

Course – Handbook

Bachelor

in

Industrial Engineering – INE (Faculty of Engineering)

Industrial Engineering

International University Liaison Indonesian
IULI-Eco-Campus "The Breeze"
Bumi Serpong Damai 15345

Island of Java / Indonesian

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Description of Industrial Engineering Course

Industrial Engineering is an interdisciplinary engineering sciences with respect to manufacturing/production engineering, information engineering and technology, management sciences, and sciences related to human factors. Industrial Engineerings determine the effective method to use industrial resources such as machines, energy, information, organization, and human, to make right products and/or services at a right time and right quality with right cost.

The courses offered at IULI is designed to be focused into the domain of production environment and all activities involved with factories. The courses are design to be balanced between theory, methodology, the exposure to industrial applications, and the usage of software tools for analysis and synthesis. Industrial cases, especially related to production activities are brought to the academic environment to provide better and appropriate proposed solutions, related to productivity and efficiency in term of product, cost, time, and quality.

The Bachelor of Science in Industrial Engineering degree program will receive the necessary competences for the development of industrial systems related with products and services business processes, industrial engineering management and accounting, computer-based technology knowledge, human related factors within a holistic industrial system. They learn starting from abstract idea of products or services, setting up design and production facilities, quality engineering, continue further to develop the products, until product to be absorbed by the market. They establish as a system wide thinking within production process business.

Field of activities

Industrial engineers determine the most effective ways to use the basic factors of production—people, machines, materials, information, and energy - to make a product or provide a service. They are concerned primarily with increasing productivity through the management of people, methods of business organization, and technology. They working area are, and but not limited to

- Industrial Product Design and Development
- Manufacturing/Production Systems Design, Analysis, and Development
- Integration of Manufacturing/Production Systems through Information Technology
- Industrial Economics and Management
- Performance Measurement, Optimization, Analysis and Synthesis of Industrial Systems
- Human Factor in Engineering (Ergonomics, Industrial Psychology, Industrial Sociology)

- Energy Conservation of Industrial Environment
- Industrial System Safety, Health, Maintenance and Management
- Industrial System Engineering

Qualification System in Indonesia

General

IULI's bachelor's study program in Industrial Engineering can be completed after taking a minimum of 155 credit hours (Satuan Kredit Semester / SKS), offered in eight regular semesters.

An academic year at IULI consists of two regular semesters, namely odd and even semester, and optional short semester. The odd regular semester starts in July and ends in December. The even semester starts in January and ends in June. The academic activities within a semester takes 17 weeks, which consists of 7 weeks first term, 1 week midterm break, 7 weeks second term, and 2 weeks of final exam term.

In a regular semester, 1 SKS of a course is equivalent to 1 hour lecturing, 1 hour structured learning (tutorial, homework, or field trip), and 1 hour independent learning per week. Therefore, a student may enroll for between 20 and 24 SKS in each of semester 1-6. At 7th semester, most of student will follow research semester at partner university abroad that may lead to their thesis research. At semester 8, student may choose to continue with industrial internship abroad for 3 to 4 months, or performing academic/industrial project. Further, all of them prepare thesis report at semester 8.

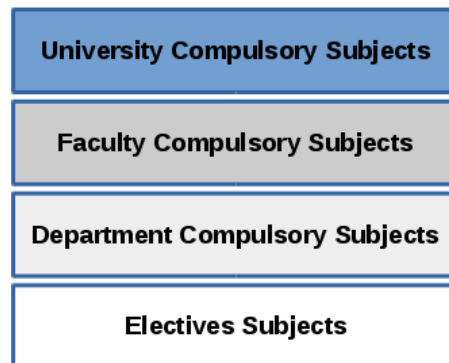
One semester is equivalent to 30 ECTS (European Credit Transfer System) or 1 SKS is approximately equivalent to 1.25 ECTS.

