

**School of Engineering
University of Guelph
BIOMECHANICAL ENGINEERING DESIGN, ENGG*4400
FALL 2008**

Instructor: Dr. John Runciman, Room 1344, THRN

Prerequisites: ENGG*2120, ENGG*2160

Objectives: Students who successfully complete this course will be able to:

- (a) Identify common biomechanical device problems,
- (b) specify suitable device materials,
- (c) apply engineering principles to the development of novel biomechanical designs,
- (d) specify manufacturing, and quality assurance strategies for biomechanical designs.

Scheduling:

| | | | |
|-------------|------------------|-----------------------|----------------------|
| Lectures: | 8:30 - 9:50 | T, TH | MACK 233 |
| Labs: | 2:30 - 4:30 | T | MACK 119 / THRN 1139 |
| Final Exam, | 8:30 - 10:30 pm, | Dec 6 th , | Room TBA |

Method of Evaluation: The final grade will be determined from the results of one final examination, 4 assignments, presentation of a mini seminar, submission from the mini seminar and 2 design reports. Late submissions will not be accepted for marking. The individual marks will be weighted as follows:

| | |
|---------------------------|-----|
| Final examination | 25% |
| Assignments (4) | 20% |
| Mini seminar presentation | 10% |
| Mini seminar submission | 10% |
| Design reports (2) | 35% |

Method of Presentation: Lectures and seminar format discussions.

Topics of Study:

- | | |
|--------------------------------|------------------------|
| 1. General Design Requirements | 2. Materials |
| 3. Design Basics | 4. Medical Tool Design |
| 5. Manufacturability | 6. Standards |
| 7. Design of Medical Implants | 8. Device Failure |
| 9. Project Management | |