

SUBJECT DESCRIPTION FORM

Subject Title: Clinical Biomechanics

Subject Code: HTI5126

Credit Value: 3

Date of Submission: Feb 2007

Responsible Staff and Department(s): Dr. Zhang Ming (HTI)

Pre-requisites: Nil

Recommended Background Knowledge: Knowledge in general mechanics

Exclusions: Nil

Learning Approach:

Contact hours:

Lectures/Seminars	30 hours
Tutorials	12 hours
Sub-total:	42 hours

Independent study hours:

Self-study	40 hours
Assignments	10 hours
Paper & Presentation	50 hours
Sub-total:	100 hours

Total: 142 hours

Assessment (types & weighting):

Continuous Assessment	100%
Assignments	30%
Paper and Presentation	35%
Test	35%

Learning Outcomes:

At completion of the subject, students should be able to apply biomechanical concept to appreciate and analyze the pathomechanics of common musculoskeletal disorders.

Syllabus:

Various clinically relevant musculoskeletal disorders, such as low back disorder, neck pain, foot disorder, pressure ulcer and bone fracture, will be used as examples to illustrate the application of biomechanical principles for understanding the normal functions of the musculoskeletal system, investigating possible causes of the disorders, evaluating the level of severity as well as devising possible treatments for the disorders. Biomechanics of the disorders will be appreciated at the tissue, organ and system levels.

References:

1. Adams MA. The biomechanics of back pain. Edinburgh; New York: Churchill Livingstone, 2002.
2. Bartlett R. Sports biomechanics: reducing injury and improving performance. London: E & FN Spon, 1999.
3. Brinckmann P, Frobin W, Leivseth G. Musculoskeletal biomechanics. Stuttgart: Thieme, 2002.
4. Chaffin DB, Andersson G, Martin BJ. Occupational biomechanics. Hoboken, N.J.: Wiley-Interscience, 2006.
5. Cox JM. Low back pain : mechanism, diagnosis, and treatment. Baltimore, Md.: Williams & Wilkins, 1999.
6. Dvir Z. Clinical biomechanics. New York: Churchill Livingstone, 2000.
7. Freivalds A. Biomechanics of the upper limbs: mechanics, modeling, and musculoskeletal injuries. Boca Raton, Fla.: CRC Press, 2004.
8. Fulkerson JP, Buuck DA. Disorders of the patellofemoral joint. Philadelphia, Pa.: Lippincott Williams & Wilkins, 2004.
9. Herzog W. Clinical biomechanics of spinal manipulation. Philadelphia, Pa.: Churchill Livingstone, 2000.
10. Mayer TG, Gatchel RJ, Polatin PB. Occupational musculoskeletal disorders: function, outcomes, and evidence. Philadelphia, Pa.: Lippincott Williams & Wilkins, 2000.
11. National Research Council (U.S.). Panel on Musculoskeletal Disorders and the Workplace., Institute of Medicine (U.S.). Musculoskeletal disorders and the workplace: low back and upper extremities. Washington, D.C.: National Academy Press, 2001.
12. Nigg BM, Herzog W. Biomechanics of the musculo-skeletal system. Chichester ; New York: Wiley, 1999.
13. Nordin M, Frankel VH. Basic biomechanics of the musculoskeletal system. Philadelphia, Pa.: Lippincott Williams & Wilkins, 2001.
14. Panjabi MM, White AA. Biomechanics in the musculoskeletal system. New York: Churchill Livingstone, 2001.

Selected readings from current reviewed articles in biomechanics and therapeutic journals.