

## Industrial Engineering

### Introduction

Industrial engineering is a branch of engineering that focuses on describing, evaluating, designing, modifying, controlling, and improving the performance of integrated systems involving people, materials, and technology within their relevant context and over time. It combines fundamental knowledge in mathematics, physical, and engineering sciences with the principles and methods of engineering analysis and design. This field recognizes the central role of human beings in the complexity of such systems. With globalization increasing opportunities for service industries worldwide, there is a growing demand for industrial engineers. The industrial engineering curriculum at BINUS UNIVERSITY is designed to adapt to the globalization movement and meet the globalized world's needs.

The study program focuses on applying engineering fundamentals with an equal emphasis on theory, design, and practical experience. Computer applications are integrated throughout the curriculum. The Industrial Engineering department offers flexibility to students through three tracks: Supply Chain Engineering, Service Systems Engineering, and Manufacturing Systems Engineering. Some core courses require students to understand theoretical concepts and how to implement them in time study analysis. The Industrial Engineering facilities are well-equipped for engineering graphics, industrial engineering systems design, and human performance. Students have access to various laboratories such as the Physics Lab, Manufacturing Process Lab, Technical Drawing Lab, Simulation Lab, Work Design, and Ergonomics Laboratory.

### 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 work industrial engineers are doing are but not limited to:

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

## Curriculum

The Industrial Engineering Program focuses on the design, modification, control, and improvement of complex systems. Therefore, a strong foundation in mathematics and computer science is essential for modeling and solving these systems. The curriculum is structured to ensure that students master various scientific fields, including 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 <sup>2</sup>	2/1	
	SCIE6088011	Biology	2	
	ISYE6245011	Industrial Economy and Accounting	2	
	<b>Foreign Language Courses</b>			
2	CHAR6014011	Character Building: Kewarganegaraan	2	20
	SCIE6061011	Physics II	4/1	
	MATH6016011	Calculus II	4	
	COSC6011011	Foundations of Artificial Intelligence	2	
	STAT6003011	Probability Theory	2	
	ISYE6181011	System Engineering & Analysis <sup>2</sup>	2	
	ISYE6157011	Human-Integrated Systems ( <b>AOL</b> )	2/1	
	<b>Foreign Language Courses</b>			
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 <sup>1&amp;2</sup> ( <b>AOL</b> )	3	
	LANG6027011	Indonesian	2	
<b>Foreign Language Courses</b>			0	
4	ISYE6207011	Stochastic Processes ( <b>AOL &amp; AIE</b> )	2	20
	ENPR6311001	Creativity and Innovation	2	
	ISYE6041011	Engineering Economy <sup>2</sup> ( <b>AOL</b> )	2	
	ISYE6186011	Production & Operation Analysis <sup>2</sup> ( <b>AOL &amp; AIE</b> )	3/1	
	ISYE6113011	Leadership & Organizational Behavior <sup>1&amp;2</sup> ( <b>AOL</b> )	2	
	ISYE6300011	Facility Planning and Safety Engineering ( <b>AOL &amp; AIE</b> )	4	
	ISYE6182011	Supply Chain: Logistics <sup>1</sup>	2	
	ISYE6248011	Industry 4.0 and Implementation	2	
<b>Foreign Language Courses</b>			0	
5	ENPR6312001	Venture Creation	2	20
	ISYE6163011	Research Methodology	2	
	ISYE6125011	Quality Engineering <sup>2</sup> ( <b>AOL &amp; AIE</b> )	3	
	ISYE6185011	Systems Simulation <sup>2</sup> ( <b>AOL</b> )	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<sup>3</sup></b>			
	ISYE6067011	Global Supply Chain <sup>1</sup>	2	
	ISYE6165011	Supply Chain Risk & Negotiation	2	
	ISYE6115011	Transportation Modeling	2	
	<b>Elective Service Systems Engineering Courses<sup>3</sup></b>			
	MKTG6128011	Market Research	2	
	ISYE6167011	Decision Support System	2	
	ISYE6168011	Financial Engineering <sup>1</sup>	2	
	<b>Elective Manufacturing Systems Courses<sup>3</sup></b>			
	ISYE6130011	Project Management	2	
	ISYE6169011	Maintenance Management Systems	2	
	ISYE6170011	Sustainable Engineering Systems <sup>1</sup>	2	
	<b>Streaming: Industrial Digital Transformation<sup>4</sup></b>			
	ISYE6305054	Digital Transformation Strategies <sup>1&amp;2</sup>	3	
	ISYE6315054	Data Science: Machine Learning	2/1	
	ISYE6314054	Database & Warehousing System	3/1	
	<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>				

