

FACULTY OF LIFE SCIENCES AND TECHNOLOGY
DEPARTMENT OF PHARMACEUTICAL ENGINEERING

Semester 1			Semester 2		
Course	SKS	ECTS	Course	SKS	ECTS
English 1	2	3	English 2	2	3
Calculus and Linear Algebra 1	3	4	Calculus and Linear Algebra 2	3	4
Physics 1	2	3	Physics 2	2	3
Physics 1 Laboratory	1	2	Physics 2 Laboratory	1	2
Chemistry 1	3	4	Chemistry 2	3	4
Chemistry 1 Laboratory	1	2	Chemistry 2 Laboratory	1	2
Introduction to Programming (IT)	3	4	Engineering Statistics	3	4
Technical Drawing	2	3	Ethics and Religious Philosophy	2	3
Introduction to Electrical Engineering	2	3	Microbiology	2	3
Biology	2	3	Microbiology Lab	1	2
Total mandatory	21	31	Total mandatory	20	30
Extracurricular Courses			Extracurricular Courses		
German Language and Culture 1	2		German Language and Culture 2	2	
Mandarin Language and Culture 1	2		Mandarin Language and Culture 2	2	
TOTAL	25	31	TOTAL	24	30

Semester 3			Semester 4		
Course	SKS	ECTS	Course	SKS	ECTS
Internship 1 (Indonesia)	3	10	English 3	2	3
Good Manufacturing Practice (GMP) and Pharmaceutical Code	2	3	Pancasila and Civic	3	4
Introduction to Pharmaceutical Engineering	2	3	Pharmaceutical Engineering Unit Operations	3	4
Material and Energy Balance	3	4	Heat and Fluid Transfer	4	6
Transport Phenomena	2	3	Thermodynamics	3	4
Analytical Instrumentation	2	3	Thermodynamics Laboratory	1	2
Pharmaceutical Chemistry	3	4	Physical Chemistry	3	4
Pharmaceutical Chemistry Laboratory	1	2	Chemical Reactions and Kinetics	3	4
Total mandatory	18	32	Total mandatory	22	31
Extracurricular Courses			Extracurricular Courses		
			German Language and Culture 3	4	
			Mandarin Language and Culture 3	4	
TOTAL	18	32	TOTAL	30	31

Semester 5			Semester 6		
Course	SKS	ECTS	Course	SKS	ECTS
English 4	2	3	Internship 2 (abroad)	6	30
Indonesian Language	2	2			
Elective subject 1	3	4			
Pharmaceutical Engineering Unit Operations Laboratory	2	2			
Process Equipment Design	3	4			
Separation Technology	3	4			
Engineering Mathematics	4	6			
Elective subject 2	2	3			
Total mandatory	21	28			
Extracurricular Courses					
German Language and Culture 4	4				
Mandarin Language and Culture 4	4				
TOTAL	29	28	TOTAL	6	30

Semester 7			Semester 8		
Course	SKS	ECTS	Course	SKS	ECTS
English 5	2	3	Oral Final Study Examination (OFSE)	3	4
Plant Safety Operations	2	3	Thesis	6	15
Research Methodology	2	3	Technopreneurship	2	3
Elective subject 3	3	4	Energy Policy	3	4
Engineering Economy and Analysis	2	3	Total mandatory	14	26
Plant Design	4	6	TOTAL	14	26
Pharmaceutical Material & Formulation	2	3			
Process Control	2	3			
Critical Utility & Waste treatment	3	4			
Total mandatory	22	32			
TOTAL	22	32	TOTAL	14	26

Elective subjects (Semester 5)			Elective subjects (Semester 7)				
Elective 1	Bioprocess Engineering	3	4	Elective 3	Pharmaceutical Industry Facility	3	4
	Reactor Engineering	3	4		Pharmaceutical Quality Control System	3	4
Elective 2	Herbal and Traditional Industry	2	3				
	Materials Science	2	3				