SUBJECT DESCRIPTION FORM

SUBJECT CODE:      HTI3122

SUBJECT TITLE:     Biomaterials Science and Engineering

CREDITS:           3

PRE-REQUISITES:    Nil

RESPONSIBLE DEPARTMENT: Department of Health Technology & Informatics

RESPONSIBLE MEMBER OF THE ACADEMIC STAFF:

Dr. Mo YANG

CONTACT HOURS:

  Lecture:   39 hours
  Lab:        3 hours
  Total:      42 hours

RATIONALE:

This is a general subject on biomaterials. It provides the students with the knowledge of commonly used materials in medicine and some fundamentals in biomaterials science.

LEARNING OUTCOMES:

On successful completion of this subject, the student will be able to:
1. Apply a broad knowledge of materials in biomaterials science and engineering;
2. Use the biomaterials surface modification methods and characterization;
3. Analyze biocompatibility and tissue-material interaction for different kinds of biomaterials;
4. Compare the mainstream biomaterials currently used for medical applications.
SYLLABUS:

Introduction; Biomaterials defined; Structure and property of biomaterials; Processing, structure and property of biomaterials; Biopolymers; Biomaterials surface modification methods; Surface characterization tools; Interaction between human body environment and biomaterials; Hard and soft tissue replacement materials; New trends, standards and regulations.

TEACHING-LEARNING APPROACH:

Students are required to attend the class, read the reference books, and attend laboratories and demonstrations. They are exposed to various areas in biomaterials science and engineering and taught about requirements, principles and theories involved which are assisted by clinical examples. Students’ knowledge is tested by quizzes during the course and the final exams.

ASSESSMENT:

60% continuous assessment (Assignments, Class Quiz, Lab report)
40% individual project paper

Note: To pass this subject, students must obtain grade D or above in both continuous assessment and final examinations.

REFERENCE BOOKS