1) This course is delivered in English

2) Global Learning System Course

3) Students will choose 1 course (2 credits) of elective track course based on preferred track. The elective courses are available for students who choose streaming program in Binus Greater Jakarta

4) Conducted for student mobility program in BINUS @Semarang The detail of mobility, including streaming name and course information, may be subject to change at any time depending on the curriculum requirements of each campus. Students will be informed about any updates to mobility streaming during the registration period. Students are required to choose one of the Streaming or Minor Program or Free Electives. For Free Electives, students are required to choose from the list of Free Electives in Appendix.

-) **AOL** - Assurance of Learning Process System

-) **AIE** - Artificial Intelligence Embedded Course

**Streaming/Minor/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.

**Foreign Language Courses:**

Students will take foreign language courses according to Beelingua Placement Test results. See foreign language courses appendix for the details. Students must pass with a minimum Grade of C.

**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 are personalized courses that can be taken by the students according to their own pace from semester 1 until semester 4 or before they take enrichment. The courses are available at BINUSMAYA – Beelingua. Students must pass with a minimum Grade of C.

The following are the provisions of the courses that must be taken by students:

Foreign Language Courses		SCU
ENGL6253011	English for Frontrunners	0
ENGL6254011	English for Independent Users	0
ENGL6255011	English for Professionals	0
JAPN6190011	Basic Japanese Language*	0
CHIN6163011	Basic Chinese Language*	0

\*) This course is optional for students

1. Students with Beelingua Placement Test score less than 60 are required to take English for Frontrunners and English for Independent Users.
2. Students with Beelingua Placement Test score between 60 and 99 are required to take English for Independent Users and English for Professionals.
3. Students with Beelingua Placement Test score greater than 99 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 5
<b>Minor @ Binus Kemanggisian</b>	
Blockchain Technology and Business	-
Creative Digital Storytelling	v
Cross Cultural Communication	v
Digital Banking	-
Digital Ecosystem	v
English for Business Professionals	v
Event Business and Entertainment	v
Human Capital in Digital Workplace	-
Interactive & Users Experience Design	v
Robotic Process Automation	v
Sustainable Development	v
<b>Minor @ Binus Alam Sutera</b>	
Digital Transformation	v

Minor Program	Semester 5
<b>Minor @ Binus Bekasi</b>	
Culinary	v
Korean Culture and Creativity	v
<b>Minor @ Binus Malang</b>	
Chinese for Career Pathways	v
English for Business Professionals	v
Digital Technopreneur	-
<b>Minor @ Binus Bandung</b>	
DesignPreneur	-
<b>Minor @ Binus Semarang</b>	
Content Creation	v
Data Analytics	v
Immersive Journey to Japanese Language and Culture	v
Metaverse in Business	v
<b>Minor @ Binus Medan</b>	
Global Business	-

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. Minor Program: Creative Digital Storytelling

### Introduction

Digital storytelling, by definition, is the process of telling a story using video, images, audio, music, geospatial applications, and any other digital media. Thus, this minor introduces the concept and skills in producing and communicating videos, images, and texts through Elis. It is interdisciplinary in its nature and relies heavily on critical and analytical thinking. It also aims to familiarize students with the technology/ tools needed to adapt a literary work to another form or vice versa. It is the minor that blend perspectives of arts with humanities to facilitate new interpretation of literary works.

### Career Options

Social Media Content Creator; Digital Storyteller; Brand Designer; Digital Storytelling News Editor; Social Media Specialist; Digital Associate; Video Editor; Content Creator; Content Creator; Scriptwriter; Fiction writers; Non-Fiction Writers; Copywriter; Social Media Specialist.

