Subject Description Form

Subject Code	BME5126
Subject Title	Clinical Biomechanics
Credit Value	3
Level	5
Responsible staff & Department/School	Prof Ming ZHANG (BME)
Pre-requisite / Co-requisite/ Exclusion	Nil
Objectives	To apply the biomechanics to understand the normal functions of musculoskeletal system and pathomechanics of common musculoskeletal disorders, and to develop ways and means to recover lost function of musculoskeletal system.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: a. Demonstrate understanding the nature, structure & regulating mechanism of musculoskeletal system b. Apply biomechanical concept to appreciate and analyze the pathomechanics of common musculoskeletal disorders. c. Develop way and means to recover lost function of musculoskeletal system for quality of life improvement
Subject Synopsis/ Indicative 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.
Teaching/Learning Methodology	There will be lectures and tutorials dealing with fundamental mechanics, pathomechanics and application examples on human musculoskeletal system. Students will be required to read widely and in specific areas. A review report is required in a specific area.

Teaching/learning methodology	Intended subject learning outcomes			
	a	b	c	
1. Lectures	√	√	√	
2. Tutorials	√	√	√	

Assessment Methods in Alignment with Intended Learning Outcomes	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed					
			a	b	c			
	1. Continuous assessment (including assignments, working sheet, class quiz, and writing report)	100%	√	√	√			
	Total	100 %						

Note: Assignments, working sheet and class quiz will assess outcome 1 and 2; The writing report will assess the outcome 3.

Student Study Effort Expected	Class contact:	
	▪ Lecture	36 Hrs.
	▪ Tutorial	3 Hrs.
	Other student study effort:	
	▪ Self-study	53Hrs.
	▪ Assignment and paper preparation	50 Hrs.
	Total student study effort	142 Hrs.

Reading List and References	
	1. Adams MA. The biomechanics of back pain. Edinburgh; New York: Churchill Livingstone, 2002.
	2. Brinckmann P, Frobin W, Leivseth G. Musculoskeletal biomechanics. Stuttgart: Thieme, 2002.
	3. Chaffin DB, Andersson G, Martin BJ. Occupational biomechanics. Hoboken, N.J.: Wiley-Interscience, 2006.
	4. Dvir Z. Clinical biomechanics. New York: Churchill Livingstone, 2000.
	5. Freivalds A. Biomechanics of the upper limbs: mechanics, modeling, and musculoskeletal injuries. Boca Raton, Fla.: CRC Press, 2004.
	6. Nigg BM, Herzog W. Biomechanics of the musculo-skeletal system. Chichester ; New York: Wiley, 1999.
	7. Nordin M, Frankel VH. Basic biomechanics of the musculoskeletal system. Philadelphia, Pa.: Lippincott Williams & Wilkins, 2001.
	8. Panjabi MM, White AA. Biomechanics in the musculoskeletal system. New York: Churchill Livingstone, 2001.