CIV102-STRUCTURES and MATERIALS

Topic: An Introduction to Engineering Design

1) Contact Information

Professor Evan Bentz : evan.bentz@utoronto.ca (GB227)

Note: Multiple right answers.

2) Structural Engineering

The art and science of designing and making or constructing structures with economy and elegance so they can safely resist the forces to which they may be subjected.

Key Terms:

- Art: Best for structures to look good
- Science: Best for structures to stand up
- Making: Best for structures to be feasible
- Economy: Best for structures to be affordable
- Elegance: Best for structures to have style
- Safely: Best for structures to be safe against outside forces

Engineering (from latin) { ingeniare → to create ; ingenium → cleverness }

3) 3 Principles of Engineering

1. $F=ma$ → If somethings not moving, the forces on it must be balanced
2. You Cannot Push on a Rope → Assume you can push on a rope, then constrain that you can't
3. To find the answer, you must know the answer

4) Significant Figures

Use 3.5 significant figures:

If the first non-zero digit is 1, use 4 significant figures
If the first non-zero digit is not 1, use 3 significant figures

5) Engineering Notation

24.3×10^{6}

↳ The exponent is a multiple of 3