

STUDY PROGRAM

BIOMEDICAL ENGINEERING

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 program, 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 : 08 AUGUST 2017/ Rev. 08
 Program : Bachelor
 Valid : Batch 2017-2018

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SUBJECTS									
University Compulsory Subjects	1	2	3	4	5	6	7	8	Total
English	2	2	2	2	1	1			10
Computer Network & IT Security	2								2
Applied Statistics		2							2
Research Methodology		2							2
Environment Sciences			2						2
Civics				2					2
Ethics and Religious Philosophy					2				2
Innovation & Product Development					2				2
E-Commerce						2			2
Indonesian Language & Culture						2			2
Pancasila						2			2
Oral Final Study Examination (OFSE)						0			0
Research Semester							6		6
Internship / Project								3	3
Thesis / Thesis Defense								6	6
Total	4	6	4	4	5	7	6	9	45
Life Sciences Faculty Compulsory Subjects	1	2	3	4	5	6	7	8	Total
Introduction to Life Science	1								1
Physics & Laboratory 1, 2	3	3							6
Mathematics 1, 2	3	3							6
Physics & Laboratory 1, 2	3	3							6
Applied Mathematics			3						3
Numerical Methods				2					2
Chemistry	2								2
Chemistry Laboratory		1							1
Organic Chemistry		3							3
Organic Chemistry Laboratory			1						1
Electrical Engineering & Laboratory 1, 2	3	3							6
Material Science	2								2
Biology	3								3
Biochemistry			3						3
Algorithm Programming 1, 2	3	3							6
Engineering Economy					2				2
Metrology and Quality Control			2						2
Total	20	16	9	2	2	0	0	0	49
Biomedical Compulsory Subjects	1	2	3	4	5	6	7	8	Total
Electrical Magnetic Fields			3						3
Microcontroller & Embedded System Design				3					3
Electronic Devices & Circuits 1, 2			2	2					4
Digital Signal Processing					3				3
Anatomy & Physiology			3						3
Signal & Systems 1, 2				2	2				4
Biomedical Instrumentation 1, 2				3	3				6
Biomedical Instrumentation Laboratory 1, 2				1	1				2
Medical Biology				2					2
Medical Imaging						4			4
Biophysics			3						3
Biomechanics					3				3
Biomedical Engineering Capstone Design						4			4
Elective Subjects				4	3	5			8
Total	0	0	11	17	15	13	0	0	56
Total 1, 2, 3	24	22	24	23	22	20	6	9	150
Extra Curricular	1	2	3	4	5	6	7	8	Total
German Language	2	2	2	2	2	2			12
Total	2	2	2	2	2	2	0	0	12

Subject to change

The actual implementation follows the internal arrangements & policy of the Department & Faculty

File: BME-Flyer-Aug-2017

Print Date: 10 Aug 2017, 200 exp