies further analytical tools for computing the member forces and the deflections of beams, trusses, and frames.
- **Reinforced Concrete Design** - covers beam design, simple slab design, column design, and simple foundation design using concrete and reinforcing steel bars

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- **Structural Theory** - studies further analytical tools for computing the member forces and the deflections of beams, trusses, and frames.
- **Reinforced Concrete Design** - covers beam design, simple slab design, column design, and simple foundation design using concrete and reinforcing steel bars
- **Steel Structures Design** - deals with design of tension and compression members made of steel including their connections (welded, bolted)

Capstone Design

The culmination of the curriculum which involves a major design experience based on the knowledge and skills acquired in earlier courses.

The End

Questions? Comments?