Scores (Refer to The Academic Regulation, Academic Year 2016-2017)

Grade Letter	Grade Wording	IULI	Indonesian Grade Points (GP)	Germany Grade Point	Grade Description	Student Representation
A	Excellent	86 - 100	4	1	Outstanding performance	10%
B	Good	71 - 85	3.0 - 3.9	2	Performance is considerably higher than the average requirements	25%
C	Satisfactory	56 - 70	2.0 - 2.9	3	Performance meets the average requirements	30%
D	Poor	46 - 55	1.0 – 1.9	4	Performance is poor and likely to lead to failure	25%
F	Fail	< 45	0	5	Performance does not meet the minimum criteria. Considerable further work is required	10%

Course Contents, Progress and Organisation

Program Structure (Four Years)



University Compulsory Subjects (in SKS) – Based on Curriculum 2017-2018

	Subjects	Abr.	1	2	3	4	5	6	7	8	Total
1	English	ENGL	2	2	2	2	1	1			10
2	Fundamentals of Computer Technology	FCOM	2								2
3	E-Commerce	ECOM						2			2
4	Environment Sciences	ENVI			2						2
5	Innovation & Product Development	PROD					2				2
6	Statistics & Probability	MATH				2					2
7	Research	RESC							6		6
8	Research Methodology	RESC						2			2
9	Ethics and Religious Philosophy	GENR					2				2
10	Civics	GENR				2					2
11	Indonesian Language & Culture	GENR						2			2
12	Pancasila	GENR		2							2
13	Oral Final Study Examination (OFSE)	OFSE						0			0
14	Elective : Internship / Project	INSP								3	3
15	Thesis / Thesis Defense	THES								6	6
	Total		4	4	4	6	5	7	6	9	45

Faculty Compulsory Subjects (in SKS)

	Subjects	Abr.	1	2	3	4	5	6	7	8	Total
1	Applied Chemistry & Material Science	ACMS	3								3
2	Calculus & Linear Algebra	MATH	3	3							6
3	Physics & Laboratory	PHYS	4	4							8
4	Algorithm, Programming & Data Structure	PROG	3	3							6
5	Technical Drawing	TDRW	3								3
6	Manufacturing Processes & Systems	MFGS		2							2
7	Applied Mathematics	MATH			3						3
8	Elective in Engineering Science	EENG				2					2
9	Engineering Economy	EECO					2				2
10	Engineering Management	EMGT						2			2
	Total		16	12	5	2	2	2			37

Department Compulsory Subjects (in SKS)

	Subjects	Abr.	1	2	3	4	5	6	7	8	Total
1	Introduction to Industrial Engineering	IINE	1								1
2	Industrial Electronics & Laboratory	IELE	3	3							6
3	Statics & Mechanics of Materials	MECH		4							4
4	Machine Elements	MELM			3						3
5	Manufacturing Processes Laboratory	MFGS			2						2
6	Industrial Sociology	ISOC			2						2
7	Cost & Management Accountancy	CMAC			3						3
8	Operations Research	OPRS			3	2					5
9	Ergonomics & Human Factor Engineering	EHFE				3					3
10	Industrial Psychology	IPSY				2					2
11	Material & Metal Forming	MFGS				3					3
12	Production Planning & Inventory Control	PPIC				4					4
13	Robotics & Automation	AUTO				2	2				4
14	Industrial Metrology & Quality Control	IMQC			2						2
15	Assembly & Manufacturing Support Technique	MFGS					2				2
16	Logistics & Supply Chain Engineering	LSCE					3				3
17	Industrial Engineering Systems Design	IESD					3	3			6
18	Enterprise Information Systems (DBMS + MIS)	EISY						3			3
19	Systems Modeling & Simulation	SMSI						3			3
20	Elective 1 *)						3				3
21	Elective 2 *)						3				3
22	Elective 3 *)							3			3
23	Elective 4 *)							3			3
	Total		4	7	15	16	16	15	0	0	73

*) Elective 1, 2, 3, and 4 can be selected from Department Elective 1,2,3 and 4 subjects

*) choose only one subject from each department electives

Department Elective 1 Subjects (in SKS)

	Subjects	Abr.	SKS
1	Manufacturing Maintenance Systems	MMSY	3
2	Scheduling	SCHE	3
3	Design for Manufacturing	DFMG	3
4	Manufacturing Execution Systems	MESY	3

