SUBJECT DESCRIPTION FORM

SUBJECT CODE: HTI4238

SUBJECT TITLE: Upper Limb Orthotics

CREDITS: 2

PRE-REQUISITES: HTI2121 Introduction to Biomechanics
HTI2122 Mechanics of Tissues and Biomaterials

CO-REQUISITIES: HTI3141 Orthopaedics, Traumatology and Rehabilitation

RESPONSIBLE DEPARTMENT: Department of Health Technology & Informatics

RESPONSIBLE MEMBER OF THE ACADEMIC STAFF:
Dr. M.S. WONG

CONTACT HOURS:	Lecture & Tutorial	21 hours
	Laboratory	21 hours
	Total Contact	42 hours

RATIONALE:
This is part of the Orthotics Studies, which provides students with the principles and practical laboratory experiences in the prescription, design, fabrication, fitting and evaluation of orthotic devices. The series progressively integrate the health and engineering studies, which the students have taken as part of their academic studies. Those academic studies will form the basis for the derivation of the scientific principles used in the practice of upper limb orthotics.

LEARNING OUTCOMES:
Students will be able to carry out the following procedures, in a safe manner, according to the patients' conditions.

- To assess the patients
- To prescribe orthotic interventions
- To take measurement on the patients
- To design appropriate orthotic devices
- To perform the technical process
- To fit the orthoses
- To evaluate the interventions
- To communicate with the patients effectively

SYLLABUS:
Detailed review of the relevant anatomy; basic biomechanics of upper extremity; pathomechanics of upper extremity; introduction to upper limb orthotics; clinical assessment of upper extremity; materials and components; biomechanics of upper limb orthotics; upper limb orthotics for different disorders and clinical conditions.

TEACHING-LEARNING METHODS:
The 21 hours of lectures and tutorials will be supported by 21 hours of demonstrations, and

hands-on practical experience. The subject is to integrate the theoretical knowledge and the technical skills in a way that is important to patient care and management. Students will need to go through step by step the clinical process of patient assessment, patient measurement, casting, cast rectification, fabrication, patient fitting, and patient evaluation. Besides the development of technical skills, emphasis is placed on the development of clinical judgement and the process of clinical problem solving. Direct feedback from the professional patients/subjects at various stages, as well as from the instructors throughout the process, would constitute important inputs to the learning experience. In the process, subjects will also learn how to interact with the patients. At the end of a practical series, students will be guided to critique the work of other fellow students under the facilitation of the instructor. This is done to maximize the learning experience by learning not only from one's own mistakes but also from those of the fellow students.

ASSESSMENT:

Each of the individual learning outcomes will be assessed as part of the integrated outcome demonstrated by the student in patient care. Individual orthotic design and fitting projects will be assessed with direct feedback from the model patients/subjects at various stages, as well as from the instructors throughout the process. In the process, students will also learn how to interact with the patients. At the completion of assigned individual projects, students will be guided to critique the work of other fellow students under the facilitation of the instructor. This is done to maximize the learning experience by learning not only from one's own experience but also from those of the fellow students.

A final examination will be used to establish that the student has understood and can integrate the factual materials required to provide upper limb orthotics service.

Continuous Assessment	50% (must pass)
Final Examination	50% (must pass)

REFERENCE MATERIALS:

1. Cannon N.M., Foltz R.W., Koepfer J.M., Lauck M.F., Simpson D.M. and Bromley R.S. Manual of Hand Splinting, 1985.
2. Fess E.E. and Philips C.A., Hand Splinting Principles and Methods, 1987.
3. Goldberg B. and Hsu J.D., Atlas of Orthoses and Assistive Devices, 1997.
4. Hunter J. and Schneider L., Rehabilitation of the Hand: Surgery and Therapy, 1995.
5. Hunter J., Schneider L., Mackin E. and Callahan A., Rehabilitation of the Hand, 1990.
6. Jacobs M. and Austin N., Splinting: the hand and upper extremity, Lippincott Williams & Wilkins, 2003.
7. Kessel L. and Boundy U., A Colour Atlas of Clinical Orthopaedics, 1980.
8. Malick M.H., Manual on Dynamic Hand Splinting with Thermoplastic Materials, Harmarville Rehabilitation Center, 1978.
9. Malick M.H., Manual on Static Hand Splinting, Harmarville Rehabilitation Center, 1985.
10. Malick M.H. and Kasch M.C., Manual on Management of Specific Hand Problems, 1984.
11. Philips F., Hand Splinting: Principles and Methods, 1987.
12. Redford J.B., Orthotics Etcetera, 1986.
13. Redford J.B., Basmajian J.V. and Trautman P., Clinical Practice and Rehabilitation Technology, 1995.
14. Rose G.K., Orthotics: Principles and Practice, 1986.
15. Salter M.I., Hand Injuries: A Therapeutic Approach, 1987.
16. The Hand: Examination & Diagnosis, American Society for Surgery of the Hand, 1990.
17. The Hand: Primary Care of Common Problems, American Society for Surgery of the Hand, 1990.
18. Ziegler E.M., Current Concepts in Orthotics: A Diagnosis-Related Approach to Splinting, 1984.