

**School of Engineering
University of Guelph
BIOMECHANICAL ENGINEERING DESIGN, ENGG*4400
FALL 2007**

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 implant and instrument materials,
- (c) apply engineering principles to the development of novel biomechanical designs,
- (d) specify manufacturing, and regulatory strategies for biomechanical designs.

Scheduling:

Lectures:	9:30 - 10:20,	M,W&F,	MACK 316
Labs: (1)	1:30 - 3:20	T	THRN 1139 & MACK 305
(2)	12:30 - 2:20	W	THRN 1139 & MACK 305

Final Exam, 7:00 - 9:00 pm, Friday, Dec 14th, 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 presentations. The seminars will include literature reviews and problems compatible with the lecture materials to enhance understanding of the subject matter.

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 | |