The Hong Kong University of Science and Technology

UG Course Syllabus

Introduction to Biosensors and Bioinstrumentation

ELEC 4810

Credits: 4

Pre-requisites: ELEC 2400 OR ELEC 2420

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Course Description

This course builds on the fundamental knowledge of biosensors and bioinstrumentation. Lectures and hands-on laboratory experiments cover: (1) Basic concepts of biomedical signal analysis; (2) Measurements of bioelectrical, biomechanical and biochemical signals for medical diagnosis and clinical monitoring; (3) Principles of biosensors and biochips; (4) Simple design of new bioinstrumentation and biosensor to solve biomedical problems.

Assessments:

Assessment Task	Contribution to Overall Course grade (%)
Mid-Term	18%
Homework	12%
Laboratory	24%
Final examination	46%

Required Texts and Materials

Textbook(s):

John G. Webster, Medical Instrumentation: Application and Design, 4th edition

Reference Books/Materials:

1. Joseph J. Carr and Johyn M. Brown, Introduction to Biomedical Equipment Technology, 4th edition, 2001
2. Joseph. D. Bronzino, Biomedical engineering and instrumentation: basic concepts and applications
3. Richard Aston, Principles of biomedical instrumentation and measurement
4. Walter Welkowitz, Biomedical instruments: theory and design
5. A. Edward Profio, Biomedical engineering