### Course Distribution

#### Fundamental Courses

Course	SCU
ENGL6274024 Approaches in Multimodal Storytelling	2
DSIN6033007 Visual Storytelling	2
ENGL6275024 Storytelling for Business	2
FILM6118009 Script Development & Pitching	4
<b>Total SCU</b>	<b>10</b>

### Additional Information

None

## 2. Minor Program: Cross Cultural Communication

### Introduction

This minor program equips students with the ability to communicate using languages and understanding cultures of foreign parties. In addition, this minor program enables students to apply intercultural awareness through both Indonesian and foreign languages and cultures.

### Career Options

Language specialist, language localization specialist, translator, interpreter, mobility consultant/staff.

### Course Distribution

#### 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>

### Additional Information

None

## 3. Minor Program: Digital Ecosystem

### Introduction

To face challenges in the era of technological disruption and the wave of the 4.0 industrial revolutions, this minor program offers foundational knowledge about the digital ecosystem in the 4.0 industrial revolutions. Through this minor program, students will be able to develop fundamental knowledge about main pillars of the digital ecosystem, such as informatics, business, and creative design. Students will also be able to combine the knowledge they gain from their respective majors with information technology to develop real solutions for society.

### Career Options

Chief technology officer, digital business strategy expert/consultant, digital solution architect, digital business strategy manager, digital operations manager.

### Course Distribution

#### Fundamental Courses

Course	SCU
COSC6196001 Immersive Technology	2
GAME6002001 Game Design	2
ISYS6549003 Digital Innovation	4
COMP6937001 Current Trends in Technology	2
<b>Total SCU</b>	<b>10</b>

### Additional Information

None

## 4. Minor Program: English for Business Professionals

### Introduction

This minor focuses on students who are interested in English in the business context. Students will learn about leadership and management, as well as language innovations in marketing and advertising. There will also be discussions on business communication issues.

### Career Options

Manager, Business practitioner, Entrepreneur, Professional employee.

## Course Distribution

### Fundamental Courses

Course		SCU
ENGL6154024	English for Business Communications	4
MKTG6112024	Language Innovations in Marketing and Advertising	2
ENGL6244024	Social Media Broadcasting	4
<b>Total SCU</b>		<b>10</b>

### Additional Information

None

## 5. Minor Program: Event Business and Entertainment

### Introduction

This minor program provides practical and managerial skills, as well as knowledge of business in MICE (Meeting, Incentive, Convention, Exhibition) event, sport event, and festival, enabling students to plan and conduct a successful event.

### Career Options

Professional event organizer, Professional Conference Organizer, Event Coordinator, Convention Services Supervisor, Venue Supervisor, Entertainment Supervisor, Event Promotor, Events Planner, Sporting Event Organizer, Catering Coordinator.

## Course Distribution

### Fundamental Courses

Course		SCU
HTMN6151021	Event Marketing Management	2
HTMN6152021	Catering Management	4
TRSM6232022	MICE (Meeting, Incentive, Convention, Exhibition) Management	4
<b>Total SCU</b>		<b>10</b>

### Additional Information

None

## 6. Minor Program: Interactive & Users Experience Design

### Introduction

In today's digital era, people are competing to produce the best digital products that suit the users' needs. How can we make this happen? Minor Interactive & User Experience (UX) Design is the answer. In this Minor program, students will learn about the basics of UX starting from finding, designing, and building a digital product that is in accordance with a good UX concept to ensure that the digital products produced have adopted the UX theory. In this minor program, students will study UX from 3 (three) main pillars of UX, namely Information Systems, Psychology, and Design through 6 (six) subjects that can be selected.

### Career Options

UX Researcher, UX Designer, Usability Analyst, Information Architect, Interaction Designer, Visual Designer, Content Strategies

## Course Distribution

### 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>

### Additional Information

None

## 7. Minor Program: Robotic Process Automation

### Introduction

The Robotic Process Automation minor program provides an understanding of the concept of Robotic Process Automation (RPA) in automating repetitive processes, as well as providing an understanding of how the RPA development process involving the concept of Artificial Intelligence.

### Career Options

RPA Developer, RPA Architect, RPA Business Analyst, System Analyst, Corporate Information Systems Designer, Technopreneur, IS Project Manager, IT/IS Consultant.

