STUDY PROGRAM :

BIOMEDICAL ENGINEERING

International University Liaison Indonesia

IULI

COURSE OUTLINE

Biomedical engineering is a multidisciplinary field combining engineering, basic sciences and medicine. It aims to improve human health through activities that integrate the engineering sciences with the biomedical sciences and clinical practice.

Biomedical Engineers develop devices and procedures that solve medical and health-related problems by combining their knowledge of biology and medicine with engineering principles and practices. Many do research along with medical scientists to develop and evaluate products such as various medical instrumentations, medical imaging systems, medical diagnosis and therapeutic systems, artificial organs, prostheses (artificial devices that replace missing body parts), medical information systems as well as health management systems.

Furthermore, Biomedical Engineers can also design devices used in various specific medical procedures such as magnetic Resonance Imaging (MRI), PET/CT Scan (Positron Emission Tomography/Computed Tomography), automated devices for injection of medicine, as well as developing the technology in biomechanics, and the more novel techniques in biomaterial engineering.

The ageing of the population and a growing focus on health issues will drive demand for better medical devices and equipment designed by biomedical engineers. Along with the demand for more sophisticated medical equipment and procedures, an increased concern for cost effectiveness will boost demand for biomedical engineers.

FIELDS OF ACTIVITIES

Employment of biomedical engineers is projected to grow 27 percent from 2012 to 2022; this is much faster than the average for all other occupations. Demand will be strong because an ageing population is likely to need more medical care and because of increased public awareness of biomedical engineering advances and their benefits (based on Occupational Outlook Handbook of the U.S. Bureau of Labour Statistics). Biomedical engineers work in the manufacturing of medical equipment, as university lecturers, as hospital managers, in the research facilities of companies and educational or medical institutions, in government regulatory agencies, and as entrepreneurs.

DOUBLE DEGREE AND ELECTIVE INTERNSHIP IN EUROPE

Furthermore, as part of our international programme, students will enjoy the experience of conducting cutting edge research in a German university. Added to an elective internship program in Europe, this will become their pathway to acquiring a double degree from Germany. Hence, our graduates will have substantial advantages when they are starting their national or international career, or continuing with higher education in Indonesia or abroad.

Photo: International University Liaison Indonesia

CURRICULUM 2017-2018

Date/ Rev : 27 September 2016/ Rev. 4
Program : Bachelor
Valid : Batch 2016-2019

STUDY PROGRAM : BIOMEDICAL ENGINEERING

SUBJECT	1	2	3	4	5	6	7	8	Total
University Compulsory Subjects									
English	2	2	2	2	2	1			11
Fundamentals of Computer Science	2								2
E-Commerce			2						2
Environmental Sciences		2							2
Innovation and Product Development					2				2
Statistics & Probability		2							2
Research Semester in Germany							6		6
Research Methodology						2			2
Ethics and Religious Philosophy					2				2
Pancasila		2							2
Civics				2					2
Indonesian Language and Culture						2			2
Oral Final Study Examination (OFSE)						0			0
Thesis								6	6
Elective: Internship/Project								3	3
Total	**4**	**8**	**4**	**4**	**6**	**5**	**6**	**9**	**46**
Faculty Compulsory Subjects									
Calculus and Linear Algebra I & II	3	3							6
Material Science	2								2
Biology	3								3
Chemistry	2								2
Chemistry Laboratory		1							1
Physiscs I & II	3	3							6
Physiscs Laboratory I & II	1	1							2
Algorithms, Programming, Data Structure		3							3
Organic Chemistry		3							3
Organic Chemistry Laboratory			1						1
Applied Mathematics			3						3
Biochemistry			3						3
Engineering Economy					2				2
Total	**14**	**14**	**7**	**0**	**2**	**0**	**0**	**0**	**37**
Department Compulsory Subjects									
Introduction to Life Science	1								1
Basic Electrical Circuits and Laboratory	3								3
Electronic Devices and Circuits			4						4
Computer Network			2						2
Anatomy and Physiology			3						3
Electromagnetic Field			2						2
Embedded System design				3					3
Embedded System design laboratory					1				1
Sensor and measurement system				2					2
Biomedical Instrumentation 1 & 2				3	3				6
Biomedical Instrumentation Laboratory 1 & 2				1	1				2
Biosignal Processing						2			2
Signals and Systems				3					3
Medical Biology				2					2
Medical Imaging						4			4
Biomechanics						3			3
Digital Signal Processing					4				4
Biomedical Engineering Capstone Design						4			4
Biophysics					3				3
Elective Subjects (*)									
Biomaterials Engineering I & 2				2	2				4
Pattern Recognition						2			2
Data Analysis					2				2
Nuclear Medicine						2			2
Advances in Engineering Research I and II				2		2			4
Total	**4**	**0**	**11**	**18**	**16**	**19**	**0**	**0**	**68**
Total 1, 2, 3	22	22	22	22	24	24	6	9	151
LANGUAGE EXTRACURRICULAR									
German	2	2	2	2	2	2			12

* courses offered may change between semesters

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