SOLID MECHANICS-DESIGN STREAM IS FUNDAMENTAL TO ENGINEERING

by

Professor Shaker Meguid, Director
Mechanics & Aerospace Design Lab
Mechanical and Industrial Engineering
5 Top Engineering Jobs in Canada Today

1. Electrical Engineer

2. Mechanical Engineer

Mechanical engineers apply the principals of physics to the design, creation, and maintenance of mechanical systems. Mechanical engineer remains one of the most in-demands jobs in Canada. Mechanical engineers can work in a variety of industries, from the mining industry to the oil industry.

This description is of mostly a stress engineer!

3. Software Engineer

4. Biomedical Engineer

5. Civil Engineer
Design is Engineering
and
Engineering is Design!
Most stimulating and interesting engineering discipline that combines traditional/advanced mechanics and materials to significantly advance engineering design/testing of engineering systems, life sciences, construction engineering that is safe and economical.
Solid Mechanics is Everywhere!
Design, Analysis and Failure Prevention
of Assemblies and Subassemblies:

Entire Transport Industry: Aerospace, Automotive and Locomotive, Construction, Medical Engineering seeks the employment of Stress Analysis - Design Engineers.

1. Engineering Design
2. Design Analysis: Computational Mechanics
3. Failure Analysis, Diagnostics and Prevention
4. Crashworthiness and Impact Mechanics
5. Vibration and Dynamic Response
6. Advanced Composites
7. Surface Engineering
8. Biomedical Engineering
Transport Industry: Aerospace Engineer - Structures
Transport Industry: Aerospace Engineer - Engines
Failure Diagnostics and Prevention: Failure Analysis Engineer
Transport Industry:
Automotive Engineer - Structures
Transport Industry:
Automotive Engineer - Engines
Transport Industry:
Locomotive Design Engineer
Construction Engineers
Design Analysis: Stress Engineer

Turbine disc model

Blade section
Failure Analysis Engineers

Empty Column

Foam-Filled Column
Comparison with Experiments

Empty Column

Filled Column
Surface Engineering:
Welding and Coating Engineers
Surface Engineering: Post Processing & Finishing Engineer

Shot Peening

Cold Hole Expansion
Rheumatoid Arthritis

http://www.medlib.med.utah.edu/WebPath/

BONEHTML/BONE043.html

http://www.cjthakkar.com/rheumatoid1.html
Biomedical Engineers: Design and Analysis

- Human Spine
- Dental Implants
- Prosthetic Finger Implants
- Hip Replacement
- Knee Replacement
I cannot Decide on my Major?

- Understand the unique features of all 5 streams.
- Project career trajectories of each stream.
- Determine which programs align best with your interests and passions.
- What would you like to do in 20, 10 and 5 years from now and work backward (reverse engineering).
- What would you like to be in 20, 10, 5 years and work backward.
- Are you creative? Do not waste your talent in mundane jobs.
- Do not specialize in narrow fields early on in your education.
- Your favorite subjects.
- Graduate studies
Small Sample of Job Opportunities
I hope that you have found this brief helpful!

Note: I gladly acknowledge the use of a few figures from the web in support of this presentation. I confirm that this presentation is not intended for commercial use but merely to help students select a stream in mechanical engineering.