Department Elective 2 Subjects (in SKS)

	Subjects	Abr.	SKS
1	Strategic Management	MGNT	3
2	Human Resource Management	HRMN	3
3	Management of Energy	MGNT	3
4	Organisational Behavior & Development	MGNT	3

Department Elective 3 Subjects (in SKS)

	Subjects	Abr.	SKS
1	Artificial Intelligence	ARTI	3
2	Computer Aided Design & Computer Aided Manufacturing	CADM	3
3	Process Planning	PRPL	3
4	Forecasting Method	FRMT	3

Department Elective 4 Subjects (in SKS)

	Subjects	Abr.	SKS
1	Decision Support Systems	DSSY	3
2	Product & Manufacturing Cost Estimation	PMCE	3
3	Enterprise Resource Planning (ERP)	ERPL	3
4	Factory Planning	FCPL	3

Extra Curricular Subjects (in SKS)

	Subjects	Abr.	1	2	3	4	5	6	7	8	Total
1	German Language 1 *)	GERM	2	2	2	2	2	2			12
2	German Language 2 **)	GERM	2	2							4
3	Mandarin Language	MAND	2	2	2	2	2		2		12
4	Business Arabic	ARAB	2	2	2	2	2		2		12

*) Mandatory for internship in Germany

***) Presemester Course (Final Exam in Germany)

Study Plan (Four Year Program)

First Year (Freshman)

	Code	Subject	SKS Le/Ex/La		Code	Subject	SKS Le/Ex/La
Semester 1				Semester 2			
1.1	ENGL-1110	English 1	2/0/0	2.1	ENGL-1120	English 2	2/0/0
1.2	FCOM-1000	Fundamentals of Computer Technology	2/0/0	2.2	GENR-1000	Pancasila	2/0/0
1.3	CHEM-1800	Applied Chemistry & Material Science	3/0/0	2.3	MATH-1120	Calculus & Linear Algebra 2	3/0/0
1.4	MATH-1110	Calculus & Linear Algebra 1	3/0/0	2.4	PHYS-1120	Physics 2 & Laboratory	3/0/1
1.5	PHYS-1110	Physics 1 & Laboratory	3/0/1	2.5	PROG-1120	Algorithm, Programming & Data Structure 2	3/1/0
1.6	PROG-1110	Algorithm, Programming & Data Structure 1	3/1/0	2.6	MFG-1100	Manufacturing Processes & Systems	2/0/0
1.7	TRDW-1000	Technical Drawing	2/0/0	2.7	IELE-1120	Industrial Electronics 2 + Lab	2/0/1
1.8	IINE-1000	Introduction to Industrial Engineering	1/0/0	2.8	MECH-1200	Statics & Mechaics of Materials	4/0/0
1.9	IELE-1110	Industrial Electronics 1 + Lab	2/0/1	2.9	GERM-1020*	German Language & Culture 2	2/0/0
1.10	GERM-1010*	German Language & Culture 1	2/0/0				
		Total	23/1/2			Total	23/1/2

Second Year (Sophomore)

	Code	Subject	SKS Le/Ex/La		Code	Subject	SKS Le/Ex/La
Semester 3				Semester 4			
3.1	ENGL-2130	English 3	2/0/0	4.1	ENGL-2140	English 4	2/0/0
3.2	ENVI-2000	Environmental Science	2/0/0	4.2	MATH-2500	Statistics & Probability	2/0/0
3.3	MATH-2200	Applied Mathematics	3/0/0	4.3	GENR-2300	Civics	2/0/0
3.4	MELM-2100	Machine Elements	3/0/0	4.4	ELEN-2000	Elective in Engineering Science	2/0/0
3.5	MFGS-2110	Manufacturing Processes Lab.	0/0/2	4.5	OPRS-2120	Operation Research 2	2/0/0
3.6	ISOC-2000	Industrial Sociology	2/0/0	4.6	EHFE-2000	Ergonomics & Human Factor Engineering	3/0/0
3.7	CMAC-2100	Cost & Management Accountancy	3/0/0	4.7	IPSY-2000	Industrial Psychology	2/0/0
3.8	OPRS-2110	Operation Research 1	3/0/0	4.8	MFGS-2200	Material & Metal Forming	3/0/0
3.9	IMQC-2100	Industrial Metrology & Quality Control	2/0/0	4.9	PPIC-2000	Production Planning & Inventory Control	4/0/0
3.10	GERM-2030*	German Language & Culture 3	2/0/0	4.10	AUTO-2010	Robotics & Automation 1	1/0/1
				4.11	GERM-2040*	German Language & Culture 4	2/0/0
		Total	22/0/2			Total	25/0/1

*Extra Curricular Subject

Third Year (Junior)

	Code	Subject	SKS Le/Ex/La		Code	Subject	SKS Le/Ex/La
Semester 5				Semester 6			
5.1	ENGL-3150	English 5	1/0/0	6.1	ENGL-3160	English 6	1/0/0
5.2	PROD-3000	Innovation & Product Development	2/0/0	6.2	ECOM-3000	E-Commerce	2/0/0
5.3	GENR-3100	Ethics & Religious Philosophy	2/0/0	6.3	RESC-3010	Research Methodology	2/0/0
5.4	EECO-3000	Engineering Economy	2/0/0	6.4	EMGT-3000	Engineering Management	2/0/0
5.5	AUTO-3020	Robotics & Automation 2	1/0/1	6.5	GENR-3200	Indonesian Language & Culture	2/0/0
5.6	MGFS-3300	Assembly & Mfg. Support Technology	2/0/0	6.6	IESD-3020	Industrial Engineering Systems Design 2	2/0/1
5.7	LSCE-3000	Logistics & Supply Chain Engineering	3/0/0	6.7	EISY-3000	Enterprise Information Systems	3/0/0
5.8	IESD-3010	Industrial Engineering Systems Design 1	2/0/1	6.8	SMSI-3000	Systems Modeling & Simulation	2/1/0
5.9		Elective 1	3/0/0	6.9		Elective 3	3/0/0
5.10		Elective 2	3/0/0	6.10		Elective 4	3/0/0
5.11	GERM-3050*	German Language & Culture 5	2/0/0	6.11	GERM-3060*	German Language & Culture 6	2/0/0
				6.12	OFSE-3000	Oral Final Study Exam	0/0/0
		Total	23/0/2			Total	24/1/1

Specialization / Industrial Engineering Elective Subjects

	Code	Subject	SKS Le/Ex/La		Code	Subject	SKS Le/Ex/La
Elective 1				Elective 2			
E1.1	MMSY-3100	Manufacturing Maintenance Systems	3/0/0	E2.1	MGNT-4000	Strategic Management	3/0/0
E1.2	SCHE-3200	Scheduling	3/0/0	E2.2	MGNT-2100	Human Resource Management	3/0/0
E1.3	DMFG-3300	Design for Manufacturing	3/0/0	E2.3	MNEN-3300	Management of Energy	3/0/0
E1.4	MESY-3400	Manufacturing Execution Systems	2/1/0	E2.4	MGNT-2000	Organisational Behavior & Development	3/0/0
Elective 3				Elective 4			
E3.1	ARTI-3100	Artificial Intelligence	2/1/0	E4.1	DSSY-3100	Decision Support Systems	3/0/0
E3.2	CADM-3200	Computer Aided Design & Computer Aided Manufacturing	3/0/0	E4.2	PMCE-3200	Product & Manufacturing Cost Estimation	2/1/0
E3.3	PRPL-3300	Process Planning	2/1/0	E4.3	ERPL-3300	Enterprise Resource Planning	2/1/0
E3.4	FRMT-3400	Forecasting Method	3/0/0	E4.4	FCPL-3400	Factory Planning	2/0/1

Fourth Year (Senior)

	Code	Subject	SKS Le/Ex/La		Code	Subject	SKS Le/Ex/La
	Semester 7				Semester 8		
7.1	RESC-4020	Research (in Germany)	0/0/6	8.1	INTR-4000	Elective : Internship / Project	0/0/3
				8.2	THES-4010	Thesis	0/0/6
		Total	0/0/6			Total	0/0/9