## Course Distribution

### 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>

### Additional Information

None

## 8. Minor Program: Sustainable Development

### Introduction

The minor program on the topic of Sustainable Development prepares students from other disciplines for careers in engineering-related fields. Students will receive enrichment in the fields of Architecture, Industrial Engineering, Civil Engineering, Computer Engineering, and Food Technology. Students also gain knowledge of the development and application of the latest technology in the engineering field, which supports sustainable development and the industrial revolution 4.0.

### Career Options

Construction Manager; Property Manager; Building Manager; Civil Engineer; Project Manager; Pre Sales and Marketing Engineer, Product Specialist, Product Development, Business Development.

## Course Distribution

### 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>

### Additional Information

None

## 9. Minor Program: Digital Transformation

### Introduction

Digital Transformation provides knowledge on how information technology can be a competitive advantage in business processes. In this minor program, students will learn about innovation in business processes, data management, and strategies that can support companies to become leaders in the digital era.

### Career Options

Business Analyst, System Analyst, Corporate Information Systems Designer, Database Administrator, Database Designer, Technopreneur, IS Project Manager, IT/IS Consultant and Auditor, Social Media professional, and Marketing Analyst.

## Course Distribution

### 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>

### Additional Information

None

## 10. Minor Program: Culinary

### Introduction

The Culinary Minor Program provides learning that focuses on Culinary, Pastry & Bakery field. The curriculum design is more of practicums, which aim to make students have the competencies required in the fields of Food Production, Pastry & Bakery and Authentic Indonesian Cuisine.

### Career Options

Entrepreneur in the field of Culinary (Resto, Café, Catering Business), Chef, Restaurant Owner/Manager.

## Course Distribution

### 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>

SCU for HTMN6008021, HTMN6128021 are practical

### Additional Information

None

## 11. Minor Program: Korean Culture and Creativity

### Introduction

This minor program provides knowledge and experience in Korean Performance and Culture. The courses will cover pop art, culture, cuisine, film, drama, music, and language. Students who have international experience, especially in Korea, will have a wide range of employment opportunities.

### Career Options

Content Creator, Performer, Creative Marketer, Event Organizer, Foodpreneur, and Advertiser working in a Korean environment.

### Course Distribution

#### Fundamental Courses

Course		SCU
HTMN6163021	Korean Cuisine and Culinary Arts	4
COMM6718019	Korean Language and Media	4
FILM6134009	Hallyu Creative Content	2
<b>Total SCU</b>		<b>10</b>

### Additional Information

None

## 12. Minor Program: Chinese for Career Pathways

### Introduction

This minor program offers a variety of courses customized to industry needs for Binus non-Chinese Literature students. With this minor program, students who do not major in Mandarin can still experience the benefits of mastering basic Mandarin, which is currently required by industries such as Hospitality, Chinese Companies, Management Banking, and Communication skills.

### Career Options

Business Administration, Translation and Interpretation, International Relations and Diplomacy, Tourism and Hospitality, Marketing and Communications.

### Course Distribution

#### Fundamental Courses

Course		SCU
CHIN6196026	Mandarin for Future Career	4
CHIN6197026	Easy Way to HSK 2 Preparation	4
CHIN6198026	Exploring Modern Chinese Culture	2
<b>Total SCU</b>		<b>10</b>

### Additional Information

Open a maximum of 2 classes per batch per semester, with each class accommodating up to 30 students.

### 13. Minor Program: Content Creation

#### Introduction

You've probably heard it by now: Content is king. But why? Those days Consumers are going online, marketing has gone digital, and content creation is more important now than ever. Content creation encapsulates copywriting, design, production and other media that provide value and connect you to your target audience. Matching search intent and providing value (to the consumer and brand) is the foundation of successful content creation. Content creators produce work on a variety of platforms including social media, blogs, podcasts, video platforms, case studies, white papers, infographics and more.

#### Career Options

Content Creator, Influencer, Social media Specialist.

#### Course Distribution

##### Fundamental Courses

Course		SCU
FILM6105009	Filmmaking Fundamental	4
MKTG6336055	Content Marketing Analytics	4
DSIN6042053	Photography for Creators	2
<b>Total SCU</b>		<b>10</b>

#### Additional Information

None

### 14. Minor Program: Data Analytics

#### Introduction

The Data Analytics minor program provides insight into acquisitions and analysis of data in organizations by using critical thinking from multiple strategic perspectives, including consumer behavior communicated in the form of visualizations/models that can support retrieval decision.

#### Career Options

Data Analyst, Marketing Analyst.

#### Course Distribution

##### Fundamental Courses

Course		SCU
INFS6066052	Introduction to Data Analytics	2
INFS6067052	Data Management & Descriptive Analytics	4
ISYE6371054	Statistical for Decision Making	4
<b>Total SCU</b>		<b>10</b>

#### Additional Information

None

## 15. Minor Program: Immersive Journey to Japanese Language and Culture

### Introduction

Immersive Journey to Japanese Language and Culture Minor program is focused on the basic learning of the Japanese language (equivalent to N5 or corresponding to CEFR levels A1 to A2). This includes an understanding of Japanese characters (Hiragana, Katakana, basic Kanji) and grammar. Additionally, it encompasses the comprehension of reading and listening skills in Japanese, covering vocabulary, phrases, and simple sentences. This program also includes the development of basic writing and speaking skills in Japanese.

Upon completion of this minor, students will be prepared to read Japanese written in Hiragana, Katakana, and basic Kanji, as well as understand everyday conversations in the Japanese language. Subsequently, students will be equipped to engage in basic-level Japanese speaking and writing.

The outcomes of this minor, built upon a foundation of basic Japanese language proficiency, will benefit students who plan to study abroad in Japan, travel to Japan, or pursue interests and hobbies related to Japan.

### Career Options

Working in Japan, either in Indonesia or Japan, in the following fields as Consultant, Front Office, Tour Guide, Secretary, Finance, HR, Industry Creative (Content creator, dubber, cosplayer).

### Course Distribution

#### Fundamental Courses

Course		SCU
JAPN6221025	Essential Japanese Grammar ( <i>Yoku Tsukaeru Bunpou</i> )	4
JAPN6222025	Survival Japanese in Various Situations ( <i>Nihon E Ikou, Yasashii Kaiwa De</i> )	4
JAPN6223025	Ideas and Images of Japan ( <i>Nihon Jijou</i> )	2
<b>Total SCU</b>		<b>10</b>

### Additional Information

None

## 16. Minor Program: Metaverse in Business

### Introduction

The objective of the Metaverse in Business minor program in general is to offer a new learning experience in business innovation in the digital world. After completing the Metaverse in Business minor program, students will be able to design Virtual Reality applications so that they are able to present users in a virtual world, as if they are in another place, and develop Augmented Reality applications to present virtual effects in the real world.

### Career Options

AR/VR Designer, AR/VR Developer, AR/VR Engineer, AR/VR Researcher.

### Course Distribution

#### Fundamental Courses

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

### Additional Information

None

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

No	Course Owner Department	Course Code	Course Name	SCU	Semester
1	Statistics	STAT6157049	Data Mining and Visualization	2	5
2	Psychology	PSYC6191027	E-Learning Psychology	4	5
3	Information Systems	ISYS6596003	User Experience Research and Design	4/2	5
4	Information Systems	ISYS6893003	Information Systems Analysis and Design	4/2	5
5	Industrial Engineering	ISYE6067011	Global Supply Chain	2	5
6	Industrial Engineering	ISYE6165011	Supply Chain Risk & Negotiation	2	5
7	Industrial Engineering	ISYE6115011	Transportation Modeling	2	5
8	Industrial Engineering	ISYE6168011	Financial Engineering	2	5
9	Industrial Engineering	ISYE6130011	Project Management	2	5
10	Industrial Engineering	ISYE6169011	Maintenance Management Systems	2	5
11	Global Business Marketing	MKTG6321005	Marketing Data Analytics	4	5
12	Global Business Marketing	MKTG6322005	Sales and Customer Relationship Management	4	5
13	Global Business Marketing	MKTG6631005	Marketing Research	3/1	5
14	Global Business Marketing	MGMT6358005	Managing Business Information	2/2	5
15	Data Science	DTSC6014001	Machine Learning	2	5
16	Cyber Security	COMP6542001	Computer Security Fundamental	2	5
17	Computer Science	COSC6108001	Mobile Programming	2	5
18	Computer Science	COMP6800001	Human and Computer Interaction	2/1	5
19	Computer Science	COMP6586001	Embedded Systems	2	5
20	Computer Science	COMP6590001	Geographical Information System	2/2	5
21	Computer Engineering	CPEN6232010	Cloud Technology Practice	2	5
22	Computer Engineering	CPEN6236010	PLC Programming for Industrial Automation	2	5
23	Civil Engineering	CIVL6030013	Environmental Engineering	2	5
24	Business Management	MGMT6400005	Supply Chain Strategy	2	5
25	Business Management	MGMT6459005	Retail Management	4	5
26	Business Management	MGMT6460005	Retail Supply Chain Management	2	5
27	Business Management	MKTG6324005	Retail Marketing Management	2	5
28	Business Law	LAWS6110028	Cyber Law	2	5
29	Business Law	LAWS6159028	Legal Aspect in Business	2	5
30	Business Law	LAWS6174028	Contract & Legislative Drafting	2	5
31	Business Law	LAWS6176028	Tax Law	2	5
32	Japanese Literature	JAPN6151025	Reflection of Japanese Experience (Nihon Keiken no Han'ei)	2	5
33	Japanese Literature	JAPN6162025	Japanese Literary Criticism (Nihon Bungaku Hyouron)	2	5
34	Japanese Literature	JAPN6111025	Introductory Japanese I	4	5
35	Business Information Technology	ISYS6579003	Knowledge-Based AI: Cognitive Systems	4	5

36	Business Creation	ENPR6142005	Digital Business Transformation	4	5
37	Business Creation	ENPR6106005	Product Design & Branding	2	5
38	Business Creation	ENPR6107005	Business Communication & Strategy	4	5
39	Architecture	ARCH6145014	Property Assessment	2	5
40	Architecture	ARCH6146014	Interior Architecture	4	5
41	Architecture	ARCH6128014	Multimedia in Design Presentation	4	5
42	Accounting	ACCT6461020	Accounting Syariah	2	5
43	Accounting	ACCT6462020	Audit Psychology	2	5
44	Biotechnology	BTEC6015056	Plant Biotechnology	2/2	5
45	Biotechnology	BTEC6020056	Current Issue in Biotechnology	2	5
46	Biotechnology	BTEC6038056	Bio-design Process	2	5
47	Chinese Literature	CHIN6157026	Chinese Business for Etiquette (Beginner)	4	5
48	Chinese Literature	CHIN6158026	Chinese Business in Daily Communication	4	5
49	Chinese Literature	CHIN6159026	Chinese Character Writing	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**

Track	Semester 6							Semester 7							
	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		

Track	Semester 6							Semester 7							
	IN	RS	EN	CD	SA	IS	etc	IN	RS	EN	CD	SA	IS	FS	etc
22		v											v		
23				v									v		
24					v								v		
25			v							v					

**Note:**

IN	: Company Internship	SA	: Study Abroad
RS	: Research Fellowship	IS	: Specific Independent Study
EN	: Entrepreneurship	FS	: Fast Track
CD	: Community Impact Internship	etc	: Study Program Special Purposes

**Description:**

Student will take one of enrichment program tracks

**Company Internship Track**

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

**Research Fellowship Track**

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

**Entrepreneurship Track**

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

Code	Course Name	SCU	Total
ENPR6217011	EES in New Industrial Business II	4	

### Community Impact Internship 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	

### Study Abroad Track

Code	Course Name	SCU	Total
<b>Elective courses list for study abroad*</b>			20
<b>Enrichment Program I</b>			
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	
<b>Enrichment Program II</b>			
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	

Code	Course Name	SCU	Total
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.

### Specific Independent Study

Code	Course Name	SCU	Total
<b>Elective courses list for specific independent study*</b>			20
<b>Enrichment Program I/II</b>			
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	

Code	Course Name	SCU	Total
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 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 specific independent study outside BINUS University. Transferred courses will be transferred based on credit transfer policies on study program with total of 20 credits.*

### Fast Track Track

Students will receive information about Further Study Track Courses during the registration period.

### The Table of Prerequisite for Industrial Engineering Program

Course	SCU	Sem	Course Prerequisite	SCU	Sem
MATH6019011	4	3	MATH6014011	4	1
ISYE6207011	2	4	STAT6003011	2	2
ISYE6186011	3/1	4	ISYE6123011	3	3
ISYE6125011	3	5	STAT6172011	2	3

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

	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