HO CHI MINH CITY UNIVERSITY OF TECHNOLOGY AND EDUCATION

FACULTY OF ELECTRICAL AND ELECTRONICS ENGINEERING

Programme: Biomedical Engineering

Programme Level: Undergraduate

Syllabus

1. **Course name:** Special Topic in Biomedical Engineering
2. **Course code:** PREL311065
3. **Credits: 3** credits (3:0:6) (3 lecture periods, 0 lab period, 6 self-study periods per week)
4. **Instructors**
   a. Chief lecturer: Assoc. Prof. Dr. Nguyen Thanh Hai
   b. Co-lecturers: Dr. Nguyen Manh Hung
5. **Course Requirements**

Prerequisite course(s): None

Previous course(s): Microprocessor, Biomedical Signal Processing, Biomedical Image Processing, Health Information Systems

6. **Course Description**

This course aims to provide learners with basic knowledge about machines and experiments, software applied in biomedical engineering, as well as understanding medical devices in general. Therefore, students will study skills for build and design of effective and practical experiment models. In addition, special topics will provide skills to find reliable international articles, as well as how to write quality scientific articles.

7. **Learning Outcomes (CLOs)**

CLOs	**Descriptions** *On successful completion of this course students will be able to:*	**ELO(s) /PI(s)**	**Compe-tency**
CLO1	Apply basic knowledge related to equipment and machines in biomedical experiments	ELO1/PI1.2	R
CLO2	Ability to apply methods of analysis, testing, evaluation and data representation	ELO4/PI4.2	R
CLO3	Ability to analyze for the application to store information, to have skills to write scientific articles	ELO7/PI7.1	R
CLO4	Ability to evaluate and change in the design and construction of biomedical systems	ELO8/PI8.1	R

8. **Content outline**

- Introduction to the topic
- Learn documents, collect and learn the principles of machines related to medical equipment such as Optical Microscope, Confocal microscope, Scanning electron microscope, Transmission electron microscope; ELISA Reader; Fiber Optic Thermometer and Optical Emission Spectroscopy; Optical Coherence Tomography; Laser Doppler
- Learn some application software of medical equipment
- Analyze the results, the activities you give directions for effective application and use
- Learn and learn skills to find reliable and high-quality scientific articles
- Learn and learn the method of writing scientific articles

9. **Teaching Methods**

- *Powerpoint presentation*
- *Teamwork*

10. Assessment(s)

- Grading scale: **10**
- Assessment plan:

No.	Content	CLOs	Compe-tency	Assessment methods	Assessment tools	Weighting %
Formative assessment						**50**
1	Apply device principles in biomedical engineering and applications	CLO1	R	Multichoice Questions	Online sheets/paper sheets	20
2	Demonstrate and apply medical devices	CLO4	R	Multichoice Questions	Rubric	30
Summative assessment						**50**
3	Report on analytical skills, writing articles related to medical devices	CLO2, CLO3	R	Written/Oral	Rubric	50

11. Learning Materials

- Textbook(s):

  [1] Donald R. Peterson, Joseph D. Bronzino, Biomechanis: Principles and Applications, Second Edition 2nd Edition, Kindle Edition, 2008

- References:

  [1] Y.C. Fung Biomechanics: Mechanical Properties of Living Tissues, Springer, 1993.

12. General Information:

Academic Integrity

All students in this class are subject to HCMUTE's Academic Integrity Policy (http://sao.hcmute.edu.vn/) and should acquaint themselves with its content and requirements, including a strict prohibition against plagiarism. Any violations will be reported to the Faculty of Electrical and Electronic Engineering Dean's office.

Flexibility Notice

Any information in this syllabus (other than grading and absence policies) may be subject to change with reasonable advanced notice. Students need to regularly update the information of their registered class.

Intellectual Property

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13. Approval Date: *<dd/mm/yyyy>*

14. Endorsement:

Dean	Head of Department	Chief Lecturer
Assoc. Prof. Dr. Nguyen Minh Tam	**Assoc. Prof. Dr. Nguyen Thanh Hai**	*<Full Name>*

15. Revision History:

1st Revision: <*dd/mm/yyyy*>	Lecturer: Head of Department: **Assoc. Prof. Dr. Nguyen Thanh Hai**
2nd Revision: <*dd/mm/yyyy*>	Lecturer: Head of Department: