

## Industrial Engineering

### Introduction

Industrial Engineering is a branch of engineering that engages in the study of how to describe, evaluate, design, modify, control, and improve the performance of integrated systems of people, materials, and technology, viewed over time and within their relevant context. Industrial engineering is unique in its blend of fundamental topics in mathematics, physical and engineering sciences knowledge with the principles and methods of engineering analysis and design. This field identifies human being as central contributors to the inherent complexity of such systems. Globalization has opened up more doors for service industries worldwide, which leads to an increased demand for industrial engineers. The Industrial Engineering curriculum at BINUS UNIVERSITY is structured to adapt the movement of globalization and tailored to the needs of the globalized world.

The study program emphasizes the application of engineering fundamentals with a balanced treatment of theory, design, and experience. Computer applications are integrated throughout the curriculum. Industrial Engineering department allows flexibility to its students to study certain topics in breadth and depth by offering three tracks: Supply Chain Engineering, Service Systems Engineering, and Manufacturing Systems Engineering.

Some of the core courses require the students to not only having a full grasp of the theoretical aspects but also on how to implement them in a time study analysis. The Industrial Engineering facilities are well-equipped in the areas of engineering graphics, industrial engineering systems design, and human performance. The laboratories are available for students to use during their study are but not limited to: Physics Lab, Manufacturing Process Lab, Technical Drawing Lab, Simulation Lab, Work Design, and Ergonomics Lab.

### Vision

Becoming a world class industrial engineering study program through advanced system and industrial digital transformation to fostering and empowering the society in building and serving the nation

### Mission

The missions of Industrial Engineering Department are:

1. Developing excellent characters through holistic approach that meets global standards
2. Resolving the nation's issues in Industrial Engineering field study through high impact research
3. Fostering BINUSIAN as lifelong learners through self-enrichment in adapting to new system engineering and technology
4. Empowering BINUSIAN to continuously serve society-based needs through industrial engineering applied technology
5. Being the main driver to enrich the BINUS Higher Education system by using Industrial Engineering knowledge and technology.

### Program Objectives

The objectives of the program are to:

1. Utilize appropriate engineering design methods and tools that are principal to work beneficially within their professions & communities.
2. Possess effective teamwork and leadership skills and commit to the standard of profession and ethical practice.
3. Continuously develop oneself to meet the evolving demands and increasing responsibilities of a successful career, to benefit the organization and society.

## Student Outcomes

After completing the study, graduates are:

1. Able to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. Able to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. Able to communicate effectively with a range of audiences
4. Able to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. Able to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. Able to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. Able to acquire and apply new knowledge as needed, using appropriate learning strategies

## Prospective Career of the Graduates

Industrial engineers are employed in manufacturing and service industries. The type of works industrial engineers are doing are but not limited to:

1. Manufacturing Industry: Inventory Management, Logistics, Operation Management, Production Management, and Warehousing.
2. Research and Development: Data Analysis, Environmental Protection and Preservation, and Human Factors Engineering.
3. Service Industry: Client Management, Commercial Banking and Real Estate, Financial Consulting, Health Systems, and Human Resource Consulting.
4. Business and Management: Business Strategy, Investment Banking, Management Analysis, Project Management, and Business Development.
5. Education: Teaching and Research, consulting.
6. Information Technology: Computer Integration, Database Design, Telecommunication, and Web Development.

## Curriculum

Industrial Engineering Program is about designing, modifying, controlling, and improving complex systems.

Therefore, a strong basis in the “queen of the sciences”, better known as mathematics, and computer science is a must in modeling and solving such complex systems. The Industrial Engineering curriculum is structured in such a way that the students should master the following scientific fields: mathematics, physics, humanities/social sciences, computer science and management, general engineering sciences, industrial engineering core, lab sciences, professional engineering practice, and industrial engineering specialization.

### Course Structure

Sem	Code	Course Name	SCU	Total
1	CHAR6013011	Character Building: Pancasila	2	20
	SCIE6004011	Physics I	4	
	SCIE6051011	Chemistry	3	
	MATH6014011	Calculus I	4	
	ENGR6093011	Technical Drawing**	2/1	
	SCIE6017011	Biology	2	
	ISYE6245011	Industrial Economy and Accounting	2	
	<b>Foreign Language Courses</b>		0	
2	CHAR6014011	Character Building: Kewarganegaraan	2	20
	LANG6027011	Indonesian	2	
	SCIE6061011	Physics II	4/1	
	MATH6016011	Calculus II	4	
	STAT6003011	Probability Theory	2	
	ISYE6181011	System Engineering & Analysis**	2	
	ISYE6157011	Human-Integrated Systems	2/1	
	<b>Foreign Language Courses</b>		0	
3	CHAR6015011	Character Building: Agama	2	20
	MATH6004011	Linear and Discrete Mathematics	4	
	MATH6019011	Calculus III	4	
	STAT6172011	Applied Statistics	2	
	ISYE6158011	Engineering Data Analysis	3	
	ISYE6123011	Deterministic Optimization*&**	3	
	ENTR6509001	Entrepreneurship: Ideation	2	
	<b>Foreign Language Courses</b>		0	
4	ISYE6207011	Stochastic Processes	2	20
	ENTR6510001	Entrepreneurship: Prototyping	2	
	ISYE6041011	Engineering Economy**	2	
	ISYE6186011	Production & Operation Analysis**	3/1	
	ISYE6113011	Leadership & Organizational Behavior*&**	2	
	ISYE6300011	Facility Planning and Safety Engineering	4	
	ISYE6182011	Supply Chain: Logistics*	2	
	ISYE6248011	Industry 4.0 and Implementation	2	
	<b>Foreign Language Courses</b>		0	
5	ENTR6511001	Entrepreneurship: Market Validation	2	20
	ISYE6163011	Research Methodology	2	
	ISYE6125011	Quality Engineering**	3	
	ISYE6185011	Systems Simulation**	3	
	<b>Stream : Supply Chain Engineering</b>			
	ISYE6164011	E-Supply Chain Management	2/1	
	ISYE6183011	Warehouse Management Systems	2	
	ISYE6301011	Data Science: Machine Learning	3	
	<b>Stream : Service Systems Engineering</b>			
	ISYE6166011	Dynamic Service Facility Design	2/1	

Sem	Code	Course Name	SCU	Total
	ISYE6066011	Human Interaction in Service Systems	2	
	ISYE6302011	E-Service and Usability Engineering	3	
	<b>Stream : Manufacturing Systems</b>			
	ISYE6184011	Manufacturing Processes	2/1	
	ENGR6005011	Mechanics of Materials	2	
	ISYE6303011	Smart Manufacturing	3	
	<b>Elective Supply Chain Engineering Courses***</b>			
	ISYE6067011	Global Supply Chain*	2	
	ISYE6165011	Supply Chain Risk & Negotiation	2	
	ISYE6115011	Transportation Modeling	2	
	<b>Elective Service Systems Engineering Courses***</b>			
	MKTG6128011	Market Research	2	
	ISYE6167011	Decision Support System	2	
	ISYE6168011	Financial Engineering*	2	
	<b>Elective Manufacturing Systems Courses***</b>			
	ISYE6130011	Project Management	2	
	ISYE6169011	Maintenance Management Systems	2	
	ISYE6170011	Sustainable Engineering Systems*	2	
	<b>Streaming: Industrial Digital Transformation<sup>1)</sup></b>			
	ISYE6305054	Digital Transformation Strategies	3	
	ISYE6306054	Digitalization Product Development	2	
	<b>Elective Industrial Digital Transformation Courses<sup>2)</sup></b>			
	<b>Elective Group-1</b>			
	ISYE6307054	Digital Logistics Management*&***	2/1	
	ISYE6267054	Warehouse & Inventory Systems	2	
	ISYE6308054	Procurement Principles	2	
	ISYE6269054	Sustainable Supply Chain Engineering	2	
	ISYE6268054	Data Science: Machine Learning.	2	
	ISYE6257054	Industrial 4.0 & Implementation	2	
	<b>Elective Group-2</b>			
	ISYE6271054	Sustainable Service Engineering	2	
	ISYE6272054	Service Innovation & Globalization	2	
	ISYE6309054	E-Services & Usability Engineering	2/1	
	ISYE6310054	E-Customer Relationship Management	2	
	ISYE6311054	Project Management	2	
	ISYE6312054	Lean Enterprise System	2	
	<b>Minor Program</b>		10	
	<b>Free Electives</b>		10	
6	<b>Enrichment Program I</b>		20	20
7	<b>Enrichment Program II</b>		20	20
8	ISYE6205011	Pre – Thesis	2	6
	ISYE6206011	Thesis	4	
	ISYE6171011	Thesis	6	
<b>TOTAL CREDIT 146 SCU</b>				

\*) This course is delivered in English

\*\*\*) Entrepreneurship Embedded

\*\*\*) Global Learning System Course

### Streaming/Free Electives:

-) For 5<sup>th</sup> Semester: Students are required to choose Streaming or Minor or Free Electives. For Free Electives, students are required to choose from the list of Free Electives in Appendix.

### English University Courses:

-) For 1<sup>st</sup> Semester: English University Courses I, student with score BINUS UNIVERSITY English Proficiency Test less than 500 will take English in Focus, and student with score test greater than or equal to 500 will take English for Business Presentation

-) For 2<sup>nd</sup> Semester: English University Courses II, student with score BINUS UNIVERSITY English Proficiency Test less than 500 will take English Savvy, and student with score test greater than or equal to 500 will take English for Written Business Communication

**Pre-thesis (2 SCU) & Thesis (4 SCU)** can be taken in the 6<sup>th</sup> and/or 7<sup>th</sup> semester by the students who meet the requirements from the Study Program/Program

### Appendix Foreign Language Courses

Foreign Language Courses		SCU
ENGL6253010	English for Frontrunners	0
ENGL6254010	English for Independent Users	0
ENGL6255010	English for Professionals	0
JAPN6190010	Basic Japanese Language	0
CHIN6163010	Basic Chinese Language	0

\*) This course is optional for students

1. Students with Binus University English Proficiency Test score less than 437 are required to take English for Frontrunners and English for Independent Users.
2. Students with Binus University English Proficiency Test score less than 520 are required to take English for Independent Users and English for Professionals.
3. Students with Binus University English Proficiency Test score equal to or greater than 520 are required to take English for Professionals. Additionally, students may choose to take either Basic Japanese Language or Basic Chinese Language.
4. Students are required to pass the foreign language courses before they take enrichment.
5. Students can see the requirements to pass the foreign language courses at BINUSMAYA – Beelingua.

### Minor Scheme

Minor Program	Semester 4
<b>Minor @ Binus Kemanggisan</b>	
Digital Ecosystem	v
Sustainable Development	v
Cross Cultural Communication	v
Interactive & Users Experience Design	v
Data Analytics	v
Robotic Process Automation	v
<b>Minor @ Binus Alam Sutera</b>	
Digital Transformation	v
<b>Minor @ Binus Bekasi</b>	
Virtual Services Experience	v
Culinary	v
<b>Minor @ Binus Semarang</b>	
Metaverse in Business	v

The minor programs can change anytime based on the trends of knowledge and industry each year. Students will receive information about the updated minor programs during the registration period.

### 1. Digital Ecosystem

#### Fundamental Courses

Course	SCU
COMP6683001 Introduction to Artificial Intelligence	2/2
ISYS6549003 Digital Innovation	4
COMP6937001 Current Trends in Technology	2
<b>Total SCU</b>	<b>10</b>

### 2. Sustainable Development

#### Fundamental Courses

Course	SCU
ISYE6154011 Sustainable Design and Manufacture	4
CPEN6217010 Digital for Sustainable Development	4
ARCH6119014 Introduction to Sustainable Development	2
<b>Total SCU</b>	<b>10</b>

### 3. Cross Cultural Communication

#### Fundamental Courses

Course	SCU
CHIN6132026 Chinese Conversation in Daily Activities	4
COMM6502019 Communication in Diversity	2
BUSS6170025 Asian Business Ethics	4
<b>Total SCU</b>	<b>10</b>

### 4. Interactive & Users Experience Design

#### Fundamental Courses

Course	SCU
ISYS6553003 User-Centered Research and Evaluation	4
PSYC6176027 Psychology and User Experience	4
DSIN6003007 Fundamental of Interface Design	2
<b>Total SCU</b>	<b>10</b>

### 5. Data Analytics

#### Fundamental Courses

Course	SCU
ISYS6680003 Introduction to Data Analytics	2
ISYS6681003 Data Management & Descriptive Analytics	4
STAT6198049 Statistical for Decision Making	4
<b>Total SCU</b>	<b>10</b>

### 6. Robotic Process Automation

#### Fundamental Courses

Course	SCU
COMP6857001 Basic Programming for Automation	2
COMP6858001 RPA Concept & Design	2
ISYS6684003 RPA Developer Fundamental	4
ISYS6687003 Business Process Improvement	2
<b>Total SCU</b>	<b>10</b>

### 7. Digital Transformation

#### Fundamental Courses

Course	SCU
ISYS6559003 Business Models and Technology Innovation	4
ISYS6557003 Business Data Management	4
MGMT6484005 Digital Strategy	2
<b>Total SCU</b>	<b>10</b>

## 8. Virtual Services Experience

### Fundamental Courses

Course	SCU
ISYS6561003 Fundamental of Virtual Services	2
ACCT6350020 Virtual Financial Services	4
MGMT6354005 Virtual Operation and Supply Chain	4
<b>Total SCU</b>	<b>10</b>

## 9. Culinary

### Fundamental Courses

Course	SCU
HTMN6108021 Food and Beverage Management	2
HTMN6008021 Kitchen Operation	4
HTMN6128021 Pastry and Bakery Operation	4
<b>Total SCU</b>	<b>10</b>

## 10. Metaverse in Business

### Fundamental Courses

Course	SCU
ISYS6777052 Business Model	2
COMP6889051 Virtual Reality	4
COMP6890051 Augmented reality	4
<b>Total SCU</b>	<b>10</b>

### Appendix: Free Electives (5<sup>th</sup> Semester)

No	Course Owner Department	Course Code	Course Name	SCU	Semester
1	Business Management	MGMT6400005	Supply Chain Strategy	2	5
2	Business Management	MGMT6459005	Retail Management	4	5
3	Business Management	MGMT6460005	Retail Supply Chain Management	2	5
4	Global Business Marketing	MKTG6321005	Marketing Data Analytics	4	5
5	Global Business Marketing	MKTG6322005	Sales and Customer Relationship Management	4	5
6	International Business Management	MGMT6357005	Multinational Corporation Management	4	5
7	Industrial Engineering	ISYE6067011	Global Supply Chain	2	5
8	Industrial Engineering	ISYE6165011	Supply Chain Risk & Negotiation	2	5
9	Industrial Engineering	ISYE6115011	Transportation Modeling	2	5
10	Industrial Engineering	ISYE6168011	Financial Engineering	2	5
11	Industrial Engineering	ISYE6130011	Project Management	2	5
12	Industrial Engineering	ISYE6169011	Maintenance Management Systems	2	5



No	Course Owner Department	Course Code	Course Name	SCU	Semester
13	Food Technology	FOOD6074015	Food Processing Technology II	2	5
14	Food Technology	CPEN6235015	IoT in Food Industry	2	5
15	Computer Science	COMP6800001	Human and Computer Interaction	2/1	5
16	Computer Science	COMP6586001	Embedded Systems	2	5
17	Computer Science	COMP6144001	Web Programming	2/1	5
18	Computer Science	COMP6590001	Geographical Information System	2/2	5
19	Computer Science	ISYS6197001	Business Application Development	2/2	5
20	Tourism	TRSM6142022	Event Management	4	5
21	Tourism	TRSM6218022	Adventure Tourism Management	4	5
22	Tourism	TRSM6221022	Sport Tourism	2	5
23	Tourism	BUSS6137022	Tourism E-Business	4	5
24	Tourism	MGMT6408022	Strategic Management for Tourism	2	5
25	Hotel Management	HTMN6027021	Service Management	4	5
26	Hotel Management	HTMN6146021	Food Safety Management	2	5
27	Hotel Management	HTMN6147021	Hospitality Management	4	5
28	Hotel Management	HTMN6001021	Introduction to Hospitality	4	5
29	Hotel Management	HTMN6108021	Food and Beverage Management	2	5
30	Accounting	ACCT6461020	Accounting Syariah	2	5
31	Accounting	ACCT6462020	Audit Psychology	2	5
32	Finance	FINC6189020	Introduction to Financial Market and Fin-Tech	2	5
33	Data Science	DTSC6006001	Machine Learning	2/1	5
34	Mobile Application & Technology	MOBI6068001	Web Design	2	5
35	Mobile Application & Technology	MOBI6070001	Embedded System and Internet of Things	3	5
36	Mobile Application & Technology	MOBI6059001	Mobile Programming	2	5
37	Statistics	STAT6157049	Data Mining and Visualization	2	5
38	Information Systems	ISYS6196003	Business Analytics	2	5
39	Information Systems	ISYS6289003	Collaborative Computing	4	5
40	Information Systems	ISYS6402003	Business Analytics	2/2	5
41	Business Information Technology	ISYS6579003	Knowledge-Based AI: Cognitive Systems	4	5
42	International Relations	INTR6151029	Regional Integration in Europe	2	5
43	International Relations	INTR6152029	Regional Integration in America	2	5
44	International Relations	INTR6153029	Regional Integration in East Asia	2	5
45	International Relations	INTR6154029	Regional Integration in Africa and Middle East	2	5
46	Chinese Literature	CHIN6157026	Chinese Business for Etiquette (Beginner)	4	5
47	Chinese Literature	CHIN6158026	Chinese Business in Daily Communication	4	5
48	Chinese Literature	CHIN6159026	Chinese Character Writing	2	5
49	Business Law	LAWS6110028	Cyber Law	2	5
50	Business Law	LAWS6159028	Legal Aspect in Business	2	5
51	Business Law	LAWS6170028	Investment Law	2	5
52	Business Law	LAWS6174028	Contract & Legislative Drafting	2	5
53	Business Law	LAWS6176028	Tax Law	2	5
54	Psychology	PSYC6130027	Human Performance Technology	4	5

No	Course Owner Department	Course Code	Course Name	SCU	Semester
55	Psychology	PSYC6191027	E-Learning Psychology	4	5
56	Japanese Literature	JAPN6151025	Reflection of Japanese Experience (Nihon Keiken no Han'ei)	2	5
57	Japanese Literature	JAPN6162025	Japanese Literary Criticism (Nihon Bungaku Hyouron)	2	5
58	Japanese Literature	JAPN6111025	Introductory Japanese I	4	5
59	Japanese Literature	JAPN6145025	Japanese Grammar I (Bunpou I)	4	5
60	Japanese Literature	JAPN6148025	Japanese Letter I (Kanji I)	2	5
61	Japanese Literature	JAPN6149025	Reading Comprehension I (Dokkai I)	2	5

### Enrichment Program I (6<sup>th</sup> Semester) & Enrichment Program II (7<sup>th</sup> Semester):

-) Student will take one of enrichment program tracks (off campus). See enrichment appendix for the tracks detail.

### Enrichment Track Scheme

Semester 6								Semester 7							
Track	IN	RS	EN	CD	SA	IS	etc	IN	RS	EN	CD	SA	IS	FS	etc
1	v							v							
2		v						v							
3				v				v							
4					v			v							
5						v		v							
6	v													v	
7		v												v	
8				v										v	
9					v									v	
10						v								v	
11	v								v						
12		v							v						
13				v					v						
14					v				v						
15						v			v						
16	v											v			
17		v										v			
18				v								v			
19					v							v			
20						v						v			
21	v												v		
22		v											v		
23				v									v		
24					v								v		
25			v							v					

#### Note:

IN	: Certified Internship	SA	: Certified Study Abroad
RS	: Certified Research	IS	: Certified Specific Independent Study
EN	: Certified Entrepreneurship	FS	: Further Study
CD	: Certified Community Development	etc	: Study Program Special Purposes

#### Description:

Student will take one of enrichment program tracks

### Certified Internship Track

Code	Course Name	SCU	Total
<b>Enrichment Program I</b>			20
ISYE6208011	Industrial Practice I	8	
ISYE6210011	Engineering Ethics and Competence I	8	
ISYE6212011	EES in Industrial Engineering I	4	
<b>Enrichment Program II</b>			20
ISYE6209011	Industrial Practice II	8	
ISYE6211011	Engineering Ethics and Competence II	8	
ISYE6213011	EES in Industrial Engineering II	4	

### Certified Entrepreneurship Track

Code	Course Name	SCU	Total
<b>Enrichment Program I</b>			20
ENPR6214011	New Venture Industrial Initiation	8	
ENPR6215011	Industrial Product Development Process	8	
ENPR6216011	EES in New Industrial Business I	4	
<b>Enrichment Program II</b>			20
ENPR6218011	Industrial Product Launching	8	
ENPR6219011	Industrial Business Development	8	
ENPR6217011	EES in New Industrial Business II	4	

### Certified Research Track

Code	Course Name	SCU	Total
<b>Enrichment Program I</b>			20
RSCH6701011	Research Experience I	8	
RSCH6703011	Scientific Writing in Industrial Engineering I	8	
RSCH6705011	Global EES in Industrial Engineering I	4	
<b>Enrichment Program II</b>			20
RSCH6702011	Research Experience II	8	
RSCH6704011	Scientific Writing in Industrial Engineering II	8	
RSCH6706011	Global EES in Industrial Engineering II	4	

### Certified Community Development Track

Code	Course Name	SCU	Total
<b>Enrichment Program I</b>			20
CMDV6459011	Community Outreach Project Implementation I	8	
CMDV6461011	Design Project I	8	
CMDV6463011	Employability and Entrepreneurial Skills in Industrial Engineering I	4	

**Certified Study Abroad Track**

Code	Course Name	SCU	Total
Elective courses list for study abroad*			20
Enrichment Program I			
GLOB6005011	Elective Course for Study Abroad 1	4	
GLOB6006011	Elective Course for Study Abroad 2	4	
GLOB6007011	Elective Course for Study Abroad 3	4	
GLOB6008011	Elective Course for Study Abroad 4	4	
GLOB6009011	Elective Course for Study Abroad 5	2	
GLOB6010011	Elective Course for Study Abroad 6	2	
GLOB6011011	Elective Course for Study Abroad 7	2	
GLOB6012011	Elective Course for Study Abroad 8	2	
GLOB6013011	Elective Course for Study Abroad 9	2	
GLOB6014011	Elective Course for Study Abroad 10	2	
GLOB6015011	Elective Course for Study Abroad 11	2	
GLOB6016011	Elective Course for Study Abroad 12	2	
GLOB6249011	Elective Course for Study Abroad 27	3	
GLOB6250011	Elective Course for Study Abroad 28	3	
GLOB6251011	Elective Course for Study Abroad 29	4	
Enrichment Program II			20
GLOB6017011	Elective Course for Study Abroad 13	4	
GLOB6018011	Elective Course for Study Abroad 14	4	
GLOB6019011	Elective Course for Study Abroad 15	4	
GLOB6020011	Elective Course for Study Abroad 16	4	
GLOB6021011	Elective Course for Study Abroad 17	2	
GLOB6022011	Elective Course for Study Abroad 18	2	
GLOB6023011	Elective Course for Study Abroad 19	2	
GLOB6024011	Elective Course for Study Abroad 20	2	
GLOB6025011	Elective Course for Study Abroad 21	2	
GLOB6026011	Elective Course for Study Abroad 22	2	
GLOB6027011	Elective Course for Study Abroad 23	2	
GLOB6028011	Elective Course for Study Abroad 24	2	
GLOB6041011	Elective Course for Study Abroad 25	3	
GLOB6252011	Elective Course for Study Abroad 30	3	
GLOB6253011	Elective Course for Study Abroad 31	4	

\*) Transferred courses will be transferred based on credit transfer policies on study program with total of 20 credits.

**Certified Specific Independent Study**

Code	Course Name	SCU	Total
Elective courses list for certified specific independent study*			20
Enrichment Program I/II			
CSIS6001011	Course Certification	3	
CSIS6002011	Technical Skill Enrichment	4	
CSIS6003011	Industrial Project	9	
CSIS6004011	Soft Skill Enrichment	4	
CSIS6005011	Elective Course for Specific Independent Study 1	8	
CSIS6006011	Elective Course for Specific Independent Study 2	8	
CSIS6007011	Elective Course for Specific Independent Study 3	6	
CSIS6008011	Elective Course for Specific Independent Study 4	6	
CSIS6009011	Elective Course for Specific Independent Study 5	6	
CSIS6010011	Elective Course for Specific Independent Study 6	5	
CSIS6011011	Elective Course for Specific Independent Study 7	5	
CSIS6012011	Elective Course for Specific Independent Study 8	5	
CSIS6013011	Elective Course for Specific Independent Study 9	5	
CSIS6014011	Elective Course for Specific Independent Study 10	4	
CSIS6015011	Elective Course for Specific Independent Study 11	4	
CSIS6016011	Elective Course for Specific Independent Study 12	4	
CSIS6017011	Elective Course for Specific Independent Study 13	4	
CSIS6018011	Elective Course for Specific Independent Study 14	4	
CSIS6019011	Elective Course for Specific Independent Study 15	3	
CSIS6020011	Elective Course for Specific Independent Study 16	3	
CSIS6021011	Elective Course for Specific Independent Study 17	3	
CSIS6022011	Elective Course for Specific Independent Study 18	3	
CSIS6023011	Elective Course for Specific Independent Study 19	3	
CSIS6024011	Elective Course for Specific Independent Study 20	3	
CSIS6025011	Elective Course for Specific Independent Study 21	2	
CSIS6026011	Elective Course for Specific Independent Study 22	2	
CSIS6027011	Elective Course for Specific Independent Study 23	2	
CSIS6028011	Elective Course for Specific Independent Study 24	2	
CSIS6029011	Elective Course for Specific Independent Study 25	2	
CSIS6030011	Elective Course for Specific Independent Study 26	2	
CSIS6031011	Elective Course for Specific Independent Study 27	2	
CSIS6032011	Elective Course for Specific Independent Study 28	2	
CSIS6033011	Elective Course for Specific Independent Study 29	1	
CSIS6034011	Elective Course for Specific Independent Study 30	1	
CSIS6035011	Elective Course for Specific Independent Study 31	1	
CSIS6036011	Elective Course for Specific Independent Study 32	1	

\*) For students who take BINUS certified specific independent study courses, they should take the first 4 courses on the list above (20 credits). Meanwhile, electives courses 1 to 32 are transferred courses for students who take certified specific independent study outside BINUS University. Transferred courses will be transferred based on credit transfer policies on study program with total of 20 credits.

## Further Study Track

For students who take the Master of Industrial Engineering Study Program through the Enrichment Further Study track, the courses that have been taken in semester 1 can be equivalent to the following courses

Code	Course Name	SCU	Total
<b>Enrichment Program II</b>			20
ISYE6227011	Engineering System and Optimization	6	
ISYE6228011	System Simulation and Modeling	6	
ISYE6226011	Industrial Design Project	8	

For students who take the Master of Management Study Program (Stream Business Management) through the Enrichment Further Study track, the courses that have been taken in semester 1 can be equivalent to the following courses:

Code	Course Name	SCU	Total
<b>Enrichment Program II</b>			20
ENTR6561011	Design Thinking for Innovation	4	
MKTG6299011	Business Negotiation	4	
MKTG6300011	Marketing Strategy	4	
STAT6212011	Statistics for Engineers	4	
MGMT6420011	Human Resources Management Strategy	4	

For students who take the Master of Management Study Program (Stream Creative Marketing) through the Enrichment Further Study track, the courses that have been taken in semester 1 can be equivalent to the following courses:

Code	Course Name	SCU	Total
<b>Enrichment Program II</b>			20
ENTR6561011	Design Thinking for Innovation	4	
MKTG6299011	Business Negotiation	4	
MKTG6300011	Marketing Strategy	4	
ACCT6474011	Accounting and Finance for Engineers	4	
MGMT6420011	Human Resources Management Strategy	4	

**The Table of Prerequisite for Management Program**

Course		SCU	Sem	Course Prerequisite		SCU	Sem
MATH6019011	Calculus III	4	3	MATH6014011	Calculus I	4	1
ISYE6207011	Stochastic Processes	2	4	STAT6003011	Probability Theory	2	2
ISYE6186011	Production & Operation Analysis	3/1	4	ISYE6123011	Deterministic Optimization	3	3
ISYE6125011	Quality Engineering	3	5	STAT6172011	Applied Statistics	2	3

**Student should pass all of these quality controlled courses as listed below:**

No.	Course Code	Course Name	Minimal Grade
1.	CHAR6013011	Character Building: Pancasila	B
2.	ISYE6157011	Human-Integrated Systems	C
3.	ISYE6123011	Deterministic Optimization*	C
4.	ISYE6186011	Production & Operation Analysis*	C
5.	ISYE6300011	Facility Planning and Safety Engineering	C
6.	ISYE6041011	Engineering Economy	C
7.	ISYE6125011	Quality Engineering*	C
8.	ENTR6511001	Entrepreneurship: Market Validation	C

\*) Tutorial & Multipaper